Is This The Real Life, Is This Just Fantasy?:

The Role of Fantasy Proneness in Imagery Rescripting of Distressing Life Events

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Abstract:

Imagery Rescripting (ImRs) is a technique focused on changing the meaning of distressing memories where clients are instructed to imagine a desired outcome. Although the interest in this technique is growing rapidly, research on ImRs is still in its infancy. Our study aimed to explore the individual differences that could create an advantage in ImRs effectiveness. Fantasy Proneness, a personality trait characterized by an enhanced vividness of mental imagery and stronger immersion to imagination, was hypothesized to enable greater reduction in distress after ImRs through the mediating role of vividness. Moreover, the role of different ImRs conditions (Experimenter-Guided vs. Participant-Guided) on distress reduction was explored by investigating whether they moderate the relationship between fantasy proneness and vividness, while vividness mediates the relationship between fantasy proneness and distress. 44 participants who experienced a distressing event withing the past 2 years were recruited. Our study consisted of 2 sessions. First session involved a detailed discussion of participants' memories, and a questionnaire that assesses their fantasy proneness and baseline distress levels. Second session focused on ImRs based on the randomly assigned condition. Distress levels and the vividness of imagery were assessed followed by ImRs. The results revealed no significant relationships to confirm our hypotheses.

Keywords: Imagery Rescripting, Fantasy Proneness, Distress, Vividness

The Role of Fantasy Proneness in Imagery Rescripting of Distressing Life Events

Imagery Rescripting (ImRs) is a powerful therapeutic technique working through changing the meaning of adverse past experiences (Lechner-Meichsner et al., 2023), enabling the realization and fulfilment of unmet needs, and the expression of inhibited responses (Arntz, 2023). ImRs was found to be effective in targeting trauma-related dysfunctional cognitions (Arntz, 2012; Holmes et al., 2007) and a variety of related negative emotions such as guilt, anger, and hostility (Lechner-Meichsner et al., 2023). ImRs application includes two phases. First phase focuses on memory activation, which involves imagining the sensory, emotional, and autobiographical details of the distressing event as vividly as possible. Second phase focuses on rescripting, which involves changing the course of events in the desired direction by imagining alternative outcomes that fulfil clients' unmet needs (Arntz, 2012; De Haan et al., 2020). Whether the client or the therapist has an active role in rescripting depends on the specific procedure ImRs is being applied to.

In the *Therapist-Led* procedure, the therapist determines what kind of actions should performed by either the clients (active condition) or themselves (passive condition) to change the course of events. Clients are then instructed to imagine a scenario invented by their therapist until it reaches the desired outcome that fulfils their unmet needs (Siegesleitner et al., 2020). In the *Client-Led* procedure, the script is invented by the clients instead. Therefore, they are the ones who create an alternative scenario where the course of events are changed by either themselves (active condition) or another character that they would like to involve into rescripting (passive condition). This character can be someone they know in real life (e.g., family members, partners) or anyone who is capable of taking action (either possible in real life or only in imagination) to change the course of events (Siegesleitner et al., 2020).

Client-Led condition allows clients to be in the director's seat and lead the rescripting based on their preferences and creativity. Fantasy proneness, associated with strong creativity and a vivid imagination, might be an advantage here since the vividness of mental imagery was found to enhance the effectiveness of imagery interventions (McEvoy et al. 2015; Wilson & Barber, 1981).

Wilson & Barber (1981) coined the term *fantasy proneness* to describe individuals with a natural tendency to be highly imaginative and creative. Fantasy proneness consists of a set of components, including a deep absorption into fantasy (Bartels et al., 2017), greater ability to experience profound immersion into imagery circumstances (Bacon & Charlesford, 2018), and vivid mental imagery (Klinger, Henning & Janssen, 2009). Early traumatic experiences were suggested to have a crucial influence on the development of fantasy proneness, related to one's efforts in transforming their past traumatic memories into desirable imaginative output as a way of coping (Merckelbach, Horselenberg, & Muris, 2001). Thus, fantasy prone individuals might be an ideal target for ImRs treatment as their natural coping strategy aligns with the intervention protocol, which involves modifying the negative meaning of aversive memories by imagining desirable outcomes (Arntz, 2012). Moreover, fantasy prone individuals were found to spend a large portion of their time in their inner world, leading them to have enhanced sensory experiences, a rich and profound imagination, and highly vivid mental imagery (Sanchez-Bernandos et al., 2015). The listed characteristics might create an advantage for fantasy prone individuals in achieving greater memory activation and imagining rescripted scenarios more vividly during ImRs, boosting the intervention effectiveness.

