EFFICACY OF IMAGERY RESCRPITING ON PUBLIC SPEAKING ANXIETY IN COLLEGE STUDENTS

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DEDICATION

In the name of **Allah Almighty**, the Most Gracious and the Most Merciful, whose infinite blessings, guidance, and strength have enabled me to reach this milestone. It is only by His will and mercy that I have been able to complete this thesis successfully. This thesis is dedicated to my beloved parents, whose unconditional love, countless sacrifices, and endless prayers have been the foundation of my strength. Throughout every stage of my life, their guidance, encouragement, and unwavering belief in me have inspired me to pursue my goals with determination. Their support has not only shaped my character but has also given me the courage to overcome challenges and remain steadfast in my journey. Without their love and prayers, this achievement would not have been possible, and for that, I remain forever grateful.

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LIST OF ABBREVIATIONS

Abbreviation	Full Form
PSA	Public Speaking Anxiety
PSAS	Public Speaking Anxiety Scale
IR	Imagery Rescripting
SPSS	Statistical Package for the Social Sciences

List of symbols

Symbols	Description
M	Mean / Mediator (Distraction)
SD	Standard Deviation
K	Number of items
α	Reliability
f	Frequency
%	Percentage
Neg	Negative Ranks
Pos	Positive Ranks
Ties	Cases where pre-test and post-test scores were **equal**
N	Number of participants,
Z	Z-score from the statistical test

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Abstract

Public speaking anxiety (PSA) is the most common type of social anxiety disorders in college students and may negatively affect academic achievements, self-efficacy, and the ability to communicate with peers and Imagery Rescripting is a cognitive behavioral imagery technique designed to help individuals revisit and modify distressing memories or mental images connected to earlier negative experiences of public speaking control. This process aimed to transform maladaptive self imagery into positive and empowering representations, thereby reducing cognitive, behavioral, and physiological symptoms of anxiety. The purpose of the present study was to identify the efficacy of the imagery rescripting method on decreasing PSA, to understand the difference between the genders in anxiety levels, and compare the pre-test and post-test drawing upon experimental and control groups. There were 30 participants of college age (16-20 years) randomly given to an experiment group (n=15) who got imagery rescripting sessions compared to a control group (n = 15) were wait listed. At pre-test and post-test the Public Speaking Anxiety Scale (PSAS) was administered. The outcomes of MannWhitney U tests proved that there was no meaningful difference between groups in pre-test. But in the experimental group, there was a significant decrease in overall PSA and subscales cognitive anxiety, behavioral anxiety, and physiological anxiety at the post-test, when compared with the control group. Reasonable post-test reductions in all anxiety dimensions were confirmed using within group tests Wilcoxon signed rank tests. It is concluded that the imagery rescripting as a prospective practice that is quick and saves time in reducing PSA among young adults.

Key points: Public speaking Anxiety, Imagery Rescripting, Experimental and Control group**,** Pre and Post test.

Chapter I

Introduction

The academic, social and personal life of college students is already in transition, and, therefore, they are more exposed to all kinds of psychological problems (Rashid et al., 2025). Most of them claim to experience more stress, anxiety, and lack of confidence as they have to meet the demands of school, difficulties with employment, and identity transformation (Guo et al., 2025). One of the most common and underestimated problems is public speaking anxiety (PSA), which is a kind of social anxiety that has a strong negative impact on academic performance and confidence of students, especially when the situation necessitates the verbal connection (Hrsbeckova et al., 2024). Yassin et al. (2025) correlate PSA with poor self-perceptions, avoidance behaviors that extend into the work environment and outside the classroom and anxiety of getting a poor grade.

Public speaking anxiety (PSA) has recently been described as one of the most common psychological barriers that deny students the ability to communicate effectively both in classroom and professional settings (Spence et al., 2019). The outcomes of this anxiety include avoidance behaviors, poor academic performance and the inability to speak before a gathering of people. To enhance the confidence and transform negative self-perceptions, imagery rescripting has become an appealing methodology of the many psychological treatments tested to respond to the public speaking anxiety (Nilsson et al., 2020).

As reported, Public speaking anxiety a common problem and up to 75 percent of the students have some level of the public speaking anxiety which makes it one of the most

reported psychological terrors of students (World Metrics, 2025; Bodie, 2010; McCroskey, 2017; American Psychological Association, 2023). The fear of public speaking among peers is more decisive than fears of failing or getting injured to many people (Spence et al., 2019). Not only does the anxiety damage the academic performance but it also impacts the social aspects and career choices in the future, and particularly, when these jobs demand the skills of an effective communicator (Belyaeva, 2022).

Moreover, to battle the problem of resilience, emotional control, and the development of communication skills in college students, a highly concentrated intervention is required since the incidence of public speaking anxiety is high and it is associated with significant negative consequences (Ibrahim et al., 2013). Since numerous factors cause the sense of anxiety during public speaking, having the negative self imagery, which is often made even more severe when it comes to performing actions that could be speech related, must be considered one of the most significant ones (Li, 2020).

The feeling of insufficient linguistic means, including their vocabulary and inability to use words in sentences, makes the anxiety level of non-native speakers specifically rise (Nangimah, 2022). Social comparison anxieties and fear of peer judgment make the situation even worse in educational environments (Gebre, 2024). Research shows that the prevalence of PSA among the general population is 15-30 percent, but among students aged 18-25, it is quite high (Fathikasari et al., 2022). Social backgrounds, as well as gender inequalities, have also been identified to mediate the anxiety levels in an academic setting (Belyaeva, 2022).

Imagery Rescripting (ImRs) is the cognitive-intervention strategy that is intended to reduce the feelings of emotional pain by changing negative self images and improving autobiographical memories (Hackmann et al., 2019). Compared to the traditional CBT methods, ImRs focuses on the emotional colorfulness of mental images that maintain anxiety, more so, the ones that are founded on adverse past memories (Arntz, 2012). The process involves assisting individuals to experience again and retell painful experiences or events with a new narrative and replace negative images with other coping skills (Hermans, 2016).

It has been represented that ImRs is effective in treating numerous problems associated with anxiety, like PTSD and social phobia, but its utilization in the management of anxiety among college students due to the fear of public presentation remains poorly researched (Nilsson et al., 2020). ImRs has the advantage that it is able to appeal to the emotional content of the fearful images, an interface that other CBT procedures themselves fail to make (Hackmann et al., 2000). By changing the significance of historical events, it will provide a revised emotional experience that reduces anxiety and confidence regarding a similar situation in the future (Stavropoulos et al., 2024).

This approach has been promising in the treatment of PSA that is caused by negative experiences received in school, such as teasing by peers or the teacher (Kearns & Engelhard, 2015).Reprocessing these events enables the student to develop new and empowering narratives that improve confidence levels and reduce performance-related anxieties (Tinguy, 2022).

Although exposure therapies, cognitive restructuring, and systematic desensitization are the building blocks of PSA treatment, they are often not sufficient in dealing with the parts of autobiographical memory of anxiety (Clark & Wells, 1995). Also, many students quit these therapies because they feel insecure or not involved, a fact that implies that more engaging and emotionally immersive therapeutic instruments, such as ImRs, are required (Arntz, 2012). This is because the students can reprocess those situations by creating new and more empowering stories, which help them have a less considerable level of anxiety regarding performance and higher levels of self esteem (Tinguy, 2022).

The PSA treatment mainstays are exposure therapy, cognitive restructuring, and systematic desensitization, which do not offer a solution to the autobiographical memory features of anxiety, normally (Clark & Wells, 1995). In addition, a significant number of students drop off these treatments because of pain or lack of engagement, thus, suggesting the use of more emotionally attached and absorbing practices like ImRs (Arntz, 2012).

1.1Background:

One of the largest issues that college students face is the anxiety of speech, which often occurs due to cognitive distortions, fear of a low mark, and prior bad experience in speech (Morrison & Heimberg, 2020). This issue has been resolved through traditional cognitive-behavioral therapy (CBT), which focuses on the use of exposure and cognitive restructuring procedures (Hofmann et al., 2019). Recent studies, however, suggest that in treating self-referential imagery and emotional memory distortions in particular, imagery rescripting may offer additional benefits (Nilsson et al., 2020).

The imagery rescripting process is assisting individuals to recall unpleasant situations regarding public speaking and substitute the imagery they associate with the event with the more proactive, adaptive mental pictures. In students with a problem of public speaking, the procedure might be an effective intervention since it was shown to make people feel more confident and less anxious in the situation involving performance (McEvoy et al., 2021).

During overall learning, imagery is an effective instrument which assists pupils to communicate more efficiently their ideas and visualize the objects (Ngan&Lan, 2024). By weaving in imagery into the instruction about how to give presentations, students can come up with cognitive pictures that will increase their confidence and creativity when they approach a public speech. As it was shown, the use of visual rescripting in programs makes students feel more confident and less nervous talking in front of the audience (Orejudo et al., 2012; Chen, 2016). A study showed that the level of anxiety in pupils reduced greatly when they received interventions involving a combination of psychotherapies with speech training (Chen, 2016).

Hands-on training programs, such as the 1-minute challenge, are proved to be effective in shaping the syntax and improving the skills of public speaking by practicing and being directly involved in training (Sirajuddin & Mesfer, 2023). It help students to visualize successful presentations and improve the level of their functioning on the whole, imaging methods are often implemented in these programs (Orejudo et al., 2012; Ngan & Lan, 2024). Even though visual rescripting can also enhance the skills of public speaking, one should remember that not all students might respond similarly to the involved approaches (Stavropoulos et al., 2024). How well an imagery-based treatment will work

can be affected by how anxious an individual is and by their differences in learning styles (Kho & Ting, 2023). In order to explore these differences and introduce better training practices to different foci of students, further research is needed (Seinsche et al., 2023; Garcia et al., 2024).

1.2 Research Gap and Rationale

Although the data illustrate the effectiveness of Imagery Rescripting in treating trauma and social anxiety, the intervention remains relatively poorly studied as a specific treatment measure against PSA in students of colleges and universities (Nilsson et al., 2020). Most PSA interventions that are actively applied in higher education, such as VR exposure-based and traditional CBT (Hirsch et al., 2021; Kearns & Engelhard, 2015) are based on principles of behavioral desensitization and cognitive restructuring not of the ASD elements of emotional self-imagery, but of the experiential matrix product of it at the everyday phenomena/behavior level (Limits,, 2023).

Moreover, the current standard measures fail to handle traumatic autobiographical memories of the public speaking experience, including mockery or criticism during the presentations, which are often essential to sustaining PSA (Hermans, 2016; Stavropoulos et al., 2024).The applied therapies that rely on the visualization of memories must be evaluated empirically in this context to determine their effectiveness but, most importantly, due to the significant role that PSA plays in shaping students in terms of their academic and career choices (Stavropoulos et al., Although there is little empirical research evidence on how it may be used in academic samples, one technique aims at specific memory-related emotional triggers and flash forward issues in particular: imagery rewriting (Nilsson et al.,

2020; Hackmann et al., 2000). They are also more likely to focus on behavioral exposure than alter emotional meaning, but virtual and AR/VR technologies are opening up interesting prospects in the use of PSA interventions (Graham et al., 2025; Guardian, 2025). Side-by-side comparisons of exposure-based and imagery scripting therapies would be helpful in supporting the further development of holistic treatment methodologies of PSA as well as providing insight into which one is more efficient (Garcicia et al., 2024).

The existing approaches to explaining the public speaking anxiety (PSA) tend to concentrate on the avoidance behavior, the fear of receiving an unfavorable assessment, and cognitive distortions (Hirsch et al., 2021). Nevertheless, such models do not often consider the emotional strength of negative mental imagery, which significantly influences PSA and involves the memories of being humiliated or criticized in front of the audience (Hermans, 2016). Despite the need of PSA-specific research, flash forward imagery and vivid simulations of probable failures in the mind are gaining grounds as an important process of social anxiety (Kearns & Engelhard, 2015; Zlomke & Huppert, 2022); although still based on research findings that do not explicitly include the concept of PSA. Most importantly, Imagery Rescripting (ImRs) is capable of changing such self-created catastrophic images by reducing the anticipatory distress to improve the outcomes of therapy (Tinguy, 2022; Stavropoulos et al., 2024). ImRs can even enhance performance resiliency, which has been under-represented in existing theoretical frameworks, according to initial studies, since it can affect worry of getting a negative assessment (Seinsche et al., 2023).

In as much as imagery therapies seem to hold a lot of promise, in spheres such as language acquisition, enhancing self-efficacy and so on, the application of the therapy to treat PSA in college students particularly in culturally diverse setups is still very limited

(Ngan&Lan, 2024). The cultural norms producing PSA can be stronger in the case of collectivist societies, in which social peace and respect towards hierarchy are the priorities. That is why imagery-based interventions like ImRs are specifically valid in such cultures (Hermans, 2016; Barrett et al., 2024). Traditional performance visualization programs have proven to be promising in terms of reducing anxiety and improving performance during the act of speaking (Ayres et al., 1999); however, they have not always involved emotion-focused reprocessing approved by ImRs and this could limit the persistence of its effects (Orejudo et al., 2012).

To measured efficacy, most of the studies on ImRs rely on self-reported outcomes with minimal inclusion of behavioral measures or more physiological ones (Hackmann et al., 2019). Measures of the given objectives are usually rare when concentrating on PSA-based treatments, though recent interventions on social anxiety disorder that incorporate ImRs have also incorporated physiological measures like heart rate reactivity (Seinsche et al., 2023). Moreover, the mechanisms involving how personal differences, including cultural background, trait anxiety, and trauma history influence efficacy of ImRs have not been fully investigated (Kho & Ting, 2023). Despite some preliminary evidence that some additional strategies, such as eye movement or focus on the future during a rescripting session, can enhance the processing of emotions, the overall body of research in relation to those specific strategies is rather new (Cooper et al., 2024; Kearns & Engelhard, 2015). The studies should be sufficiently long-term to allow the acquisition of a statistically significant long-term result to determine the impact on PSA of ImRs: methodologically valid longitudinal studies are needed, which in turn must combine physiological evidence (e.g.,

heart rate variability), performance data (e.g., pulse oximetry), and qualitative reports (Nilsson et al., 2020; Stavropoulos et al., 2024).

1.3 Problem Statement

The problem is that many students of colleges are still affected with public speaking anxiety that impact their educational performance and future working perspectives. Although the traditional cognitive behavioral therapy appears promising, it may not capture the insidious effect of the negative self-image that so often lies at the root of speaking dread. Even though imagery rescripting is a possible alternative, there is no information regarding its effectiveness in increasing confidence of college students and reducing their fear towards public speaking. This study will help to bridge this gap by investigating the impact of visual rescripting on the anxiety felt when participating in public speaking. It also aims at providing empirical support toward the inclusion of imagery-based therapy in the counseling programs with students. The findings may be used to come up with more personalized and emotion-specific ways of dealing with anxiety. The final aim of the study is to enhance resilience, communicative skills and overall academic achievements of the students.

1.4 Research Questions:

- How do imagery rescripting techniques affect the anxiety of college students when it comes to public speaking?

1.5 Objectives

1. To determine the efficacy of imagery rescripting on anxiety when facing public speaking in college students.

2. To determine the efficacy of imagery rescripting in public speaking anxiety in college students by providing pre-test and post-test scores between the experimental and control group.

3. To explore the gender difference in anxiety concerning public speaking in college students.

1.6 Hypotheses

1. Public speaking anxiety in college students would be reduced after receiving imagery rescripting.

2. College students of the experimental group would have less public speaking anxiety after receiving imagery rescripting than control group.

H3: There would be significant difference between gender related to public speaking anxiety in college students.

1.7 Significance of the Study

A common condition among college students is called public speaking anxiety (PSA) that may adversely affect their academic performance, inability to collaborate with different people, as well as the possibility of employment in the future. Despite the fact that new ways of the treatment such as Imagery Rescripting (IR) represents an interesting

method that is less researched in relation to the PSA, the classic methods such as Cognitive Behavioral Therapy (CBT) proved to be effective. This study can contribute to the evolving evidence-based processes of psychological therapy in the sense that it studies the effectiveness of IR particularly in the context of the anxiety caused by public speaking.

The research is significant as it can help to reduce the distance that separates the level of development of practical skills and cognitive-emotional processing. The radical view is a new way to consider maladaptive cognitions and to reduce physiological arousal using current cognitions by focusing on emotionally distressing psychic images and memory associated with events causing anxiety. The paper contributes to the empirical evidence of the practicality and effectiveness of IR to the present world educational context in treating a group of students facing PSA.

These findings equip the educators with knowledge concerning the immediate impact of psychological well-being on classroom communication, presentation, and social interactions. The results indicate a systematic, easy-to-use practice that health professionals in the mental field could incorporate into existing treatment programs on anxiety-related disorders. The intervention will give students an effective, self-reflective tool to enhance their self-esteem, reduce avoidance behavior, and enhance their overall school performance, as well as involvement in the community.

Chapter II

Literature Review

Pressures induced by college life, social expectations of the young and developmental transitions, college students often develop a series of psychological issues (Hunt & Eisenberg, 2010). One of the most frequently occurring mental health problems in this group is an anxiety disorder and social anxiety is especially widespread (Beiter et al., 2015). Subtype of social anxiety is called public speaking anxiety, which spreads most of all among university students, usually being one of their greatest fears (Dwyer & Davidson, 2012). The condition can greatly hamper a performance in academic works, discourage the willingness to contribute in classroom activities and stall career prospects (Bodie, 2010).

According to the research, at least 15 and up to 30 percent of college students claim to be very afraid of speaking in public, and most of them have physical answers, namely, the quick pulse, perspiring, trembling, etc. (McCroskey, 2012). This anxiety is usually associated with the negative attitudes towards themselves, fear of being judged and past bad experiences in speaking (Rapee & Abbott, 2007). Academic performance is not the only aspect that persistent public speaking anxiety has an impact to, but due to lack of treatment, this condition can lead to life-long career and social restrictions (Ruscio et al., 2008).

Study showed that higher education populations report moderate prevalence rates of anxiety symptoms, with pooled estimates of non-specific anxiety symptoms in undergraduates of about a third of students (=35140%). On the one hand, that will be the scope of a (Ahmed et al., 2023). The broader figures list all the causes of the overall burden

of anxiety and this is the context in which the widespread prevalence of PSA in campuses can be explained. It is a condition with symptoms such as (Ahmed et al., 2023; Healthy Minds Network, 2023).

Research demonstrated numerous times that prevalent reports in student samples include fears of speaking in public, both classic and modern student survey studies have found about two-thirds to three-quarters of students indicating at least mild fear of public speaking. (Dwyer & Davidson, 2012; Marinho et al., 2017). The lower values of clinically significant PSA and higher values of >70 percent reporting any discomfort are found in smaller one site studies and course based studies and indicate the popularity of public-speaking fear but also that it is more or less to given the measure. The increased use of VANs has accelerated the process of purchasing virtual goods and has enhanced the security of the marketplace (Marinho et al., 2017; Lintner & Belovecova, 2024).

As investigated in schema therapy, IR can be used to change an emotionally negative and painful memory into a benign or even empowering memory (Arntz & Weertman, 1999). One of the first clinical trials was done by Wild, Hackmann and Clark (2008) because they showed that people with social phobia experienced substantial decreases in negative imagery distress and negative evaluation fears. Cognitive aspects: Holmes and Mathews (2010) also clarified the fact that vivid mental representations can result in emotional reactions that would be similar to a real experience and is the cognitive-emotional mechanism of IR.

ILsson, Lundh, and Viborg (2012) have demonstrated that a study of an early memory session of IR in social anxiety disorder patients reduced memory-related anxiety

and dysfunctional beliefs even a week after the session. Reimer and Moscovitch (2015) compared IR with exposure and supportive counseling, and they concluded that IP alone leads to an improvement in memory perceptions and the modification of core beliefs concerning those with social anxiety. In a RCT by Knutsson, Nilsson, Eriksson, and Jarlid(2020), results also show similar improvement in social anxiety symptoms between IR and traditional exposure methods providing further evidence that IR is equally effective versus exposure methods.

Morina, Lancee, and Arntz (2017) study on different aversive memory interventions and showed that IR is universal in applications on conditions related to anxiety and trauma, especially social anxiety. In a study report presented by Lee and Kwon (2013) it was found out that IR had a significant effect in reducing the symptoms of social phobia when compared to a control group that used cognitive restructuring. As recent evidence by IR significantly increased the positive or neutrally Events detail and lessened distress to socially harsh individuals, there is adequate strength in the potential therapeutic benefits of IR on the memory level (Romano, Moscovitch, Huppert, Reimer, and Moscovitch, 2020).

Seinsche et al. (2024) examined changes in emotions and heart rate variability during IR in persons with social anxiety disorder and reported that IR resulted in substantially reduced self-reported negative affect and physiological arousal. In a comparison of a single session of IR to verbal restructuring, Hyett et al. (2018) showed that the former elicited psycho-physiologically less pronounced declarations (e.g., skin conductance), which indicates that IR appears to be stronger in its effects on the body. In a 2022 study, McEvoy et al. pitted imagery enhanced CBT against the verbally based CBT

type and found better regulation of the physiological parameters in the former, further affirming such embodied effectiveness of IR.

Kroner, Maier and colleagues (2024) conducted a study to address test anxiety among university students and demonstrated modest posterior anxiety and significant improvements in self efficacy at six month follow up with IR. The feasibility and clinical improvement were also concluded in the case series studies of Frets, Kevenaar, and van der Heiden (2014), where IR was applied as a standalone treatment of social phobia, which indicates that IR is applicable in student related environments. The study by Seinsche et al. (again, different authors but same topic), which provides the same group IR delivered through telehealth, is characterized by a high degree of feasibility and symptom amelioration, which implies its possible use in campus counseling.

In a study by Landkroon, Meyerbrroker, Salemink, and Engelhard (2022), a future oriented IR was compared to no IR and resulted in the subjects having more willingness to participate in behavioral experiments after changing their fear images about the future into mastery-oriented images. In analogy, Kunze, Arntz, and Kindt (2019) tested imagined bodily future feared imagery and IR significantly reduced distress and induced elevated subjective control over aversive future events. Rescripting autobiographical memories resulted in the decreased emotional distress and increased feelings of mastery, which can also be applied to facing fears in the future by talking publicly (Strohm, Siegesleitner, Kunze, Ehring, and Wittekind, 2019).

Brewin, Gregory, Lipton and Burgess (2010) described the theoretical state of IR and explained how intrusive mental images cause distress and define therapeutic

approaches, which are applicable to the case of treating the anxiety in front of the audience. Holmes, Arntz, and Smucker (2007) provide a detailed treatment framework of IR in the context of CBT, and include some tactics that can be applied to speaking practice. Although not exclusive to IR, recent research on the effects of flash forward prospective imagery in speaking (i.e., students being asked to imagine/visualize future speaking experiences) indicates that flash forward negative mental images anticipate avoidance and elevated anxiety levels-reinforcing the necessity of interventions like IR in college public speaking (e.g., flash forward imaging in speech anxiety research).

Landkroon et al. (2022) explored the future focused IR and revealed that the transformation of the feared future images to the ones based on the mastery boosted the willingness to engage in the behavioral experiments significantly. The same positive prospective imagery intervention demonstrated the decline of distress and negative beliefs in persons with fear of public speaking and led to the increase of anticipatory coping.

The study by Ovanessian et al. (2019) compared written exposure and written exposure with rescripting in regard to generalized anxiety and concluded that the second one produced better results as far as symptom severity reduction is concerned. In the study by Wild, Hackmann, and Clark (2011), an effective IR procedure on the early traumatic memories in social phobia was described as, cognitive restructuring followed by corresponding imagery stages, where the effects were seen to last till 6 months later.

Thunnissen and colleagues (2024; review) conducted a study that examined imagery interventions involving IR in symptoms and disorders related to social anxiety. However, it is still applicable despite being specific to college-only samples since it

establishes that imagery interventions should reduce fear of negative evaluation, and performance anxiety underlying the use of IM, on the back of the catastrophic mental pictures.

The Imager Rescripting, delivered in a group based form, as in the case of SAD perception cognitive behavioral therapy in Reinsche et al. (2022) showed outcomes of minimizing belief negativity and increasing emotional valence among all participants. When employed in college workshop settings, this type of group IR can encourage social learning and peer guidance and address triggers of anxiety about giving a speech in front of the audience. Macdonald et al. (2024) derived a self led VR platform of public speaking, which was applied by adolescents and students. One 30 minutes of overexposure later users experienced a 31 % to 79 % confidence jump, and one week of self directed practice led to increases in preparedness and enjoyment of speaking indicating that VR platforms have potential to enhance IR style mental rehearsal.

Prinz et al. (2019) examined a five-session CBT intervention and included one IR module over the inclusion of relaxation and guided self-help in CBT on test-anxious students. Every group showed enhancement, but quantitatively comparable results indicate that IR can equally be effective and acceptable in intervention of academic anxiety among students. Maier et al. (2020) conducted a short IR intervention study that was limited to university students with test anxiety by discussing the prospective failure imagery instead of retrospective memories. This study indicated high and significant decreases in test anxiety at 2, 4, and 6 weeks after intervention (Cohen s d =.75-84) with acceptable rates of acceptability among the students.

Speaking anxiety and the level of rehearsal could also be lessened by placing IR scripts prior to AR tasks. The article by Zheng & Huang (2023) presented research findings on internationally located university students that examined how self clones generated by AI affect the presentation skills. Although not a form of IR, self cloning participants who used their videos showed an improvement in speech anxiety levels, increased self compassion and more depth of reflection that suggests that digitally augmented self visualization can lead to a cognitive affective shifting that is congruent with IR processes.

The work of Maier et al. (2021) surveyed self efficacy and intrusive imagery in university students with an anxiety disorder involving a test, the level of imagery vividness predicted the intensity of anxiety, and the extensive effects of interventions on these images (e.g. IR) could break the chain of these predictions in student populations.

Theoretical framework

2.1.1 Cognitive Theory of Emotional Disorders

Cognitive Theory of Emotional Disorders (Beck, 1976), of which one of the basic theoretical assumptions behind imagery rescripting (IR) in PSA, is based on the assumptions that dysfunctional core beliefs and automatic thoughts are the activities behind anxiety inductions. These distortions in PSA, e.g. the beliefs that one will shame oneself, that people will think that one is incompetent, are consistently bolstered by clear mental images of past failure. This is the level of intervention by IR to assist people in transforming such mental representations into empowering ones (Arntz, 2012; Holmes & Mathews, 2010).

2.1.2 Emotional Processing Theory

Emotional Processing Theory (Foa & Kozak, 1986) also lends its credibility to the workings of IR by indicating that fear has a memory structure holding attributes such as information about stimuli, response, and meaning. New and non-threatening information has to be incorporated in these fear structures in order to change. This is made possible by IR through the re-experiencing of the feared situation, which is then given a different path that ends up in safe and positive outcome (Nilsson et al., 2012).

2.1.3 Memory Reconsolidation Theory

There is also a good neuroscientific explanation of IR with the Memory Reconsolidation Theory (Nader et al., 2000). It provides that after a memory has been reactivated, it becomes temporarily open to change and only after experiences of the same can it be stored once more. In the period, the memory is able to record new emotional material. IR takes advantage of the fact that to overcome it has to revisit distressing memories of speaking publicly and adding therapeutic and positive imagery prior to memory reconsolidation (Kroes & Fernandez, 2012; Landkroon et al., 2022).

2.1.4 Classical Conditioning Theory

In developmental or learning terms, the Classical Conditioning Theory (Pavlov, 1927) and the Operant Conditioning Theory (Skinner, 1953) describe the developing and the perpetuation of PSA. An anxiety precedent event, which is past negative speaking event, may serve as a conditioned stimulus to the anxiety responses and the avoidance of speaking situations represents a negative reinforcement of the fear. The effect of IR is that

it modifies the initial conditioning process in memory, which indirectly interferes with this cycle and, as a result, avoidance behaviors decrease (Lee & Kwon, 2013).

2.1.5 Self Discrepancy Theory

The second applicable perspective is the Self-Discrepancy Theory (Higgins, 1987), according to which, the distress exists when there is a discrepancy between the true and the ideal self, or between the self as it is expected to be. Students in PSA have a general image of being self-assured and expressive, though their anxiety thoughts strengthen the thoughts that they are not. IR helps to close this gap through offering visions of oneself as performing well against future expectations garnering, in effect, self-efficacy (Bandura, 1997).

Chapter 3

Methodology

This chapter describes the research procedures and methods that were used to study the effects of imagery rescripting in lessening the anxiety of public speaking of college students. It explains the general research design, study population and sampling procedure, criteria of inclusion and exclusion, the research tools, the intervention procedure, and the However, each study has a study design that is a specific procedure to be carried out in the study. Moreover, it explains the statistical methods of analysis of data, and it talks about the ethical issues that were taken to protect and safeguard the well-being of the participants. The study can be conceptualized accurately, replicated, and assessed in terms of scientific rigor because of the transparent and systematic description of the methodology in this chapter.

3.1 Design of the research

The present research utilized a randomized controlled experimental research design featuring pre and post assessment to focus on the effectiveness of Imagery Rescripting (IR) in alleviating Public Speaking Anxiety (PSA) in college students. The participants were randomly allocated in either the experimental condition in which they received an IR intervention or the control condition where they were not given an intervention. The design was appropriate to give a capability to relate changes in the PSA levels to the IR intervention.

3.2 Population and sample

The primary sampling unit of this study is the undergraduate college students age 16 20 years who were registered in either a government or a privately owned college within Lahore. A sample of 118 was screened and 30 students with high degree of anxiety about speaking in public were selected in which 15 were used in the experimental group and 15 in the control group college students of 16-20 years of age range was recruited in various colleges. The screening was done to first identify the participants with the highest level of anxiety towards public speaking anxiety through the use of the Public Speaking Anxiety Scale (PSAS) under a purposive sampling method. The randomly selected participants were then assigned to the experimental group or the control group randomly (e.g., using the simple randomization technique of the random number generator).

Inclusion Criteria

The study participants were undergraduate students ages 16-20. Their PSA was shown to be high with the range of 60--85 points on a standardized assessment tool.

Exclusion Criteria

Participants were not admitted in case they:

Scored in the low or moderate. PSA range on the assessment tool. Self-reported more than a current diagnosis (having) severe mental problems (such as psychosis, severe depression).

3.3 Data Collection

3.3.1 Assessment Measures

3.3.1.1 Demographic Sheet

Demographic sheet included of age, gender, no. of siblings, birth order, academic year, parent, physical and psychological illness.

3.3.1.2 Public Speaking Anxiety Scale (PSAS)

Bartholomay and Houlihan (2016) had developed a self report instrument called the Public Speaking Anxiety Scale (PSAS) to evaluate the extent of anxiety levels about public speaking in people. There were 17 items on the scale and they were measured on a 5-point Likert scale; 1 (meaning not at all) to 5 (extremely), with higher scores equal to higher anxiousness on public speaking issues. The PSAS measures multiple aspects of anxiety such as both physiological (e.g., increased heart rate, sweating, shaking) and cognitive (e.g. negative self-talk, excessive worrying, fear of being judged) symptoms as well as behavioral responses to such symptoms (e.g. avoiding speaking in public, failing to give a speech due reliability and validity, with a cronbach's alpha 0.94, which means a high internal consistency. It has found varied application in scholarly, clinical, and research environments to work out the public speaking anxiety and assess the usefulness of therapies used in the treatment, including imagery rescripting and cognitive behavioral therapy (CBT). The PSAS is an effective instrument to screen people with fears of delivering speeches and assess the level of these changes after using anxiety-reduction techniques.