The purpose of this study was to explore for whom ImRs can be a good choice of treatment and whether the procedure could be tailored to use clients' individual differences to their advantage, increasing the overall treatment efficacy. Fantasy proneness was investigated

as a personality trait that could create an advantage in achieving greater distress reduction after ImRs due to being associated with deeper absorption into imagined scenarios, enhanced experience of sensory details, and stronger vividness of mental imagery (Bartels et al., 2017; Bacon & Charlesford, 2018). Vividness was proposed to be an essential component of fantasy proneness, and greater vividness of mental images was found to enhance the effectiveness of activation and modification of emotions during ImRs (Holmes & Mathews, 2010). Therefore, we hypothesized that fantasy prone individuals could achieve greater distress reduction after ImRs through the mediating effect of profound vividness (H1).

We also compared the role of different ImRs conditions (Client-Led and Therapist-Led, referred as Participant-Guided and Experimenter-Guided in line with the empirical nature of our study) on treatment efficacy. The kind of rescripting that is used was suggested to have an influence on the vividness of the rescripted memory (Stopa & Jenkins, 2007). Since Participant-Guided condition gives individuals the freedom to invent their own imaginary scenarios and involve their fantasy world into rescripting if they like, fantasy prone individuals could achieve stronger vividness in this condition than the Experimenter-Guided condition, which leaves less room for their creativity and imagination. Thus, we hypothesized that fantasy proneness would achieve distress reduction via increased vividness, and the relation between fantasy proneness and vividness would be moderated by the Participant-Guided ImRs condition (H-2).

Method

Participants

Our sample consisted of individuals who experienced a distressing event within the past 2 years, continue to think about this event and feel distressed by it. Individuals who had

previously diagnosed with or have a current DSM diagnosis of a mental disorder, and/or were currently in therapy were excluded from the study.

Participants were recruited via an Utrecht University system to sign up for experiments, as well as ads on social media and the network of the experimenters. As a result, 115 participants signed up for this study by filling out a Qualtrics survey. 34 participants who met the exclusion criteria (diagnosed a mental disorder, currently in therapy) were excluded from the study. Remaining participants were directed to the next section of the survey where they were automatically assigned to a randomized Participant ID to have their data anonymized. After getting assigned to a Participant ID, participants were asked to send an email with their availability to have their first session scheduled. Their email addresses and Participant IDs were kept in a separate survey by a researcher who has no access to the responses of the participants to ensure that their data was handled with sensitivity since the study required the participants to share a personal and unpleasant memory. Ultimately, 47 participants who fulfilled the requirements (no DSM diagnosis, not receiving therapy) were recruited for the study. Excluding the 3 participants who dropped out due to scheduling difficulties, our sample consisted of 9 male, 34 female, and 1 non-binary participants whose ages ranged from 18 to 38 ($M = 23.3$). Since this was a pilot study, no power analysis was conducted.

Instruments

Creative Experiences Questionnaire (CEQ)

The CEQ (Merckelbach, Horselenberg & Muris, 2001) is a 25-item self-report instrument assessing fantasy proneness. The items were designed to get an indication of profound fantasizing, developmental antecedents, and consequences of fantasizing. Each item involves a "yes" or "no" response. The total score is calculated by the sum of "Yes" responses

(0 to 25). In the present study, the last 5 items related to the paranormal beliefs and activities were removed from the questionnaire due to their lack of relevance to the purpose of this study. Higher scores on CEQ indicate the tendency of greater fantasy proneness. To our knowledge, there is no indication of exact CEQ scores constituting high/low fantasy proneness in the literature. However, since Wilson and Barber (1983) proposed that high fantasy proneness has a prevalence rate of 4%, this figure is considered as a cutoff point for low (lower 4%) and high (upper 4%) fantasy proneness (Lynn & Rhue, 1986; Rauschenberger & Lynn, 1995). In previous studies, CEQ was found to have good internal consistency ($\alpha = .77$) (Saucier and Skrzypińska, 2006). In our sample, rate of internal consistency was similar to previous findings ($\alpha = .70$).

Visual Analog Scale (VAS) for Vividness and Distress

Visual analogue scales (VAS) were validated as ratio scale measures, consisting of a straight line where the end points represent the two extreme levels of the measured construct (Price et al., 1983; Haefeli & Elfering, 2006). VAS was originally developed for measuring pain levels, however, they were also commonly used to assess distress and vividness levels in previous studies (Kemps et al., 2007; Lesage et al., 2012; Mizuguchi et al., 2019). In this study, participants were asked to indicate their levels of distress and vividness on a scale ranging from 0 (*not distressing/vivid at all*) to 10 (*extremely distressing/vivid*).