3.4 Operational Definition of Measures

3.4.1.1 Imagery Rescripting (IR)

Imagery Rescripting (IR) is a cognitive-behavioral therapy that aims at changing the distressing mental imagery linked to earlier adverse events. It includes working with adverse self reference images, reorganizing them into adaptive or neutral ones and shoring up effective thinking pattern (Hirsch et al., 2021). The use of IR as an intervention consist of gaining insights in the given case related to retraining individuals to overcome distressing reminders of instances of failure in public speaking or fearing of speaking in front of others and subsequently alleviating anxiety and increasing confidence among the aforementioned students. Self reported anxiety decrease, changes in negative self imagery and improvement of performance in an exercise on public speaking will be the criteria used to evaluate the effectiveness of IR.

3.4.1.2 Public Speaking Anxiety

Public Speaking Anxiety (PSA) is often referred to as the fear or anticipation of embarrassment during a speech in a group of listeners, which results in physical, cognitive, and behavioral manifestations (McCroskey,1970).Anxiousness about communication or Public Speaking Anxiety (PSA) is the subtype of social anxiety or communication apprehension, which is expressed in fear, negative feelings about oneself, and avoidance strategies during communication in the presence of other people (Dalyet al.,2015).

3.4.2.1 Intervention

The therapy technique is known as Imagery Rescripting (IR) and was designed originally in the context of schema therapy in the late 1990s by Arnoud Arntz and others, especially in the application of Arntz & Weertman, (1999) concerning treatment of aversive childhood memories in personality disorders as well as anxiety disorders. It has since been modified by other researchers to other forms of psychological problems such as by Emily Holmes and Melanie Smucker with trauma related imagery and social anxiety disorder, where IR is used to alter negative self images that are tied to their fear of speaking publicly and other social situations. In the study, the Imagery Rescripting (IR) type of intervention was designed as an Imagery Rescripting (IR) program meant to cope with the anxiety of public speaking among college students.

IR refers to a cognitive behavioral imagery process that is used to assist individuals to recapture lonely or anxiety inducing memories and thereby change these memories positively in the process of developing healthier and more empowering mental images (Arntz & Weertman, 1999; Holmes, Arntz, & Smucker, 2007). In the case of anxiety in regards to the concept of public speaking, IR allow the individuals to relive the experiences of a previous speaking event that created some level of dread, poor ratings of self, or anxiety of future speaking engagements, and then transform the situation by having favorable responses of the audience, a lack of self apprehension, and an ability to see themselves in a positive light. This alteration in the sensory and emotionally loaded nature of the memory de-projects the negative material emotional value and builds more helpful beliefs towards situations about speaking (Wild, Hackmann, & Clark, 2008).

Participation in the program took place individually, which made it possible to consider the individual characteristics of participants and adapt the intervention in it to the personal history and causes of anxiety in each individual (Arntz & Weertman, 1999; Morina, Lancee, & Arntz, 2017). It was composed of eight sessions that lasted about 90 minutes and were held twice (twice a week) and completed within four weeks. The preliminary sessions were aimed at psychoeducation, rapport establishment, determining imagery outcome, through which the participants were informed about the cognitive behavioral processes behind anxiety in the context of public speaking (Bodie, 2010) and asked to recall highly graphic details of their worst experiences during the public speaking. In middle sessions, guided imagery rescripting was applied which involved imagining these anxiety provoking situations and replaying them in the fore-top of mind and with the help of the organized therapist direction re- script incorporated the imagery of use of new elements that provided the impression of safety, competence and control (Holmes, Arntz, & Smucker, 2007; Wild, Hackmann, & Clark, 2008). The subsequent sessions focused on generating positive future impression, incorporation of coping techniques like relaxing practices, and training on perfect speaking on the stage in the secure mental context in which conditions could be manipulating (Nilsson, Lundh, & Viborg, 2012).

3.4.2.2 Session Plan

Session No.	Session Focus	Activities	Assessment & Homework	Relaxation Technique	Time
1	Psychoeducation & Rapport Building	Introduction to public speaking anxiety, explanation of IR, providing handout to the client, discussion of anxiety symptoms, establish rapport, explain session structure	PSAS pre-test, self-report of recent speaking experiences; Homework: keep a diary of situations that trigger PSA	Deep breathing	90 min
2	Imagery Assessment	Guided exploration of a distressing public speaking memory, identify sensory details, emotions, beliefs, rate intensity	Imagery vividness, Homework: memorize detailed narrative of chosen memory	Progressive muscle relaxation (PMR)	90 min
3	Rescripting-Stage 1	Replay original memory in imagery pause at peak	Rate emotional intensity before & after exercise,	Guided imagery relaxation	90 min

Session No.	Session Focus	Activities	Assessment & Homework	Relaxation Technique	Time
		distress, begin introducing supportive audience cues	Homework: rehearse new imagery daily		
4	Rescripting – Stage 2	Add coping strategies and confident self talk into the imagery; alter audience reactions and speaker's performance	Note Imagery vividness & distress level, Homework: practice altered imagery twice daily	Deep breathing technique	90 min
5	Rescripting – Stage 3	Consolidate positive changes in past event, rehearse speaking confidently in that scenario	Mood rating after imagery, Homework: journal feelings about public speaking	Visualization with safe place imagery	90 min
6	Future-Oriented Imagery	Create positive mental scenarios for	PSAS re-check, Homework:	Mindfulness breathing	90 min

Session No.	Session Focus	Activities	Assessment & Homework	Relaxation Technique	Time
		upcoming speaking events, integrate relaxation & coping strategies	prepare short speech and practice in imagery		
7	Skills Consolidation	Review IR techniques, apply them to varied speaking contexts (classroom, meetings)	Self-reflection, Homework: apply IR before any real speaking event	Body scan relaxation	90 min
8	Termination & Relapse Prevention	Review progress, develop maintenance plan, discuss strategies for independent use of IR	PSAS post-test, Homework: continue weekly practice of IR	Combination of PMR & deep breathing	90 min

Procedure

The current study has been conducted to determine the effectiveness of Imagery Rescripting (IR) on college students with the domain of public speaking anxiety (PSA). The ethical approval was taken by the institutional review board before the start of the intervention and informed consent of the parts was taken. First, 118 college students were

screened on the Public Speaking Anxiety Scale (PSAS) to select those with different degrees of the anxiety associated with making a speech publicly and 30 students whose anxiety and fear to speak publicly were considered high (scores 60-85) were used to conduct the study. Based on simple random sampling, the participants were then allocated into two groups, 15 students in experimental group who received the intervention of Imagery Rescripting (IR) and 15 students in the control group who were wait listed.

Each participant was scheduled to take eight IR sessions that would take about 90 minutes and performed consecutively per week. The trainings were led by a well trained therapist who has no unfamiliarity with IR protocols by Arntz and Weertman (1999) and other subsequent protocols by Wild et al. (2008) in social anxiety scenarios. The first sessions concentrated on psychoeducation on PSA and discovery of painful memories associated with public speaking, whereas the latter sessions entailed the three stage model of IR process of recall, pause and rescripting and subsequent application of positive imagery to the future.

The PSAS of the PSA was utilized to administer the post-assessment prior to every session to assess the changes in anxiety on a short term sustainable basis. This type of design, repeated measures, permitted careful monitoring of changes over the program implementation and guided the proper modification of the intervention, in case. At the beginning of each of the sessions, a type of quality feedback was also obtained in form of short reflections on the previously assigned homework assignments. Between each session, homework tasks were given to strengthen the re shaping of troublesome images and coping skills. In the final phase of the eighth session, a debriefing/relapse prevention session was

conducted, and the participants were grouped well to use IR as an independent tool in the future speaking incidences.

3.4.1 Session Summary

Pre-Assessment

Each of the experimental and the control group was subjected to a pre-assessment before the initiation of the intervention phase, to obtain a baseline measure of the public speaking anxiety (PSA) of each subject. A private and un wobbling setting was established after getting an informed consent and thus the Public Speaking Anxiety Scale (PSAS) was administered. The evaluation was held on a one on one basis, which generates privacy and tells the actual truth about him/herself. Open ended questions concerning the most anxiety felt situations of the participants in public speaking, the past experience, and how they currently cope with their anxiety feelings were also asked. The experimental group participants were informed that they would get Imagery Rescripting (IR) sessions meant to reduce their anxiety when speaking in front of groups of people, whereas the control group was told that they would not receive the intervention during the study duration but that they would be wait listed to access the training after the data collection process was complete to uphold ethical fairness.

This session enabled to get preliminary information on the triggers of anxiety in each participant, the content of the imagery in the participant, and the physiological consequences faced by the participant when giving study talks in front of an audience of participants. There was no any therapy intervention during this stage, as only gathering the qualitative data, was the only concern during this stage. These baseline scores were used as

a point of reference in that they would be used in measuring the success of the Imagery Rescripting (IR) intervention throughout the eight sessions.

There was also the process of orienting the subjects of experimental group to full program layout and the brief introduction to relaxation methods as a preparatory step but no actual skill training was carried out during this session. The pre assessment findings were used in customizing the IR techniques that would focus on the imagery and pattern of anxiety exhibited by each participant.

3.4.2 Session 1

During the initial session, the study was properly introduced along with its objective and the Imagery Rescripting (IR) procedure. Once the informed consent was signed, they were administered the Public Speaking Anxiety Scale (PSAS), in order to have a base score of their level of anxiety. This test was conducted one-on-one in a pressure-free location in order to promote confidentiality and validity of answers. The researcher used an informal dialogue to establish a secure and trusting environment which is a necessary stage to induce openness later on with imagery work. Information was given on public speaking anxiety (PSA), its psychological, physiological and behavioral perspectives and how mental imagery helps to sustain anxiety. Another form of therapy that was introduced during the session is called IR, whereby the methodology entails re-experiencing painful memories in an imagined setting and modifying them in order to diminish the emotional distress and enhance coping assurance.

After exposure to the psychoeducation, the participants learned the first relaxation procedure which was diaphragmatic breathing. The practical basis of the skill was

described, deep, slow breathing decreases physiological arousal and enables weighting the focus of attention which can be especially useful in anxiety driven circumstances such as the one experienced in public speaking. A very short directed breathing exercise followed to make sure the proper technique was used. Weekly homework involved recording and noting cases of anxiety provoking situations in a diary where in writing they were to comment on what they felt about the speaking situation and the thoughts and body sensations they experienced. This baseline behavioral check was aimed at making the participants more conscious about themselves and to provide content to use in future imagery.

3.4.3 Session 2

To understand the changes since Session 1, this session started by reassessing the PSAS. Homework diaries were examined, and the participants were welcomed to tell about the most anxiety tinged situations they discovered throughout the week. Based on this, the researcher directed participants in retrieving, and vividly recounting a distressing memory of public speaking. The participants were told to add sensory details (e.g., smells, sights, sounds) and emotional experiences in the context of the event. They also assessed their vividness of the imagery and the emotional intensity of the memory on a 0-10 cm. The above was essential to define a clear and specific target of IR work as more vividly remembered scenes make it possible to recreate with greater success.

The imagery assessment was followed by Progressive Muscle Relaxation (PMR) where the participants learnt to relax by tense and release various parts of the body muscles. Each step was shown by the researcher and a keen sense of the variation between tension

and relaxation was emphasized. The practice of this technique was done in session to make sure that its performance was done correctly and to allow the participants to feel a physical evidence of the tension drop after visualizing distressing imagery. Homework was assigned which included writing a detailed description of the memory of the distressing situation of public speaking in terms of the chronological line of events and emotional response, to be used as the basis of the initial rescripting session in Session 3.

3.4.4 Session 3

The participants did base on the PSAS and a reflection on the narrative homework at the beginning of this session. The therapist made them reexperience by recreating on a mental level their harrowing performance at the podium through the start point to the climax of stress. Just when the level of discomfort was going to the extremes the participants were asked to freeze the imagery and start making alterations, as in imagining the members of the audience supporting with their facial expression, attesting with their nods or staying with a neutral gaze rather than a critical look. Such alterations was planned in advance so as to be aligned to the individual coping objectives identified by the participant.

The rescripting procedure has been carried out gradually, which gave the participant time to become a complete participant in the rewritten scene and be aware that there were changes in emotional arousal. Immediate effects were measured from the practice by taking the distress ratings both before and after it. Practicing guided imagery relaxation followed the imagery work and prompted the participants to imagine a relaxing and safe place to

achieve mental balance. Homework would consist of practicing the changed scene daily at least 10 minutes in order to carry over the felt positive changes made in the session.

3.4.5 Session 4

At the beginning of this session, the PSAS reassessment and a very brief discussion of the experience of the participant in rehearsing the rescripted scene during the week took place. The subjects were then induced again through their modified version of the subject of speaking in public however more coping methods were involved in the imagery. These included imagery of keeping an erected, steadfast body posture, positive self cue like saying to oneself that they were capable and also imagery of them projecting their speech with a confident and even voice. They also modified the responses of the audience to make them either supportive or neutral, which decreased their perceived threat.

After using the imagery practice, the researcher instructed the deep breathing (inhale-hold-exhale-hold) method, to assist the participant in controlling breathing during moments of extreme stress. Each piece was of four counts. This method was continued in the session until the participants were in a position of executing it fluently and without effort. The ratings that were recorded as distress and vividness were taken again to monitor the continued improvement. Homework assigned would be to practice using the modified imagery scene twice a day, using the coping techniques which have been learned during this session.

3.4.6 Session 5

At the beginning of Session 5, PSAS was applied, and homework reflections were spoken about. The participants were, then, asked to perform the scene as they had

performed before but this time with all the already established coping techniques embedded, imagery involving supportive audiences, concrete self presentation, and self-affirmation thoughts. This was aimed at consolidation which implied that participants were urged to reimagine the situation as many times as possible until it became natural and emotionally familiar in a positive form.

In order to enhance the emotional appeal, the researcher directed the participants to envision positive emotions of taking pride and a sense of accomplishment following a successful performance on the speech. To be able to document lower anxieties, the levels of distress were measured pre-imagery and post imagery. The visualization method safe place was introduced, whereby the participants were able to create a mental home that can be summoned in stressful situations at a moment. The rescripted speech imagery and the safe place visualization would be practiced during homework daily and emotional changes were to be noted into a journal.

3.4.7 Session 6

The progress was discussed at the start of this session followed by the PSAS. The subjects then were instructed to generate future-oriented images, which involved a future or fictive scenario of a sample speech in front of a group; where they put into practice all the discovered coping mechanisms. It focused on imagery of how the event has to be planned to be performed and finished in details of successful performance and a silent emotional condition. This transition between the past to future scenes was intended to give a generalization of IR skills to the initial disturbing memory.

Following imagery rehearsal, mindfulness breathing activities were encouraged by the researcher and were done to help participants gear their attention to the present moment to decrease anticipatory anxiety. Mid intervention current status was checked and encouragement feedback made to keep them engaged. Homework activities were preparation and rehearsal mentally, of a short speech by employing the IR techniques, which was going to be discussed during the following session.

3.4.8 Session 7

During this session PSAS was accomplished and the participants got to express their experiences with IR implementation to the short speech homework. The attention was drawn to the application of the IR strategies to different types of situations when people have to speak, like presentations in classrooms, arguments, interviews, or informal conversations. This helped the participants realize that they could apply the skills learnt in various issues, which did not necessarily have to be the initial traumatic recollection.

A relaxation exercise was presented based on a body scan where the participants were asked to observe various parts of the body as being tense and relaxed them one by one. This was done during a session, and more imagery work in different situations of public speech. Homework was intended to utilize IR techniques of at least one life in the week talking situation and write down their affective responses.

3.4.9 Session 8

Post Assessment

The last session acted as the post intervention evaluation of the two groups. The Public Speaking Anxiety Scale (PSAS) was administered to all participants of the experiment and control in a situation comparable to the conditions of the pre assessment that was quiet and free of distractions. This provided standardization of conditions of measurement on trial. The structured review of the progress made during the eight sessions was also provided to the experimental group with a focus on decreasing the levels of anxiety, gaining confidence, and acquiring the skills of implementing IR techniques. They were lead through a relapse prevention plan whereby individual triggers to having anxiety in public using public speaking are pointed out and how they can use Imagery Rescripting and relaxation skills on their own when these precedes come. One last Progressive Muscle Relaxation (PMR) was practiced so as to reinforce the physiological control strategies.

In the case of the control group, they were not even given any IR intervention during the course of the study, however; they took the same post assessment to gauge the level of changes in their anxiety of public speaking that they have undergone on its own. To guarantee ethical implications, the participants in the control group were provided with a short psychoeducation unit at the end of the study, allowing them familiarity to the notion of IR and relaxation techniques, after which they could be subjected to the whole intervention procedure, but only after the data Reserve Bank has been collected. This was to be fair and yet they avoided introducing spurious contamination into the original

experimental circumstances. At the end of this session, there was thanksgiving as a result of the participation in the study and termination of the study by both groups formally.

3.5 Ethical Consideration

The study was conducted by ethical approval issued by the ethics review committee of the institution prior to commencing the study (APA, 2017).

- A written informed consent was read out to the participants and informed them of the purpose of the study, the methods, the risks, the benefits and the fact that their participation was voluntary.
- It was made clear to the participants that they were free to withdraw without any penalty.
- Participant codes to identify them rather than names were used; data stored.
- The results were given on an aggregate basis to avoid individual identity.
- The participants would have the freedom of pausing or discontinuing the session whenever they felt uneasy in imagery exercises.
- It will be offered at the end of every session to deal with any emotional discomfort.
- Provided a slim version of the Imagery Rescripting training once the data was collected in order to have an ethical equitability to the control group.

Chapter IV

Result

This chapter will report the results of the study that was done to determine the effectiveness of imagery rescripting, in curbing anxiety related to public speaking among college students. The findings are presented in the following categories: demographic characteristics, reliability check of the instruments, descriptive statistics of study variables and inferential statistics of the comparisons between the experimental and control groups in pre- and post-test measures.

Data analysis in this study was conducted in three phases so as to ensure that the research questions could be conclusively analyzed. It was done with the help of descriptive analysis, reliability test and evaluation statistical data through proper non-parametrical statistics.

Section 1: Sample Description

The first section described the frequencies and percentages of the demographics and mean and standard deviation of age was reported.

Section II: Establishing Psychometric properties

Internal consistency of the Public Speaking Anxiety Scale and its subscales was measured by using Cronbach. This step would ensure that indeed, the scale items were consistently applied to measure the intended constructs (overall anxiety, cognitive symptoms, behavioral symptoms and physiological symptoms).

Section III: Testing the Main Hypothesis

The third section contained the Mann Whitney U test and Wilcoxon Signed rank test. To compare and determine the change in the experimental and control groups on pre test scores and post test scores.

Section 1:

Sample Description

The frequencies and percentages of the demographics of the participants were calculated and are given in the below table

Table 4.1

Demographic statistics of the young adults of the study

Characteristics	Experimental Group (n=15)		Control Group (n=15)		Total (N=30)	
	f	%	F	%	F	%
Age					30	100
Age category						
16	8	53.3	3	20		

17	6	40	2	13.3		
18	1	6.7				
19			7	46.7		
20			3	20		
Gender						
Male	6	40	3	20	9	30
Female	9	60	12	80	21	70
Birth Order						
1st	3	20			13	10
Middle	8	53.3	7	46.7	15	50
Last	3	20	7	46.7	10	33.3
Single	1	6.7	1	6.7	2	6.7
Siblings						
0	2	13.3	1	6.7	3	10
1			3	20	3	10
2	3	20	4	26.7	7	23.3
3	5	33.3	4	26.7	9	30

4	4	26.7	2	13.3	6	20
5	1	6.7	1	6.7	2	6.7
Class						
1st year	10	66.7	4	26.7	14	46.7
2nd year	5	33.3	1	6.7	6	66.7
BS			1	6.7	1	70
1st semester						
2nd semester			7	46.7	7	93.3
3rd semester			2	13.3	2	
Father						
Death	2	33.3			2	6.7
Alive	13	86.7	14	93.3	27	90
Separated			1	6.7	1	3.3
Mother						
Death	1	6.7			1	3.7
Alive	14	93.3	15	100	29	96.7

Family System						
Joint	5	33.3	2	13.3	7	23.3
Nuclear	10	66.7	13	86.7	23	76.7
Physical Illness						
Yes	3	20	3	20	6	20
No	12	80	12	80	24	80
Physiological Illness						
No	10	66.7	15	100	25	83.3
Yes	5	33.3			5	16.7

f = frequency and % = percentage

The sample of the study consisted of 30 students of a college where 15 belonged to the experimental and 15 to control group. All the respondents are predominantly female, 70 percent and male, 30 percent. Most of the respondents (76.7) were in nuclear families and 23.3% were in joint families. With respect to the health status, 80% never had any physical illness, 83.3% never had any psychological illness whereas 20% and 16.7% reported the presence of physical and psychological illnesses, respectively. Relating to birth order, 50% were middle children, 33.3 drivers were younger, 10 percent were first-, and 6.7 percent

were only children. With reference to education, 46.7 percent of the respondents were first-year intermediate graduates, 20 percent were 2nd year intermediate students and the rest were in the first year of BS programs.

Table 4.2

Psychometric properties for Public speaking anxiety along with subscales, Cognitive items, Behavioral items and Physiological items (N=30)

Variables	K	Cronbach's α	M	SD	Ranges
Public Speaking Anxiety Scale	17	0.81	73.56	6.22	58-82
Cognitive items	8	.69	33.56	2.86	25-38
Behavioral items	4	.60	17.63	2.13	12-20
Physiological items	5	.63	22.37	2.31	15-25

Note: k = number of items, α = reliability, M = mean, SD = Standard Deviation

The study did use Cronbach alpha to test the internal consistency in the scales used. The psychometric properties of the Public Speaking Anxiety Scale were also satisfactory

but only in general terms since the subscales that gave results on cognitive, behavioral symptoms and physiological symptoms were low but satisfactory. The descriptive statistics revealed that the overall scores of the public speaking anxiety composite and all subcomponents cognitive, behavioral, and, physiological, represented moderate anxiety in the participants. These results indicate that this set of scales was reliable and suitable to measure public speaking anxiety and its aspects in college students.

Table 4.3

Mann–Whitney U Test Results Comparing Experimental and Control Groups on Anxiety Measures

	Intervention		
	Experimental (n=15)	Control (n=15)	
Variable	Mean Rank	Mean Rank	Z
PSA pre	18.57	12.43	–1.92
PSA Post	8.13	22.87	–4.59***
Cognitive Pre	17.67	13.33	–1.37
Cognitive Post	8.50	22.50	–4.37***
Behavioral Pre	19.60	11.40	–2.63**

Behavioral Post	10.00	21.00	–3.44***
Physiological Pre	17.37	13.63	–1.18
Physiological Post	9.43	21.57	–3.86***

Mann-Whitney U was employed to compare the experimental group with the control group in regard to their measures of public speaking anxiety and subcomponents. Pre-test results indicated an insignificant difference between the two study groups on the overall public speaking anxiety, cognitive anxiety, or physiological anxiety. There was however a great difference on the behavioral anxiety where the control group reported more on the behavioral anxiety symptoms compared to the experimental group. On the post-test, all measures revealed significant results in that the experimental group scored lower than the control group. These results lead to the conclusion that imagery rescripting has helped decrease the levels of public speaking anxiety and anxiety subcomponents: cognitive, behavioral, and physiological elements, among college students.

Table 4.4

Wilcoxon Signed-Rank Test Results for Pre-Test and Post-Test Comparisons in Experimental Group

Measures	Neg/Pos/ Ties	N	Mean Rank	Sum of Ranks	Z	P
Pre-test vs. Post	Negative Ranks	27	16.31	440.50	–4.28	<.001***

	Positive Ranks	3	8.17	24.50		
	Ties	0				
	Total	30				
Cognitive Pre vs. Post	Negative Ranks	21	15.74	330.50	–3.40	<.001***
	Positive Ranks	6	7.92	47.50		
	Ties	3				
	Total	30				
Behavioral Pre vs. Post	Negative Ranks	22	15.68	345.00	–3.76	<.001***
	Positive Ranks	5	6.60	33.00		
	Ties	3				
	Total	30				
Physiological Pre vs. Post	Negative Ranks	29	15.41	447.00	–4.43	<.001***
	Positive Ranks	1	18.00	18.00		

	Ties	0
	Total	30

Note: ***Neg*** *= Negative Ranks,* ***Pos*** *= Positive Ranks,* ***Ties*** *= Cases where pre-test and post-test scores were* ***equal,*** ***N*** *= Number of participants,* ***Z*** *= Z-score from the statistical test,* ***P*** *= p-value indicating statistical significance*

The Wilcoxon signed-rank test was used to perform the pre- and post-analysis in the experimental group. Data: when comparing the pre-test and post-test, the significant difference in the overall public speaking anxiety can be observed where a lower post-test score determined the reduction in the level of anxiety post- imagery rescripting. Large changes in cognitive, behavioral, and physiologic variables measured by the symptoms of anxiety showed clear results that the participants felt significant improvement in all the components following the conclusion of the intervention.

Chapter 5

Discussion

The level of public speaking anxiety remains to be a significant inhibition of academic, emotional, and communicative development in the adolescents. Recent studies suggest that PSA often contributes to weak performance and academic engagement among students; the latter tend to miss the oral presentations and feel insecure about their participation in classes (Noor ul Huda et al., 2025). In addition, PSA in adolescent groups is combined with emotional regulation problems and irrational ideas, which aggravate anxiety and reduce school performance (Demir & Kan, 2025). Further data point to the fact that social anxiety in teen years harms communication proficiency; the scorers of greater anxiety will be the poorer peer relationships, the inferior social competence and the avoidance of verbal communication (Ustundag et al., 2025). Taken together, the findings presented here support the idea that adolescent-onset public speaking anxiety is a developmental challenge rather than a phase: It is persistent, multidimensional, and a more pervasive problem than currently understood.

The aim of this study was to investigate the efficiency of imagery rescripting in alleviating the college students having public speaking anxiety (PSA). Performance related anxiety Commune performance related anxiety, often related to cognitive distress, behavioral avoidance and physiological arousal, is one of the most common types of performance-related anxiety in young adults (Bodie, 2010; Dwyer & Davidson, 2012). As PSA influences poor academic performance and social dysfunction negatively, it is essential to identify effective interventions. Cognitive-behavioral imagery rescripting where

maladaptive mental images that help to perpetuate anxiety are rescripted through the use of imagery. The present study aimed to validate its usefulness following a pre-test/post-test design comprising of the experiment and control group.

The objective of this study showed that imagery rescripting is effective as it helps students to reduce anxiety levels of speaking publicly in front of a large group or audience of people on the level of cognitive, behavioral, and physiological factors. This finding confirms the findings of analysis that support the strong effects of imagery rescripting in the case of anxiety disorders. As an example, one study identified that imagery rescripting was particularly effective in denying the symptoms of social anxiety, and the results are similar to, but not equal to cognitive restructuring (Arntz et al., 2016). In the larger clinical scenario, its effectiveness in aversive memory related disorders is indicated by clinical research studies that report to have incurred stable therapeutic effects over follow-up periods of between 4 and 12 weeks (Kip et al., 2023). This evidence supports the effectiveness of imagery rescripting as an effective tool against phobia of public speaking in university students.

The second objective revealed that significant reductions in anxiety were evident both in a pre to post intervention in the experimental group and between the groups where large reductions in anxiety were only evident in the intervention group. This trend is reflected in results of clinical trials within a social anxiety environment as imagery rescripting produced significant symptom improvement when done in a single session similar to the results achieved with standard exposure methods (Knutsson et al., 2019). More evidence in support of it, short imagery rescripting treatments immensely alleviated test anxiety and improved self-efficacy (Ramirez & Johnson, 2024). The combination of

these distinct pieces of evidence is supportive of concluding that imagery rescripting is an effective, contextually mediated mechanism in reducing anxiousness of speaking in front of an audience in controlled academic settings.

The third objective of this study showed contradiction on gender difference based on the previous studies. Although previous literature indicates that female students more often report higher levels of anxiety in respect to giving a speech in front of the audience (Behnke & Sawyer, 2000; Landkroon et al., 2022), this finding indicates that imagery rescripting was equally effective in both genders. This shows that interventions such as imagery rescripting can be used to neutralize any differences observed at the baseline and that they can provide effective assistance regardless of gender (Morina et al., 2017; Knutsson et al., 2019).

It was hypothesized that the imagery rescripting achieved results showed that there was a significant decrease in the level of anxiety when speaking in front of a group. This is in tandem with modern evidence that imagery rescripting is effective in the treatment of symptoms of social anxiety. Indicatively, Arntz et al. (2016) discovered that imagery rescripting led to a significant improvement in trait social anxiety to the point of no differences with cognitive restructuring on individuals with social anxiety disorder (Arntz et al., 2016). On a more general note, a social phobia study stated that imagery rescripting showed more positive results when used together with cognitive restructuring as compared to a supportive therapy, where the effects were also maintained even at follow-ups (Kip et al., 2023). In addition, the evidence of recent studies has also proven that two session intervention of imagery rescripting may and indeed reduces test related anxiety and promotes self efficacy among students (Ramirez & Johnson, 2024). A combination of these

findings reinstates the usefulness and clinical applicability of imagery rescripting in the reduction of concerning levels of anxiety about public speaking among colleges.

It was hypothesized that after intervention, the experimental group would exhibit a lot less anxiety than that of the control group. This is in line with findings that imagery rescripting produces unique treatment effects compared to passive or non interventions conditions. As an example, one of the studies demonstrated that imagery rescripting efficiently alters negative self imagery, memory appraisal, and the base beliefs even within single meetings and therefore it is a cost-effective intervention strategy of social anxiety disorder (Morina et al., 2017). Imagery rescripting has also been demonstrated to suppress possible worry and enhance preparedness to take part in feared social activities coupled with behavioral experiments (Knutsson et al., 2019). These results are quite relevant and align closely with the current study to show the superiority of imagery rescripting as compared to the no treatment control in reducing performance-related anxiety.

The third hypothesis was contrary to other studies that propose that women students' average higher than male students in the level of anxiety related to public speaking (Behnke & Sawyer, 2000; Landkroon et al., 2022). Previous research has always pointed to the fact that women tend to show increased social anxiety and avoidance when in an evaluative speaking context (Hofmann et al., 2010). Contrary to this, your research demonstrates that imagery rescripting helped both men and women students and, therefore, suggests that gender variations in public speaking anxiety may be resolved using this intervention. This implies that with adequately designed psychological sessions such as imagery rescripting, males and females are on a par in terms of benefits that can be obtained through these interventions (Morina et al., 2017; Knutsson et al., 2019).

Based on the findings of this research, it is evident that imagery rescripting could help in reducing the anxiety of college students in regards to the act of public speaking. Compared to baseline, the participants noted a reduction in general anxiety and in cognitive, behavioral, and physiological aspects of anxiety. These findings support other studies that have established imagery based treatments to reduce anxiety symptoms by altering negative mental pictures and ill thought processes (Holmes & Mathews, 2010; Nilsson et al., 2012). The described positive changes give weight to the belief that imagery rescripting can be an effective potential treatment of performance related anxiety in young adults, which gives grounds to consider it in terms of practical use in the educational and clinical practice.

5.2 Implications of the Study

The findings of this study have several theoretical, practical and clinical implications.

5.2.1 Practical Implications

The research group highlights the significance of evidence based intervention to be put into practice in learning institutions. Imagery rescripting may be included in the university counseling centers, workshops or skill-building sessions to help students learn practical steps to overcome anxiety and to become better at public speaking. It also postulates that the short-term structured intervention could bring the evidence of some measurable benefits, which is possible within the time-limited academic programs.

5.2.2 Clinical Implications

In clinical terms, the study points out that imagery rescripting is a valuable treatment, which lessens performance anxiety among young adults. Counselors can use IR techniques to train the clients to replace negative self-imagery about public speaking to reinterpret upsetting memories over embarrassing interactions in the past and accentuate confidence to future tasks. Results also indicate that IR is similarly efficacious in both genders further pointing to its applicability and ability to close gender gaps in the effectiveness of any given method of anxiety treatment.