Procedure

The study consisted of 2 sessions, both of which were offered both online and inperson (in the designated university labs). Both sessions were conducted by the students of Clinical Psychology Master's program at Utrecht University. Before the intervention, experimenters received a workshop on ImRs by an expert in the field, and gained practical experience with carrying out each ImRs condition.

Prior to rescripting, participants were randomly allocated to one of the 4 ImRs conditions (*Active-Experimenter Guided, Passive-Experimenter Guided, Active-Participant Guided, Passive Participant-Guided)*. However, for the purpose of this study's analyses, two Participant-Guided and Experimenter-Guided conditions were combined. 21 participants were assigned to the Participant-Guided condition while 23 participants were assigned to the Experimenter-Guided condition. 19 participants attended the rescripting in-person while 25 participants attended online.

1st Session

The first session was aimed to discuss the selected memory in-depth, and determine the distress levels associated with the memory. Participants were first asked to elaborate on the details of the event (e.g., when/where it took place, who were involved, what was the most distressing moment, which part they still keep thinking about). Afterwards, they were asked to indicate their levels of distress about this memory on a VAS scale ranging ftom 0 to 10. Finally, participants were asked to fill out a Qualtrics survey consisting of demographic questions (age, gender, occupation), and Creative Experiences Questionnaire (CEQ) to assess their fantasy proneness.

2nd Session

The second session was dedicated to ImRs, and to obtaining the distress and vividness ratings. Both constructs were measured on a VAS scale ranging from 0 to 10. Distress ratings were taken 3 times during ImRs – before memory activation, at the hot spot, and after ImRs. To assess distress reduction, distress ratings after ImRs were subtracted from baseline ratings (before memory activation) and were multiplied by 10. Vividness was only assessed once after ImRs.

In the beginning of the session, participants were informed about the overall ImRs procedure. The first phase of ImRs focused on memory activation, where participants were instructed to close their eyes and go back to the distressing event in their imagination right before the worst moment happens (hot spot). Participants were encouraged to imagine this memory with all details as vividly as possible. For enhanced vividness, a number of questions regarding the sensory (What do you see/hear/smell?), emotional (What do you feel?), and cognitive (What is going through your mind?) aspects of their memory were addressed. Once the participants reached the hot spot, rescripting phase was initiated. During ImRs, participants were instructed to keep their eyes closed and describe the course of actions as well as the reactions of the characters involved simultaneously in the first person and in the present tense (e.g., "I stand up…"). Same questions during memory activation phase regarding the sensory, emotional, and cognitive aspects of their memory were addressed again at each step of imagined action to facilitate enhanced vividness during rescripting. Participants were instructed to continue imagining follow-up/alternative actions up to the point that they thought no further actions were necessary to make them feel better in the imagined scenario. ImRs phase ended once participants were satisfied with the outcome of the rescripted memory. The source of actions and the characters involved in rescripting differed depending on the conditions participants were assigned to.

In the Participant-Guided condition, participants were in the lead of rescripting as the decision makers of the necessary actions to reach a desired outcome. Participants were instructed to imagine either themselves taking the actions they came up with to change the course of events (*Active-Participant Guided*) or someone else coming into the scene to intervene (*Passive-Participant Guided*). The actions and characters in the scenes were based on participants' preferences, and whether they aligned with real life or were purely fictional was up to them. On each step of action, participants were asked what needed to happen next

to make them feel better, then were instructed to go ahead and imagine their suggestion that fulfils their need.

In the Experimenter-Guided condition, experimenters were in the lead of rescripting. They were in charge of coming up with the necessary actions and guiding the participants through the process. Participants were instructed to imagine either themselves carrying out the actions suggested by the experimenters (*Active-Experimenter Guided*) or imagine the experimenters coming into the scene to intervene (*Passive-Experimenter Guided*). The actions and characters involved (aligned with reality or fictional) were decided by the experimenters, however, participants still had a role in the rescripting since the direction of the imagined scenes were determined based on their needs. Needs to be fulfilled during rescripting were obtained through asking the participants what needed to happen next to make them feel better at each step. Based on their response, experimenters suggested follow-up/alternative actions and instructed the participants to imagine them accordingly.