5.2.3 Education Implications

The results assert that the training into the field of psychology methods can be used to boost academic performance. IR can enable teachers and counselors to enhance self-efficacy, resilience, and communication skills among learners and in the process, have positive results where learners participate in the courses, interact with others in the classroom and improve overall academic performance.

5.3 Limitations & Suggestions

Although following of its results, the current study had a few weaknesses:

- The study was only done with college students, so future research should include students from different levels (Matric, University) or working adults.
- Although reliable self-report scales were used, answers may have been biased due to social desirability, so adding interviews or behavioral observations can improve it.

- Students may not able to create clear mental images, which may have lowered the effectiveness of imagery rescripting, suggesting that future studies could provide visualization training beforehand.
- The use of the Public Speaking Anxiety Scale (PSAS) may have caused biased answers, so future research should combine it with objective measures like heart rate or other physiological indicators.

Conclusion

The study emphasized the pervasive nature of Public Speaking Anxiety in college students and its adverse effects on college performance, social and emotional well being. The study has revealed that imagery rescripting is a useful tool in helping to reduce PSA, hence the ability of this intervention to help students respond professionally to circumstances of public speaking in terms of their cognitive, behavioral, and physiological responses to the experience of speaking in public. It has congruency with existing literature that states imagery based methods play a vital role in changing negative self-images and anticipatory anxiety reduction. Although differences were found in the baseline anxiety levels based on gender, imagery rescripting benefited all participants, which justifies its applicability as a multi task therapy. All in all, this study correspond to the sensible adoption of imagery rescripting into educational and clinical practices to boost the confidence of students, the level of their emotional resilience, as well as the quality of their communication abilities and overcome a significant psychological challenge that can otherwise hinder the academic and professional progress of the learners.

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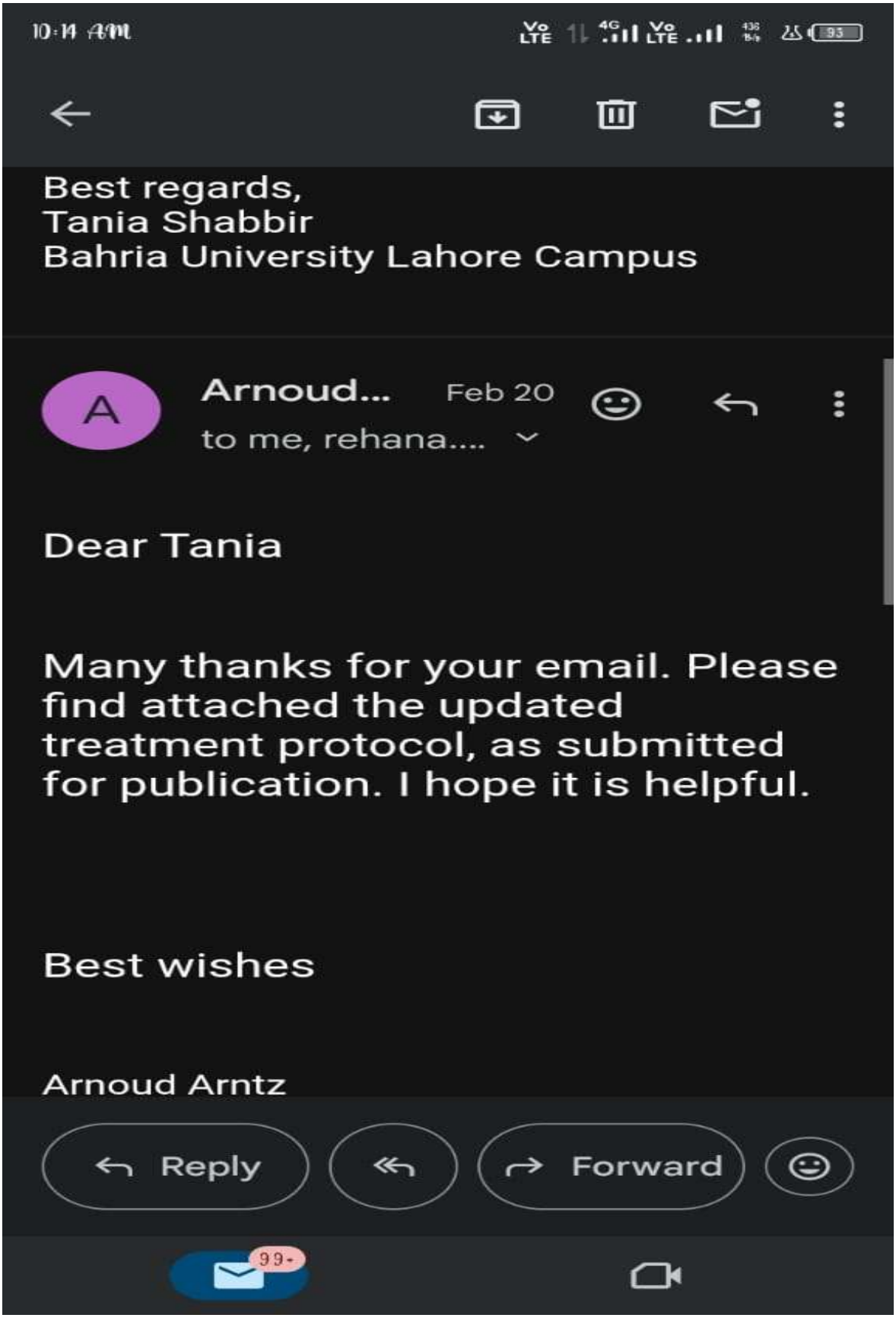
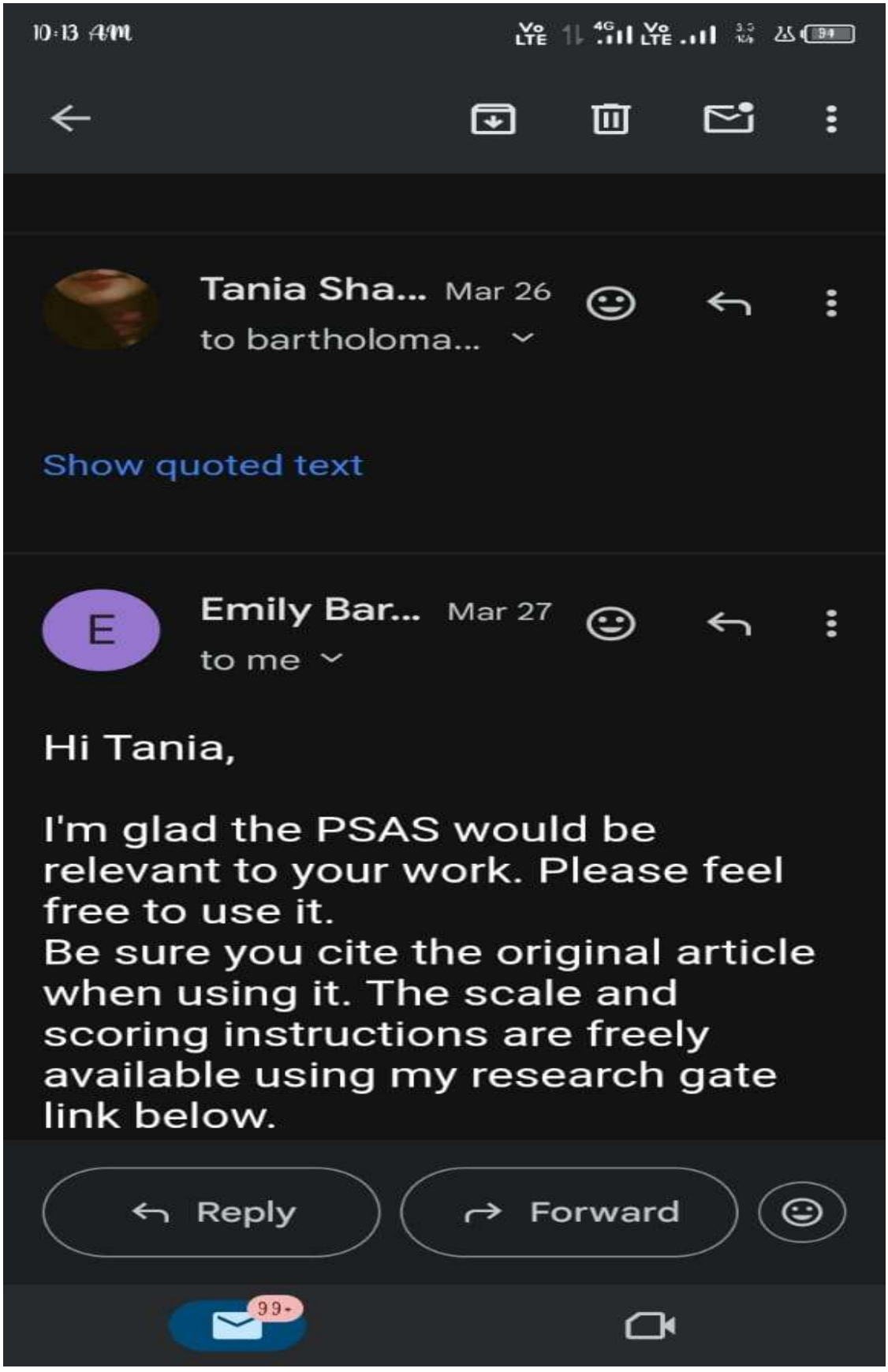
Appendix A


10:14 AM
Best regards,
Tania Shabbir
Bahria University Lahore Campus
A
Arnoud...
Feb 20
to me, rehana....
Dear Tania
Many thanks for your email. Please find attached the updated treatment protocol, as submitted for publication. I hope it is helpful.
Best wishes
Arnoud Arntz
Reply
Forward


10:13 AM
Tania Sha... Mar 26
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Emily Bar... Mar 27
to me
Hi Tania,
I'm glad the PSAS would be relevant to your work. Please feel free to use it.
Be sure you cite the original article when using it. The scale and scoring instructions are freely available using my research gate link below.
Reply
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Appendix B

BULC/PSY/2025/

Bahria University
Discovering Knowledge

24 March 2025

Permission Letter

Subject: Request for Cooperation for Collecting Research Data

To Whom It May Concern

Respected Sir/Ma'am,

Bahria University is a Federally Chartered Public Sector University. Bahria University was established by the Pakistan Navy in 2000. Since then, it has steadily grown into one of Pakistan's leading higher education institutions with campuses in Islamabad, Karachi, and Lahore.

Department of Professional Psychology (DPP) was established in 2018. The Department offers both BS Psychology and MS Clinical Psychology Programs, aims to give quality education, and promotes ethical and competent psychology practice in Pakistan.

Ms. Tania Shabbir student of Bahria University Lahore Campus, currently enrolled in MS Clinical Psychology, IV Semester. She is conducting a final year research entitled ***"Efficacy of Imagery Rescripting on Public Speaking Anxiety in College Students"***

For this purpose, she need to collect data from your institute/organization. The information provided will remain confidential, and we will ensure the ethical responsibility of all our participants. The results concluded from the collected data will be used only for educational purposes. The identity of any participant will not be disclosed at any time.

We would like to seek your cooperation in conducting this research. Your assistance in our scientific pursuit will be highly appreciated and acknowledged.

Thanking you in anticipation.

Supervisor

Dr. Rehana Mushtaq
Sr. Assistant Professor

Dr. Khawer Bilal Baig
Senior Associate Professor/Head of the Department
Department of Professional Psychology
Bahria University Lahore Campus

24/04/25

SHAZIA NADEEM
Associate Professor
Govt. Rabia Basri Graduate College
for Women Walton Road Lahore

BULC/PSY/2025/

Bahria University
Discovering Knowledge

24 March 2025

Permission Letter

Subject: Request for Cooperation for Collecting Research Data

To Whom It May Concern

Respected Sir/Ma'am,

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We would like to seek your cooperation in conducting this research. Your assistance in our scientific pursuit will be highly appreciated and acknowledged.

Thanking you in anticipation.

Supervisor

Dr. Rehana Mushtaq
Sr. Assistant Professor

Dr. Khawer Bilal Baig
Senior Associate Professor/Head of the Department
Department of Professional Psychology
Bahria University Lahore Campus

BUIC/PSY/2025/

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We would like to seek your cooperation in conducting this research. Your assistance in our scientific pursuit will be highly appreciated and acknowledged.

Thanking you in anticipation.

Supervisor

Dr. Rehana Mushtaq
Sr. Assistant Professor

Dr. Khawer Bilal Baig
Senior Associate Professor/Head of the Department
Department of Professional Psychology
Bahria University Lahore Campus

Allowed

Assistant Professor
Govt. Women College
For Women, Canal Road, Lahore

Appendix C

Consent Form

I am Tania Shabbir, student of MS Clinical Psychology from BahriaUniversity, Lahore. I am conducting a research on "Efficacy of Imagery Rescripting on Public Speaking Anxiety in College Students." under supervision of Dr.RehanaMushtaq. The purpose of this study is to determine whether Imagery Rescripting intervention is effective on public speaking anxiety in college students or not.

The Questionnaire will take 5-20 minutes. It is to assure, that all the information taken from you will be kept confidential and will only be used for research purpose. Your participation is voluntary and you have the right to withdraw from this study at any point.

If you agree to participate, then kindly sign the form.

Researcher contact

Tania Shabbir

taniashabbirtaniashabbir971@gmail.com

Signature

Appendix D

DemographicPerforma

Age: _____ Gender:Male Female BirthOrder: 1st

☐ ☐ ☐

middle☐ Last☐ Single ☐

No. of Siblings (excluding you): ____Sisters: ____Brothers: ___

Class: 9th ☐ 10th 1styear 2ndyear Year _____Subject _____

Institute:_____Day Scholar ☐ Hostelized ☐ Other ☐

Father: Alive☐ Separated☐ Death☐ Father's Education: _____

Mother:Alive☐ Separated☐ Death☐ Mother's Education: _____

Current Employment: No Job/Part time/Full TimePersonal income: _____

FamilySystem: Nuclear☐ Joint ☐ Total family Income: _____

Ifyou have anyphysical illness, mention: _____

In which age it started: _____

Cured/Managed/struggli

ngwithit If you have any psychological illness, mention: ___

In which age it started: _____

Cured/Managed/struggli

ngwithit Any physical and psychological illness in the

family: _____

In whom: _____Any illness runs in the family:_____

IconfirmthatIamvoluntarilyparticipatinginthisresearchandunderstandthatmy responses will be kept confidential and used for academic purposes only.

Signature: ____ Date: _

Appendix E

(PSAS)

Items	Not at all	Slightly	Moderately	Very	Extremely
1. Giving a speech is terrifying.	**1**	**2**	**3**	**4**	**5**
2.I am afraid that I will be at a loss for words while speaking.	**1**	**2**	**3**	**4**	**5**
3.I am nervous that I will embarrass myself in front of the audience.	**1**	**2**	**3**	**4**	**5**
4. If I make a mistake in my speech, I am unable to re-focus.	**1**	**2**	**3**	**4**	**5**
5.I am worried that my audience will think I am a bad speaker.	**1**	**2**	**3**	**4**	**5**
6. I am focused on what I am saying during my speech*.	**1**	**2**	**3**	**4**	**5**
7.I am confident when I give a speech*.	**1**	**2**	**3**	**4**	**5**
8. I feel satisfied after giving a speech*.	**1**	**2**	**3**	**4**	**5**
9.My hands shake when I give a speech.	**1**	**2**	**3**	**4**	**5**
10. I feel sick before speaking in front of a group.	**1**	**2**	**3**	**4**	**5**

11. I feel tense before giving a speech.	**1**	**2**	**3**	**4**	**5**
12. I fidget before speaking.	**1**	**2**	**3**	**4**	**5**
13. My heart pounds when I give a speech.	**1**	**2**	**3**	**4**	**5**
14. I sweat during my speech.	**1**	**2**	**3**	**4**	**5**
15. My voice trembles when I give a speech.	**1**	**2**	**3**	**4**	**5**
16. I feel relaxed while giving a speech*.	**1**	**2**	**3**	**4**	**5**
17. I do not have problems making eye contact with my audience*.	**1**	**2**	**3**	**4**	**5**

Appendix F

Supplementary Materials

Appendices A-E

A. Rationale for patients

B. Handout for patients

C. Standard questions for therapists

D. Visualisation of comforting one's vulnerable child

E. IREM-Freq ImRs treatment protocol

Appendix A. Rationale of ImRs (from the IREM-Freq study; Wibbelink et al. 2021)

To be told to the patient in the preparatory session.

1. What happened to you as a child was awful, and when a child is not helped to deal with this in a proper way, serious problems can develop like PTSD, feelings of shame and guilt, lack of self-worth or a dirty feeling, and problems in relationships (adapt to your patient).
2. In your case, the memories of what happened have not been processed well – as there was nobody to help you with that as a child. The meaning of these experiences as a child can be very damaging. For example, a child might conclude that they are bad and that's why it happened to them; that nobody can be trusted; that it is dangerous to want closeness to other people; they might blame themselves, feel guilty and ashamed. Even when you know from a rational perspective that such feelings might not be correct, they can still feel as if they are true.
3. We can't change what happened, and we cannot wipe out memories of what happened
4. But we can change the meanings you took away from such events.
5. We can try to change these meanings by talking and reasoning, but we know from research that it is much more effective to use imagery.
6. Brain research shows that the brain responds in almost the same way to imagined events as to real events, even when the person knows that the event is imagined.

This means that we can have a much stronger impact on the brain when we imagine things than when we just talk about them.

7. In ImRs we are going to change perspectives of how you looked towards the awful things that happened to you. We are not going to wipe out memories, we cannot do that, but we are going to help you to get a different view on what happened and to deeply experience that so that the meaning of what happened changes. This means that the painful feelings that are attached to these memories (like shame, guilt, disgust, anger, panic) can reduce, that you can restore your self-worth, and trust other people more. If you have an inclination to choose people that are not good for you, you will find that the treatment helps you to look for people that treat you better. If you are afraid of emotions, the treatment will help you to feel safer with emotions. Thus, the treatment can have many positive effects.
8. ImRs also gives you the possibility to express your feelings, needs and actions that you had to suppress at the moment. For instance, if somebody is attacked he or she might feel the inclination to fight back. But, if it is very dangerous to fight back, people (often automatically) suppress this inclination. Although this can be a very smart thing to do when you are powerless (the consequences of fighting back might have been disastrous), the suppression has unhealthy consequences in the long term. Hence we will help you to express them in imagery, because now it safe to do so.
9. Children need protection against maltreatment and traumas, and if these nevertheless happen, they need to get support, to be soothed and calmed down, to be reassured, and to hear healthy views on who was guilty and who should feel ashamed. These needs are natural but were usually not met for people who develop the kind of problems you have. In ImRs we help patients to experience that these

needs are met, and although this is in fantasy, the brain responds to this as a healing experience.

10. The treatment will trigger all kinds of feelings and new insights. Some of these might initially seems difficult to deal with, but I will help you with this. For instance, you might feel sad about what happened and this sadness might initially feel difficult. However, sadness is a natural reaction and when suppressed leads to serious problems. It is ok to feel sadness, or other emotions, that might be evoked by the treatment, they are a natural part of the recovery process. Such emotions are not a sign that the treatment is not working! In fact, they can be a very good sign.
11. In ImRs, you will be asked to imagine that a traumatic event is starting to happen again. When it is clear what is going to happen, I will instruct you to imagine that I am with you in the image, and I will intervene to prevent or stop the abuse or other terrible things. I will help you to imagine that there is safety, and that all the needs that you have as a child – around that image – are met. In the second phase of treatment, I'll help you to imagine that you will provide this type of help for yourself – so you will imagine that you step in the image and help little <<patient's name>> by stopping the abuse or the other nasty events, and taking care of little <<patient's name>>.
12. In ImRs we will not have to tell all the details of what happened. This is not necessary for the treatment to be effective. So if horrible things happened to you, and you rather not share all details with me, that is ok. When it is clear what is about to happen and your emotions are sufficiently triggered that is when I will intervene in fantasy.

13. If you find a specific intervention is not enough for you, this is not a problem at all. We can just rewind the script and try out something else. The more you come with your ideas on how the rescripting can be done, the better.
14. We will make a list of the types of traumas and other nasty events that are relevant for your current problems we have to address. You can decide what to address in what order. When I have the idea that you might avoid addressing things that would be better for you to address for a more complete recovery, I will discuss this with you. I will not try to force you to do anything that you don't want to do.
15. We found it is better to use earlier memories rather than later memories. So if we have a choice, we try to go for the memories when you were younger –these typically lie at the root of the problems.
16. Usually we address one or two memories per session. It is not necessary to address all memories. Many have a similar meaning and once we start successfully changing how you feel about a relevant memory, you will see that many other memories also change in meaning. So we will be flexible in what memory we choose to work on – it depends on what is the most relevant at that moment in treatment.

This was quite a long explanation. I am happy to give you a hand-out so that you can take it home and study it in your own time. Do you have any questions for now?

Author: Arnoud Arntz, Department of Clinical Psychology, University of Amsterdam.

Reference: Wibbelink, C. J., Lee, C. W., Bachrach, N., Dominguez, S. K., Ehring, T., van Es, S. M., ... & Arntz, A. (2021). The effect of twice-weekly versus once-weekly sessions of either imagery rescripting or eye movement desensitization and reprocessing for adults with PTSD from childhood trauma (IREM-Freq): a study protocol for an international randomized clinical trial. *Trials, 22,* 848. https://doi.org/10.1186/s13063-021-05712-9

Appendix B. Handout for patients (from the IREM-Freq study, Wibbelink et al., 2021)

To be given to the patient after the rationale is discussed.

Imagery Rescripting Handout

Sometimes bad things happen to people when they are young which can affect them for the rest of their life. Children who experience traumatic events need support and reassurance so that they can understand what has happened and process all the negative emotions related to the traumas. When there is no-one to help children understand and process events at the time, they have to try and make sense of what happened on their own. With only a child's perspective, it is very common for them to come to conclusions that are unhelpful for them in the long term and that underlie the presentation of problems such as post-traumatic stress, feelings of guilt and shame, lack of self-worth and difficulties with trust and relationships as adults. For example, a child may come to the conclusion that they are bad and that is why things happened to them; that nobody can be trusted; that it is dangerous to want closeness to other people; they might blame themselves, or feel guilty and ashamed. Even when you know from a rational adult perspective that such feelings are not correct, they can still feel as if they are true. We can't change what happened to you when you were younger however we can change the way that you think about yourself and your trauma experience.

Some therapies try to change the meaning of events through talking and trying to find reason, but this can take a long time and it might be difficult to really feel any different

after talking about what happened to you. Imagery rescripting is a technique which allows people to process traumatic memories from their childhood by helping to change the meaning of the experience. However, unlike other therapies imagery rescripting gives people the chance to really experience a new meaning to their traumatic past. Imagery rescripting works by asking people to imagine a traumatic event from the beginning and when it is at the point where something bad is about to occur, either the therapist or you intervene to stop anything more from happening. After the bad things are stopped in the imagery, the child is supported and any further needs of the child are met. What all of this does is to help you to get a different view on what happened, experience something different and allow the meaning of what happened to change.

The good thing about imagery rescripting is that you don't have to completely relive every detail of what happened to you when you were young. Even though there is a fantasy aspect to imagery rescripting, research shows that the brain responds in almost the same way to imagined events as to real events. This means that we can have a much stronger impact on the brain when we imagine things rather than when we just talk about them. The process of rescripting provides you the opportunity to change what you experienced, in an imaginary way, and allows you to express any needs that you were not allowed to express at the time of the event because it was not safe to do so. Imagery rescripting helps to trigger all kinds of new feelings and insights and gives you the opportunity for positive changes in your life.

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Author: Arnoud Arntz, Department of Clinical Psychology, University of Amsterdam.

Reference: Wibbelink, C. J., Lee, C. W., Bachrach, N., Dominguez, S. K., Ehring, T., van Es, S. M., ... & Arntz, A. (2021). The effect of twice-weekly versus once-weekly sessions of either imagery rescripting or eye movement desensitization and reprocessing for adults with PTSD from childhood trauma (IREM-Freq): a study protocol for an international randomized clinical trial. *Trials, 22,* 848. https://doi.org/10.1186/s13063-021-05712-9

Appendix C. Standard ImRs Questions for therapists (from the IREM-Freq study)

Standard Questions Session 1-6.

Instruction to patient: Keep your eyes closed, speak in the present tense and in I-terms.

PHASE 1. MEMORY ACTIVATION

You are little (name) and in the situation. Where are you?

1. **What is happening?**

   What do you see? What do you hear? What do you smell? What do you feel in / at your body?

   If indicated: **Look at: (perpetrator); … his/her eyes.**

2. **What do you feel (emotionally)? Where do you feel that in your body?**

3. **What is going through your mind? / What are you thinking?**

Repeat 1 - 3 until at (predefined) hotspot, child is clearly in need of help

Final question Phase 1:

4. **What do you need? (What do you need/like to happen?)**

PHASE 2 Transition:

Okay, I now enter the situation… I am with you… I am now standing… (name the place, e.g., between child and perpetrator), can you see me?

I tell … (perpetrator) (speak out) (or: *I now….* (describe your action))

PHASE 2. THERAPIST STOPS THE THREAT	Focus on:
1. What is happening now? What is … (perpetrator) saying/doing? **2. What do you feel (emotionally)? Where do you feel that in your body?** **3. What is going through your mind? / What are you thinking?** **4. What do you need? (What do you need/like to happen?)** **Okay, I now say… (say it loud as if you are really addressing a person) / I now… (describe what you are doing)** Repeat 1 - 4 until the threat has been overcome	- Confront the perpetrator, stop the threat, punish the perpetrator - Confront involved adults with their responsibility, help them to improve, or punish them too - Bring the child in safety, comfort it - Reattribute guilt and shame - Tell the child (s)he is a good and nice child and didn't deserve what happened - Educate about guilt, norms, the law, responsibility - Meet the child's needs, including securing a safe, healthy and nice future

PHASE 3. THERAPIST MEETS FURTHER NEEDS OF THE CHILD

Direct to the child, and say: *I want you to know that you are not guilty, it is(perpetrator) who is guilty …. (explain). You should not feel ashamed, but (perpetrator) should feel ashamed…. (explain).*

1. **What is happening now?**
2. **What do you feel (emotionally)? Where do you feel that in your body?**
3. **What is going through your mind? / What are you thinking?**
4. **What do you need? (What do you need/like to happen?)**

Okay, I say now… (say it loud as if you are really addressing a person) / *I now…* (describe what you are doing)

When patient overlooks something:

Do you agree that we should also… (propose an intervention)? I feel that I (we) should also address… (propose an intervention)

Tips

If child is not satisfied with the new script: no problem: rewind and try out something else. Ask child for suggestions.

Bring helpers/police, or use special means (taser; Asian fighting sports; impenetrable shield, magic powers, …) with very dangerous perpetrators

Pleasurable activities for the child at the end of rescripting are for instance: playing a game together, going to the playground together, eating an ice cream or pancakes

Repeat 1-4 until the needs of the child are met. Keep in mind: reattribution of guilt and shame; consolation; safety – also for the future (e.g., assure that you come back whenever you are needed, or take child to another family that is safe and caring); let child do something nice, joyful, or relaxing at the end. End of Phase 3. 5. **Is it okay so or do you need something else, or would you like to do something nice?** If okay: *If it is okay so, enjoy this for a moment and then you can slowly open your eyes and return to the here and now.*	together, read a story, going to the beach together.

Standard Questions Session 7-12

PHASE 1. MEMORY ACTIVATION

You are little '... name ..' and in the situation. Where are you?

1. **What is happening?**

   What do you see? What do you hear? What do you smell? What do you feel in / at your body?

   If indicated: **Look at (perpetrator), … his/her eyes.**

2. **What do you feel (emotionally)? Where do you feel that in your body?**

3. **What is going through your mind? / What are you thinking?**

Repeat 1 - 3 until at (predefined) hotspot, child is clearly in need of help

Final question Phase 1:

4. **What do you need? (What do you need/like to happen?)**

PHASE 2 Transition:

Okay, keep your eyes closed and enter the situation as adult (name). Keep in mind that you have all the power, you can use everything that is necessary to help little(name), you are in control.(Rewind if necessary)

PHASE 2	Focus on:
1. **What is happening? What do you see (as big (name))? What do you hear? What do you smell? What do you feel in/at your body?** If indicated:*Look at (perpetrator), … his/her eyes.* Or: *Look at little (name).* If indicated:*How does (perpetrator), little (name) respond?* 2. **What do you feel (emotionally)(as big (name)?Where do you feel that in your body?** 3. **What is going through your mind? / What are you thinking? (as big (name))** 4. **What would you like to do? ((as big (name))** Prompt: **Okay, do that! (**Or: **Okay, say that!)** If indicated: *Keep in mind that you have all the power, you can use everything that is necessary to help little …(name), you are in control.*	- Confront the perpetrator, stop the threat, punish the perpetrator - Confront involved adults with their responsibility, help them to improve, or punish them too - Bring the child in safety, comfort it - Reattribute guilt and shame - Tell the child (s)he is a good and nice child and didn't deserve what happened - Educate about guilt, norms, the law, responsibility - Meet the child's needs, including securing a safe, healthy and nice future When patient overlooks something: *Do you agree that you should also… (propose an intervention)? I feel that you should also address… (propose an intervention)* <u>Others or therapist can enter the situation to coach / assist if patient cannot do it on his or her own.</u> *Do you need help? Can you call in others?*

<table>
<tr><td>Repeat 1 to 4 until adult patient is satisfied.

End of Phase 2:

5. Is this okay, or would you like to do something else?</td><td>Shall I help you? What would you like me to do?

I am entering, can you see me? Where am I? Observe what I do: …. (describe).

.. What do you think? Is there anything else I should do? What is the effect on perpetrator/child?</td></tr>
<tr><td colspan="2">PHASE 3 Transition:

Okay, keep your eyes closed and now return to just before the most difficult moment and be little '.. patient's name..' and tell me what happens.</td></tr>
<tr><td colspan="2">PHASE 3 Where are you?

1. What is happening? What do you see? What do you hear? What do you smell? What do you feel in/at your body?
If indicated: Look at: '..perpetrator's name..', … his/her eyes
2. What do you feel (emotionally)? Where do you feel that in your body?
3. What is going through your mind? / What are you thinking?
Describe what big (name) does if patient does not tell this him/herself from the child-perspective.
Repeat 1 - 3.

At the end of the rescripting by adult self:</td></tr>
</table>

4. What do you need? (What do you need/like to happen?)

Okay, ask big (name)

If indicated: What does big …(name) do? How does big …(name) respond?

Repeat 1 to 4 **until patient as a child is satisfied.** (stimulate that child discloses all needs to big self).

Instruction: Keep your eyes closed, talk in the present tense and in I-terms.

Thanks are due to Loes Marquenie for developing a previous version of this document.

Appendix D. Visualisation of comforting vulnerable child self[†]

When to use this visualisation: when you are feeling emotionally vulnerable, sad, anxious etc. or having an intrusive memory of negative events from your childhood.

Steps:

1. close your eyes and take a moment to notice the thoughts you are having and the emotions you are experiencing (including where you feel these emotions in your body). This will help you to know how to best comfort your inner child.

2. With your eyes closed, imagine your child self being beside you or in front of you and visualise giving them a hug. You may wish to say or whisper to them reassuring words to help sooth them and assure them that they are safe / loved / capable etc. If you are struggling with this image, perhaps focus on just taking your child self's hand. After a minute or so, try changing perspectives, such that you become the child receiving the hug from your adult self, and hearing the reassuring words being whispered to you. Before you finish the image, move back into the adult self's perspective. Sit with this image for 30 seconds to 5 minutes in total – stop once you feel your child self has been soothed.