Data Analyses

To test our first hypothesis with the assumption that individuals high on fantasy proneness could achieve greater distress reduction after ImRs through stronger vividness, a simple mediation analysis was performed using PROCESS Model 4 SPSS macro (Hayes, 2022). Through this model, we investigated whether vividness significantly mediated the relationship between fantasy proneness and distress reduction. To test our second hypothesis with the assumption that higher fantasy proneness would achieve greater distress reduction via stronger vividness while the Participant-Guided ImRs condition moderates the relationship between vividness and fantasy proneness, a moderated mediation analysis was performed using PROCESS Model 7 SPSS macro (Hayes, 2022). Through this model, it was investigated whether Participant-Guided ImRs condition significantly moderated the

relationship between fantasy proneness and vividness, while vividness significantly mediated the relationship between fantasy proneness and distress reduction. To compare the moderating effect of different ImRs conditions with the assumption that Participant-Guided condition would have a significant moderating effect between fantasy proneness and vividness unlike the Experimenter-Guided condition, the moderated mediation was performed separately by splitting the participant data into two groups based on the condition they were assigned to. The missing values from the 3 participants who dropped out were removed from the dataset.

Results

47 participants were recruited for our study. 3 participants dropped out at the second step, thus, the adherence rate of the intervention was 93.6%. The overall ratings of fantasy proneness, vividness, and distress reduction were obtained from a total of 44 participants (9 male, 34 female, 1 non-binary) whose ages ranged from 18 to 38 ($M = 23.3$). The large standard deviation of distress reduction scores ($M = 35.5$, $SD = 23.3$) indicates a great amount of variance in the distress levels before and after ImRs. For the full descriptive statistics see Table 1.

Table 1

Descriptive Statistics

Variable	n	M	SD
1. Fantasy Proneness	44	30.8	3.6
2. Vividness	44	7.6	1.7
3. Distress Reduction	44	35.5	23.3

The simple mediation analysis that tested our first hypothesis did not reveal a significant indirect mediating effect of vividness between fantasy proneness and distress reduction, b = -.438, 95% CI [-1.511, .347]. The a-path from fantasy proneness to vividness was significant, revealing a negative relationship unlike hypothesized, b = -.231, 95% CI [-.360, -.103]. For the full regression results see Table 2.

Table 2

Results of Mediation Analysis

Variable		Vividness				Distress Reduction	
		b	*SE*			b	*SE*
1. Fantasy Proneness	a-path	-.231	.078		c'-path	-.814	1.017
					c-path	-1.25	.969
2. Vividness					b-path	1.890	2.062
		R² = .240				R² = .053	
		F(1, 42) = 13.262, p = .000				F(2, 41) = 1.149, p = .326	

The moderated mediation analysis testing our second hypothesis was not significant, b = .281, 95% CI [-.471, 1.452]. The conditional (negative) indirect moderating effect for the Experimenter-Guided (b=-.586, 95% CI [-2.085, .466] and the Participant-Guided (b=-.304, 95% CI [-1.247, .262] conditions were both insignificant. 3 out of 44 participants did not show adherence to the assigned ImRs condition, which might have affected our results. For the full results see Table 3.

Table 3

Results of Moderated Mediation Analysis

Variable	Model a-path			Model b/c'-path		
	b	*SE*	*p*	*b*	*SE*	*p*
1. Fantasy Proneness	-.458	.202	.029	-.814	1.116	.469
2. ImRs Condition	-4.891	3.989	.227			
3. Vividness				1.890	2.358	.427
	R² = .271			R² = .053		
	F(3, 40) = 4.978, p = .005			F(2, 41) = 1.149, p = .326		

Figure 1

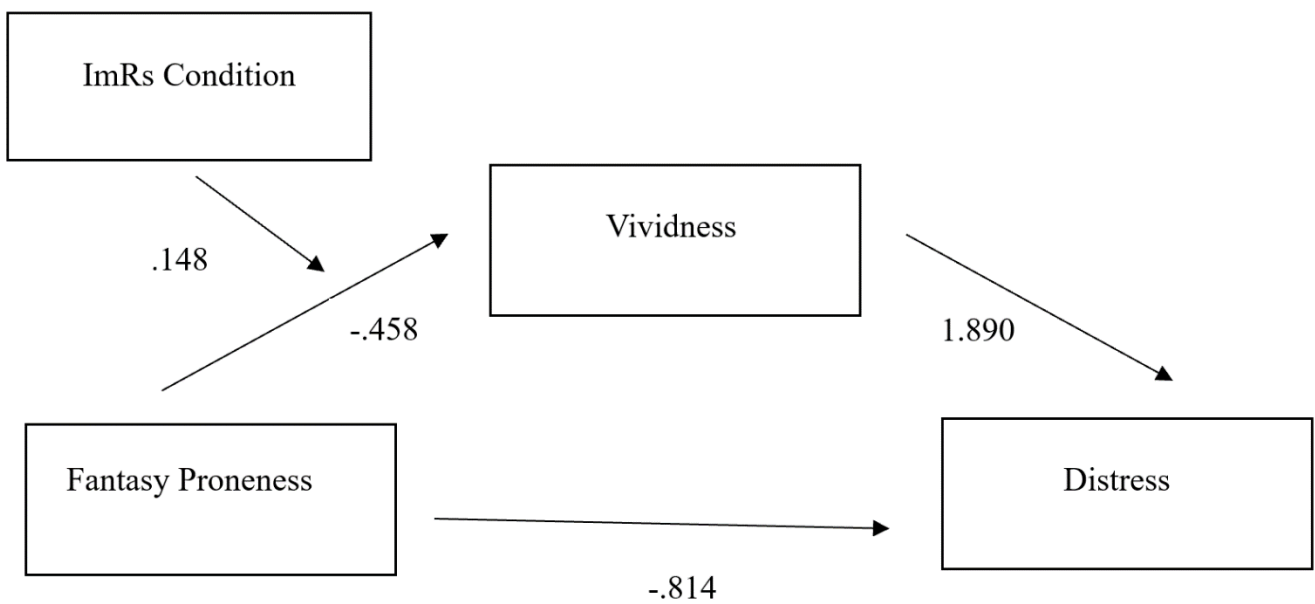*Unstandardized Coefficients of The Moderated Mediation Model*