3. Take a moment to ground yourself back to your present surroundings. First become aware of your body sitting in the chair, next become aware of the sounds inside and outside the room, then open your eyes and look around, noticing the objects around you.

4. After this it is best to change the activity you are doing so that your mind does not go back to thinking about negative things. At least go get yourself a glass of water or splash your face with water before returning to the physical space you were in.

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†Thanks are due to Georgie Paulik-White for developing this instruction and giving permission for publication.

Appendix E. ImRs protocol for the IREM-Freq study

Imagery Rescripting

for PTSD related to childhood traumas

Treatment Protocol for the IREM-Freq study

V1.6

Arnoud Arntz

24 April 2019

Introduction.

This document describes the imagery rescripting (ImRs) treatment protocol to be used in the ImRs condition of the IREM-Freq study, the international RCT comparing effectiveness and mechanisms of change of two session frequencies of ImRs and EMDR as treatments of PTSD related to traumas from childhood (before the age of 16).

Literature: Therapists should read the basic literature (this protocol does not replace the content dealt with in this literature):

- Arntz & Weertman (1999). Treatment of childhood memories, theory and practice. *Behaviour Research and Therapy, 37,* 715–740. (the parts on historical role play can be skipped)
- Arntz, A. (2015). Imagery Rescripting for Post Traumatic Stress Disorder. In N.C. Thoma& D. McKay (Eds.) W*orking with Emotion in Cognitive Behavioral Therapy: techniques for clinical practice.* (pp. 203-215). New York: Guilford Press.
- Jung, & Steil, R (2013). A Randomized Controlled Trial on Cognitive Restructuring and Imagery Modification to Reduce the Feeling of Being Contaminated in Adult Survivors of Childhood Sexual Abuse Suffering from Posttraumatic Stress Disorder. *Psychotherapy and Psychosomatics, 82*, 213–220. (Only the part on how rescripting is done)

Time frame and number of sessions: There are 12 sessions each of 90 minutes max, offered once or two times a week with at least 1 day (preferably 2 or 3 days) in between. The target is to plan this within 12 respectively 6 weeks. If due to vacation or other issues this is not possible you may exceed to 13 resp. 7 weeks, or if no other options are possible to 16 resp.

8 weeks. More than 16 resp. 8 weeks is **not** allowed for the treatment. If you exceed this, please notify your site coordinator of this "protocol violation", but don't stop the treatment.

If a patient does not turn up for a session, contact the patient **immediately** and plan a new session. If a patient misses a session, it should be offered later so that the full number of sessions is offered. If the treatment exceeds 16 resp. 8 weeks you need to contact your local site coordinator **asap**.

If the patient feels recovered before the full 12 sessions are given, discuss with your local supervisor what to do. If further ImRs does not seem indicated, the treatment can be completed before the full 12 sessions are reached – but discuss this with your local supervisor (local supervisor is the person who chairs the local ImRs peer supervision group).

Assessments: All sessions are videotaped and handed to the local research assistant. Start each recording with mentioning your name, date, time, patient number, and session number.

Starting with session 2, right before each session the patient needs to fill out the PCL-5,the 10 item VAS scale (VAS10P) and twice an additional questionnaire in the waiting room. The patient should return the VAS10P in a sealed envelope to the receptionist or in the letter box. The PCL-5 will be used in the session and therefore, the patient should hand over the PCL-5 to the therapist. Starting with session 2, therapists also fill out a short questionnaire and twice an additional questionnaire, before each session. This questionnaire has to be filled out before preparing for the treatment session. After each session therapists fill out a short questionnaire about the duration of the session and the trauma's addressed

during the session. Also, after each session, the therapist should hand in the completed pre-session and post-session questionnaires and the client's PCL-5 to the receptionist or allocated letterbox.

The procedure with regard to the pre-session questionnaires depends on the possibilities within each institution. For some institutions the receptionist may be willing to hand over the pre-session questionnaires to the patient. However, for other institutions this may not be possible. In these institutions, the therapists will hand over the pre-session questionnaires to the patient in the waiting room.

Please note that the appointment will take 100 minutes: 90 minutes for a session + 10 minutes before the session starts to fill out the pre-session questionnaire and to hand over, if needed, the pre-session questionnaire to the patient. An additional questionnaire will be taken twice, in addition to the standard pre-session questionnaires (participant: PCL-5 and single VAS items; therapist: single VAS items), which takes about 10 minutes extra. It is unknown to the therapist and participant when they have to fill out the additional questionnaire; they will find out when they open the envelope with the pre-session questionnaires.

Midtreatment and post-treatment assessment: After 6-8 weeks a midtreatment assessment (for the once a week condition) or a posttest assessment (for the twice a week condition) will be conducted. Inform the research assistant in time when you planned session 6 (once a week frequency) respectively session 12 (twice a week frequency). If the planning of this session changes, inform the research assistant immediately.

Start of treatment: Just before randomization (at the end of the wait) it has been checked by a local responsible person whether the patient is ready and willing to start trauma-focused processing and whether the circumstances in the patient's life allow the treatment. If not, the patient can be randomized later when (s)he is ready and/or circumstances allow. Randomization will not be done before this check is completed. Thus, you should not discuss this with your patient: this has already been done.

Duration of session: If a session is complete before 90 minutes are reached, you can stop. This would for instance occur when a successful ImRs has been done and there is no time or need for ImRs of another item.

Order of traumas: The patient determines which traumas to address in what order. Some prefer to start with the most severe ones, other to make a sort of hierarchy. The traumas to be addressed are listed in session 1, but the list is flexible and can be revised during treatment. If patients wish to start with a very severe trauma, the therapist discusses with them the pro's and con's – it might be better to start with a somewhat less severe trauma to get used to the method and to feel safe with it. Lastly, empathically confront patient if the most severe traumas are postponed, esp. when they are put so late in the order that might not be addressed in the 12 sessions; and help the patient to address them in the 12 sessions. Some further guidelines:

- Trauma's after the age of 16 are postponed to end of treatment
- Most difficult trauma's (< 16 yr) not to be postponed till end of treatment and treated in session 1-6 (therapist rescripts)
- Earlier traumas are usually done first, as are traumas involving primary caretakers

- If with a specific trauma Rs turns out to be difficult, another trauma with a similar meaning is taken that is more suitable for Rs. Therapists report that after successful Rs usually there is no need to return to this first trauma – the effects tend to generalize.
- The therapist looks at ratings of shame, guilt, disgust and anger that patients make at start of every session (these items are added to the PCL-5). High ratings steer the choice of what trauma to address and also the type of Rs. Also high ratings of nightmares, intrusions, etc. can help to decide what trauma to focus on.
- If emotional arousal gets (too) high, quick intervention is indicated. The optimal moment to start rescripting is when there is a "hotspot".
- Sometimes a trauma has several hotspots, that need different kinds of rescripting. Address these separately by appropriate rescripting.
- Usually only one trauma is addressed per session.

Moment of rescripting: although there is not an algorithm to determine when the trauma memory reactivation part should stop and rescripting should start, there are a few guidelines:

1. When a hotspot is reached. This is often the moment when there is intense emotional activation, and in case of threat the moment of despair, when all hope is given up and the child shifts in a state of resignation. Don't leave the child for a long time in that situation, but start in a determined way with phase 2 (T or P's adult self starts rescripting).
    a. In case of other meanings than imminent threat, the hotspot is defined by other characteristics.

b. Before you start the ImRs you can ask the patient to shortly describe the trauma and ask for the most terrible moments and feelings, to get an idea of the hotspot.
c. You can instruct the patient to tell you when (s)he needs you (or his/her adult self) to help him/her.

2. Don't start when there is not clear emotional activation. Although it is possible to prevent the trauma proper from happening in the rescripting, prevention should only start after there is strong emotional activation and when the emotional state of the patient tells you that the trauma is unavoidable.
3. Symptoms (like intrusions and nightmares) and emotions like guilt, shame , anger and disgust as reported on the pre-session questionnaire inform you about issues that should be addressed in the rescripting. Discuss with the patient to what trauma and to what part of the trauma they belong, so that you can tailor your rescripting (in timing and in content) to the issue.
4. Post-trauma events can be very important and should be addressed in ImRs (e.g., the sexually abused child is not believed by a parent and rejected). One trauma can require different rescriptings, for different important elements.

Attendance of others: Others are not supposed to attend the sessions. If the patient wishes to discuss issues with others in therapy, it has to be postponed to after the follow-up, 24 weeks after start of treatment.

Follow-up: At 24 weeks after start of treatment a follow-up assessment will be completed and next the therapist will see the patient for an evaluation. This is roughly 8 weeks post treatment for once weekly treatments and 16 weeks for the twice weekly."If more treatment

is needed, a clinical evaluation is done and the indication staff will decide what treatment to offer to the patient. The kind, intensity and frequency of this further treatment will be monitored, documented and reported. If during follow-up a crisis situation appears the patient can contact a local therapist, but not you. Check with your local supervisor who the crisis contact is for this patient.

Session 1.

Assessment:

1. Prepare videorecorder. Make sure that both patient and therapist are in the image. If you can't get both in the image, it is important to get the patient in the image. When the patient has entered the room, shortly remind the patient that all sessions are recorded for research reasons (they have already consented)
   - start the recorder
   - say your name
   - the date and time
   - say the number of the session ("session 1")

Agenda:

2. Acquaintance
3. Explain: no trauma processing in this session yet
4. Plan the next 11 sessions. Check whether immediately after the session the patient has some time for emotional recuperation, if not try to find better times. Explain that patient is requested to fill out two questionnaires before each of the coming sessions, in the waiting room. One questionnaire has to be put in a sealed envelope and handed over to the reception or put in a special letter box. The other (the PCL-5) has to be given to you (explain that it helps both of you to steer the treatment).
5. Rational: explain rational by reading the rational out loud and address questions of patient. (include explanation that first T rescripts, after 6 sessions, P does the rescripting (with T's help if necessary). Give hand-out to patient.

6. Share a summary of what you know from the patient files of the traumas etc., and check whether there are additions, corrections, etc. Keep it factual (explain that you go in more detail during later sessions).
7. List of traumas (or: "trauma themes" – it is not necessary to list all specific traumatic incidents) from childhood that patient wishes to address

   (also note traumas that patient might not want to address or is not certain about yet, and explain that patient might decide differently later)

   (include psychological traumas that don't qualify for 'trauma' in the DSM PTSD definition but had a profound impact, e.g. emotional abuse – but don't allow avoidance of the traumas that led to the PTSD diagnosis)

8. Discuss in what order traumas should be addressed – leave choice to patient. Explain that this is flexible. Therapist and patients should both have this list (both write, or give a copy).
9. Do a "pilot ImRs" so that the patient becomes familiar with the technique, and address afterwards questions. Explain to the patient why you do this 'pilot'. Instruct the patient to come with a mildly negative memory from childhood (if possible before the age of 12) that was not traumatic and that did NOT involve the persons in the traumas to be addressed in the proper treatment. Do the ImRs with the therapist rescripting.
10. Session evaluation.

11. Homework: (1) patient reads the ImRs explanation hand-out; (2) patient reads the list of “trauma themes”, and makes changes in items and order if (s)he wants so. Instruct the patient to bring this next session.
12. Stop video recording
13. Hand in the video recording
14. If not already done, inform the research assistant about when session 6 is planned (for the once a week condition) or when session 12 is planned (for the twice a week condition), so (s)he can plan the assessment

Session 2. *Therapist rescripts.*

Assessment

1. Ask patient to fill out the questionnaires (in the waiting room)
    - The pre-session questionnaire,
    - The PCL-5
2. Fill out your own pre-session questionnaire (before preparing the treatment session)
3. Video recording
    - Start recording
    - Say your name
    - Date and time
    - session number

Session

4. Check the ratings of the PCL-5 on intrusions, nightmares, and emotions.
5. Discuss questions etc. the patient might have about ImRs rational and the "trauma themes list".
6. Agree upon the trauma theme to start with, let patient find a concrete memory and start the ImRs. (Reassure patient again that in case of severe trauma and fear it is not necessary to tell all the details and that you will start ImRs early enough).
7. Evaluate the ImRs. If enough time, do another ImRs – choose an appropriate trauma together with the patient. Or repeat the ImRs with an Rs that might better work.
8. Session evaluation.

9. Homework: patient reads the list of “trauma themes”, and makes changes in items and order if (s)he wants so. Instruct the patient to bring this next session.
10. Stop video recording
11. Fill out the short questionnaire on duration of session and trauma’s addressed
12. Hand in the video recording, questionnaires of patient and therapist

Session 3-6: *Therapist rescripts*

Assessment

NOTE: for the once-a-week session frequency: Session 6: check with the patient if the mid-treatment assessment is planned. Inform the research assistant if the planning of **session 6** changes in order to reschedule the mid-treatment assessment.

1. Ask patient to fill out the questionnaires (in the waiting room)
    - The pre-session questionnaire,
    - The PCL-5
2. Fill out your own pre-session questionnaire (before preparing the treatment session)
3. Video recording
    - Start recording
    - Say your name
    - Date and time
    - session number

Session

4. Check the ratings of the PCL-5 on intrusions, nightmares, and emotions.
5. Discuss shortly how the ImRs of the previous session affected the patient. (“Did the Rs of last session gave food for thoughts?”).
6. Discuss possible changes the patient proposes in the trauma themes list and order of what to address. Use all this information to decide together with the patient what trauma to address and/or what should be addressed in the Rs. E.g., if patient feels that the specific trauma was not well enough addressed in the previous session,

patient and therapist might decide to try out another Rs. Note. Don't spend more than 2 sessions on 1 trauma, if there are multiple traumas. Move to another trauma that seems better suitable (at this stage) if the ImRs doesn't work for a specific trauma. You can return to an earlier treated trauma in the second half of treatment – especially the index trauma might be addressed in both phases of treatment.

7. Agree upon the trauma theme to start with, let patient find a concrete memory and start the ImRs. (Reassure patient again that in case of severe trauma and fear it is not necessary to tell all the details and that you will start ImRs early enough).
8. Evaluate the ImRs. If enough time, introduce the "visualisation of comforting vulnerable child self " (see instruction at end of this document) that patients can use outside therapy; or do another ImRs – choose an appropriate trauma together with the patient; or repeat the ImRs with an Rs that might better work.
9. Session evaluation.
10. Stop video recording
11. Fill out the short questionnaire on duration of session and trauma's addressed
12. Hand in the video recording, questionnaires of patient and therapist

Session 7-12: *Patient rescripts*

Session 7: standard format of sessions 7-12, but explain to patient that from now on the patient is given an active role in rescripting: you will ask the patient to see the scene as an adult and intervene on the basis of what the patient, from his/her adult perspective, feels that needs to be done. If the patient feels not capable enough yet, or is afraid, you will assist the patient in the imagery by also entering the image and supporting the (adult) patient. The patient can also bring others with him/her, use magical forces, etc. If it does not feel good, the script is rewind and the patient can try out something else, until it is ok. Next, the patient is asked to experience the intervention by the adult self from the perspective of the child, and if needed the patient (as a child) can ask for additional things that (s)he needs from the adult self (with or without therapist or other helpers). Rational is that with this technique the patient (as an adult) will become stronger and independent and this will help recovery.

Note. The patient might need preparation of how to rescript as an adult in the scene. Especially the more anxious and the less intelligent patients might benefit from this. On the other hand, the experience of emotions and action tendencies while the adult looks at the child should not be neglected and might override prepared rescripting.

Note. Remind the patient just before the 2nd phase starts, where the adult patient steps in the scene: "Keep in mind, you are an adult now, and you are in control. You have all the power and you can use all means that you need to address the situation." Repeat this when the patient starts to feel overwhelmed and powerless.

Session 7-12: *Patient rescripts*

Assessment

NOTE: Session 9: inform the research assistant when session 12 is planned.

1. Ask patient to fill out the questionnaires (in the waiting room)
    - The pre-session questionnaire,
    - The PCL-5
2. Fill out your own pre-session questionnaire (before preparing the treatment session)
3. Video recording
    - Start recording
    - Say your name
    - Date and time
    - session number

Session

4. Check the PCL-5 on ratings of intrusions, nightmares, and emotions.
5. Discuss how the ImRs of the previous session affected the patient. (“Did the Rs of last session gave food for thoughts?”).
6. Discuss possible changes the patient proposes in the trauma themes list and order of what to address. Use all this information to decide together with the patient what trauma to address and/or what should be addressed in the Rs. E.g., if patient feels that the specific trauma was not well enough addressed in the previous session, patient and therapist might decide to try out another Rs. Note. Don’t spend more than 2 sessions on 1 trauma, if there are multiple traumas. Move to another trauma

that seems better suitable (at this stage) if the ImRs doesn't work for a specific trauma . You can return to a previously treated trauma in the second half of treatment – especially the index trauma might be addressed in both phases of treatment.

7. Agree upon the trauma theme to start with, let patient find a concrete memory and start the ImRs. (Reassure patient again that in case of severe trauma and fear it is not necessary to tell all the details and that you will start ImRs early enough).
8. Evaluate the ImRs. If enough time, do another ImRs – choose an appropriate trauma together with the patient. Or repeat the ImRs with an Rs that might better work.
9. Session evaluation.
10. Stop video recording
11. Fill out the short questionnaire on duration of session and trauma's addressed
12. Hand in the video recording, questionnaires of patient and therapist

Session 12:

Follow the standard procedure of the sessions 7-12, including **all assessments**. But be sure you have enough time for an evaluation at the end of the session. Discuss how the patient looks towards the 24 week follow-up period without treatment. Reassure that effects of treatment don't stop but will continue to have effects; and that you will see each other shortly after the this follow-up assessment for a final evaluation. At that evaluation you will have the outcomes of the assessments, that you will use together with the subjective experience of the patient to evaluate and to decide whether the treatment has been enough or whether other things are necessary. Discuss who the patient can contact during a crisis situation (not the treatment therapist, check with local supervisor).

Check with the patient if the post-treatment and follow-up assessment is planned. Plan the follow-up session with your patient after the follow-up assessment.

Standard rescripting instructions: THERAPIST RESCRIPTS

STEP 1: Get a memory

1. *"Please close your eyes and get an image of when <<trauma>> happened. Start at the beginning of the <<trauma>> and tell me what happens in the present tense from the view point of you as a child."*
2. Questions:
   a. *"Tell me what you see, hear, feel, smell?"*
      "Tell me what happens."
   b. *"What do you feel (emotionally?)" "Where (in your body) do you feel this?"* (or, if patient has difficulties with staying in the child perspective: "*What does little …. feel?" "Where does little …. feel this?")*
   c. *"What do you think?" (*or, if patient has difficulties with staying in the child perspective*: "What does little …. think?")*
   d. *"What do you need?" (*or, if patient has difficulties with staying in the child perspective*: "What does little …. need?")*

- Gently correct if present tense and first person is not used by repeating it in the correct format.
- Don't get distracted if patient cannot (fully) answer one of the questions.
- In general: if the patient has spontaneously reported something, you don't need to ask for it, unless the therapist feels it is helpful e.g. to elicit additional aspects. E.g., when the patient tells to be afraid, it is not necessary to ask for emotions. But if the

therapist suspects that there is also anger, it might be helpful to ask: Do you feel something else in addition to being afraid?"

- The sensory perception questions ("Tell me what you see, hear, feel, smell?" "Tell me what happens.") don't need to be asked every time. E.g., if it is not relevant what is smelled, it is not necessary to ask for what the patient smells. After the memory is well activated and remains well activated it suffices to ask for what happens next.

STEP 2: therapist steps in the image

1. (Rewind if necessary &) tell that you enter the image as soon as it seems indicated

   "*I am now with you. "*
2. Check whether the child can see you

   "Can you see me?"
3. Start rescripting: tell the patient how you intervene and instruct patient to imagine this
4. Questions (after completing your intervention):
   a. *"What do you see, hear (etc.)?"*

      "Tell me what happens. (How is xxx reacting?)"

      If urgent, continue intervention immediately after the answer after question "a". Repeat question "a" until you succeeded and it is safe. Then ask questions "a-d".
   b. *What do you feel (emotionally?) "Where (in your body) do you feel this?"*
   c. *What do you think?*
   d. *What do you need?*

- Continue interventions until child is ok. Don't forget to turn to the child after having dealt with the perpetrator and meet further needs. Usually comforting, reassurance, reattribution, and doing something nice are the things that need to be done. It is very important to explicitly say that the child is not guilty, that the offender should be ashamed, etc. So even when the child does not ask for these corrections, the therapist should actively do so.
- Finish ImRs when patient, from the point of view of the child, says it feels ok now.
- In general: if the patient has spontaneously reported something, you don't need to ask for it, unless the therapist feels it is helpful e.g. to elicit additional aspects. E.g., when the patient tells to be afraid, it is not necessary to ask for emotions. But if the therapist suspects that there is also anger, it might be helpful to ask: Do you feel something else in addition to being afraid?"
- The sensory perception questions ("Tell me what you see, hear, feel, smell?" "Tell me what happens.") don't need to be asked every time. E.g., if it is not relevant what is smelled, it is not necessary to ask for what the patient smells. After the memory is well activated and remains well activated it suffices to ask for what happens next.

Standard rescripting instructions: PATIENT RESCRIPTS

STEP 1: Get a memory

1. *"Please close your eyes and get an image of when <<trauma>> happened. Start at the beginning of the <<trauma>> and tell me what happens in the present tense from the view point of you as a child."*
2. Questions:
   a. *"Tell me what you see, hear, feel, smell?"*
      "Tell me what happens."
   b. *"What do you feel (emotionally?)" "Where (in your body) do you feel this?"*
   c. *"What do you think?" (*or, if patient switches to adult perspective, to help them stay in child perspective *:"What does little .... think?")*
   d. *"What do you need?"* (or, if ..idem *:"What does little .... need?")*

- Gently correct if present tense and first person is not used by repeating it in the correct format.
- Don't get distracted if patient cannot (fully) answer one of the questions.
- In general: if the patient has spontaneously reported something, you don't need to ask for it, unless the therapist feels it is helpful e.g. to elicit additional aspects. E.g., when the patient tells to be afraid, it is not necessary to ask for emotions. But if the therapist suspects that there is also anger, it might be helpful to ask: Do you feel something else in addition to being afraid?"
- The sensory perception questions ("Tell me what you see, hear, feel, smell?" "Tell me what happens.") don't need to be asked every time. E.g., if it is not relevant what

is smelled, it is not necessary to ask for what the patient smells. After the memory is well activated and remains well activated it suffices to ask for what happens next.

STEP 2: Patient as their adult-self steps into the image

1. Instruct patient to enter the image as adult self and look at what is happening from adult perspective. Rewind if indicated. Check whether the adult-self can see the child

   "Now I would like you to be your adult self and enter the image. Can you see little ....?"

2. Questions:

   a. *"Tell me what you see, hear, feel, smell?"*

      "Tell me what happens. (How is little ... reacting? How is xxx reacting?)"

   b. *"What do you feel (emotionally?)" "Where (in your body) do you feel this?"*

   c. *"What do you think?" (*or *:"What does big .... think?")*

   d. *"What do you feel inclined to do?"* (or *:"What does big .... feels inclined to do?")*

   e. *"Go ahead and do this"*

- The therapist prepares and reminds the patient that (s)he is now in control ("*remember, you are the adult now, you decide what is going to happen, you are the boss, you have all the power you need, you can us everything that you need"* etc.).
- Continue interventions until child is ok. Let the adult-self actively turn to the child after having dealt with the perpetrator and repeat the questions 2a-2d, let adult further intervene, until it is ok for the adult.
- Go to STEP 3 when patient, from adult perspective, says it feels ok.

- In general: if the patient has spontaneously reported something, you don't need to ask for it, unless the therapist feels it is helpful e.g. to elicit additional aspects. E.g., when the patient tells to be afraid, it is not necessary to ask for emotions. But if the therapist suspects that there is also anger, it might be helpful to ask: Do you feel something else in addition to being afraid?"
- The sensory perception questions ("Tell me what you see, hear, feel, smell?" "Tell me what happens.") don't need to be asked every time. E.g., if it is not relevant what is smelled, it is not necessary to ask for what the patient smells. After the memory is well activated and remains well activated it suffices to ask for what happens next.

STEP 3: Patient as child experiences the rescripting by adult-self

1. Instruct patient to return to child perspective, and imagine the whole scene including the interventions by the adult self again. Rewind. Check whether the child can see the adult-self at the moment the adult steps in the image.

   "Now I would like you to be little XXX again. This time big XXX will enter the image and you have to picture everything that big XXX does. First rewind the script and imagine it all happening again as little XXX. (At the moment the adult self enters the image:*) "Can you see big ....?"*
2. Questions:
   a. *"Tell me what you see, hear, feel, smell?"*

      "Tell me what happens. (What is big .... doing? How is xxx reacting?)"
   b. *"What do you feel (emotionally?)" "Where (in your body) do you feel this?"*
3. When rescripting by adult self is finished, use the following questions:

a. *"What do you see, hear, feel, smell, etc. What is happening?"*

b. *"What do you feel (emotionally)? "Where (in your body) do you feel this?"*

c. *"What do you think?" (*Or: *"What does little .... think?")*

d. *"What do you need?"*

If the child has more needs, say:

"Ask big XXX"

Then repeat 3a-3d, until child is satisfied.

- Do not switch from perspective.
- Keep repeating the questions.
- Continue interventions until child is ok.
- Finish ImRs when patient says it feels ok.
- In general: if the patient has spontaneously reported something, you don't need to ask for it, unless the therapist feels it is helpful e.g. to elicit additional aspects. E.g., when the patient tells to be afraid, it is not necessary to ask for emotions. But if the therapist suspects that there is also anger, it might be helpful to ask: Do you feel something else in addition to being afraid?"
- The sensory perception questions ("Tell me what you see, hear, feel, smell?" "Tell me what happens.") don't need to be asked every time. E.g., if it is not relevant what is smelled, it is not necessary to ask for what the patient smells. After the memory is well activated and remains well activated it suffices to ask for what happens next.

Tips and experiences from ImRs therapists with these patients:

- In a current trial with similar complex PTSD patients, both patients and therapists are very enthusiastic about ImRs.
- Often it is needed that therapists do the Rs in the beginning (hence, this is standard in the current protocol)
- Carefully monitoring the arousal and the type of emotion during initial imaging helps to decide when to start and how to do the Rs.
- If little anger is expressed by the patient when doing the Rs (as adult) this is an issue and therapists try to help patients to address this.
- In the phase where the little child is soothed etc., it is very important to explicitly say that the child is not guilty, that the offender should be ashamed, etc. So even when the child does not ask for these corrections, the "helper" (therapist, third patient, adult self) should actively do so. Often there is no healthy schema yet, so it has to be brought in by the rescripting. Patients report big effects of this.
- When the patient intervenes as adult, the therapists prepares and reminds the patient that (s)he is now in control ("remember, you are adult now, you decide what is going to happen, you are the boss, you have all the power you need" etc.).
- Preparation of the RS: if patients are going to intervene as an adult in ImRs, preparation of how to do this is helpful. Especially with patients with lower IQ and/or with high fear. If therapist rescripts, preparation of the RS is not necessary.
- A standard question at session start is "did the RS of last session gave food for thoughts?". This helps deepening the effects of the RS, and helps to decide what to address the session.

- If the offender is still in the patient's surroundings ImRs seems to work less well. Also the rational makes less sense to the patients. (Note that if there is still a threat or even continuation of abuse, PTSD treatment is not indicated). When abuse still continues, it is an exclusion criterion for the study. But when the abuse has stopped but the perpetrator is still in the patient's surroundings, discuss with patient how to take enough distance and find safety for trauma processing.
- ImRs can be used with dissociative patients, but therapists should not be afraid. Most often used strategies: - use a scarf that both patient and therapist hold during ImRs, and gently pull if patient starts to dissociate to maintain contact; bring in reality by opening eyes and focusing on present stimuli (grounding; looking at a specific object and letting describe) (and start again); bring in reality in the image; start rescripting earlier (before trauma starts). Instruct patient not to allow dissociation taken over – they have often more control than we thought 10 years ago. Some patients might experience dissociation in the role of adult – that is a sign that their power and safety should be increased.
- If patient suffers from treatment-resistent feelings of physical disgust due to sexual abuse (own body feels dirty etc.) use Regina Steil's approach of ImRs.

<u>Additions to the protocol</u>

- Adult traumas are also allowed to be addressed, but only in the second half of treatment – when patient rescripts. Usually the patient does not change perspectives, so the patient remains in the adult self and after reactivation of the trauma (step 1) the patient can try out anything (s)he needs or wants to do in the rescripting. The therapist uses the standard questions (what do you see, hear, smell etc., what is happening? What do you

feel? Where in your body do you feel this? What do you think? What do you need? Is there anything you want to do?) Followed by a prompt: “ok do it!” patients might also fantasize that helpers come in, etc. Remind patient that (s)he is now in control and can do anything (s)he wants to do. Let patient rewind if Rs is not satisfactory, and try out another Rs.

- Alternatively (e.g., when relatively young when trauma took place, say 18, and now much older; or there is a need to be helped, supported and soothed by another person) you can use the ImRs protocol where the adult self intervenes and the child self receives the intervention. Then instruct the patient to distinguish between a ‘younger self’ (e.g., 18 years old) and an ‘older-self’ (e.g., 42 years old). The phase of soothing the younger self is still very important. Also here the adult should explicitly say that the younger-self is not guilty, that the younger-self was not able to respond as (s)he lacked knowledge or skills at that time, that the offender should be ashamed, etc.
- Nightmares that have become autonomous (so don’t reduce by addressing the traumatic memory) can also be addressed with ImRs. Instruct the patient to imagine the nightmare (step 1), and at the hotspot instruct the patient to imagine a different ending that is meeting the patient’s needs better, usually by an action by the patient (step 2). This is similar to ImRs of adult trauma. If however the patient is a child in the nightmare, use the procedure that is prescribed for rescripting childhood traumas.
- With persistent feelings of being dirty, contaminated, etc. as the consequence of (sexual) abuse use Regina Steil’s ImRs method.
- If a patients gets depressed or very sad or start to mourn, explain that this is a natural reaction to the treatment. Do not skip rescripting. You can use the sad-mood as an emotional bridge to a memory of the past in which the patient felt in the same way.

- If a patient asks whether (s)he should disclose the abuse to family/friends that do not know yet, explain that it is up to the patient to decide. The focus of the treatment is doing the ImRs.
- Many patients like to use a condensed form of ImRs to deal with difficult moments outside therapy. Here is a procedure they can use (next page).

Visualisation of comforting vulnerable child self

(author: Georgie Paulik)

When to use this visualisation: when you are feeling emotionally vulnerable, sad, anxious etc. or having an intrusive memory of negative events from your childhood.

Steps:

1. close your eyes and take a moment to notice the thoughts you are having and the emotions you are experiencing (including where you feel these emotions in your body). This will help you to know how to best comfort your inner child.

2. With your eyes closed, imagine your child self being beside you or in front of you and visualise giving them a hug. You may wish to say or whisper to them reassuring words to help sooth them and assure them that they are safe / loved / capable etc. If you are struggling with this image, perhaps focus on just taking your child self's hand. After a minute or so, try changing perspectives, such that you become the child receiving the hug from your adult self, and hearing the reassuring words being whispered to you. Before you finish the image, move back into the adult self's perspective. Sit with this image for 30 seconds to 5 minutes in total – stop once you feel your child self has been soothed.

3. Take a moment to ground yourself back to your present surroundings. First become aware of your body sitting in the chair, next become aware of the sounds inside and outside the room, then open your eyes and look around, noticing the objects around you.

4. After this it is best to change the activity you are doing so that your mind does not go back to thinking about negative things. At least go get yourself a glass of water or splash your face with water before returning to the physical space you were in.