Discussion

The aim of this study was to explore for which target group ImRs could be a good choice of treatment and whether there are ways to conduct the intervention that allow clients use certain individual differences to their advantage. Fantasy proneness was proposed to be a personality trait that could create an advantage in experiencing greater reduction of distress after ImRs via more vivid mental imagery. Results revealed no significant mediating effect of vividness on distress, although there was a significant relationship between fantasy proneness and vividness. On contrary to the findings in the literature suggesting that higher fantasy proneness could be associated with more vivid imagery (Klinger, Henning & Janssen, 2009; Sanchez-Bernandos et al., 2015), this relationship was negative in our sample. A reason behind this could be the misinterpretation of vividness during measurements, as some participants reported confusions over what exactly was being measured as ''vividness''. Despite experimenters' efforts to give clear instructions beforehand, lack of clarity over what vividness referred to in our study might have affected the reliability and validity of our results. Another reason behind these findings could be the lack of successful memory activation. Since reactivation of memory related emotions are found to be crucial for facilitating vividness (Arntz, 2012), asking more questions regarding the emotional, cognitive and sensory aspects of the memory might have helped achieving more vivid mental imagery. It is also possible that experimenters directed more of these questions during the memory activation phase than the rescripting phase, leading the rescripted scenario to be less vivid than the original distressing memory. Strohm et al., (2019) found that strong reactivation of the aversive details of participants' original memory resulted in significant increases in distress in their sample. Similarly, the lack of significant distress reduction and mediating effect of vividness of rescripted scenarios in our sample might be explained by insufficient emotional activation during rescripting phase compared to the memory activation phase.

However, it is difficult to draw accurate conclusions about this comparison since we did not have a standardized number of questions to be asked on each phase and only measured the vividness of rescripted scenarios, while the findings of previous studies mainly focus on the vividness of original memories/intrusions (Dibbets & Arntz, 2016; Slofstra et al., 2016), none of which investigating its mediating effect between fantasy proneness and distress reduction.

The role of Experimenter-Guided vs. Participant-Guided ImRs conditions in distress reduction was also investigated. ImRs condition was suggested to moderate the relationship between fantasy proneness and vividness, Participant-Guided condition leading to more vivid imagery for individuals higher on fantasy proneness, while vividness mediates the relationship between fantasy proneness and distress leading to greater reduction. The interaction between our variables did not reach statistical significance. Non-adherence of some participants to the script of the assigned ImRs conditions (e.g., taking the lead of rescripting in an Experimenter-Guided condition) might have hindered us from reaching accurate results. Another explanation for our insignificant findings might be the difference between the application of ImRs conditions in an experimental and clinical setting. Strohm et al. (2016) suggested that since their analogue study protocol deviated from the clinical application of ImRs, which involves high treatment intensity and imagining scenes of traumatic memories from both child's and adult's perspectives (Arntz & Weertman, 1999), the intervention had no significant effects in reducing distress levels. Since our study was also an experimental study directed at isolating mechanisms, which are often carried out with non-clinical samples as a first step, our protocol did not involve traumatic or excessively distressing memories experienced from both perspectives. Instead, focusing on unpleasant memories from the past 2 years might have led our participants to report distress scores that are already on lower end of the scale ($M = 58.1$, $SD = 2.7$) before the ImRs application, explaining the lack of significant distress reduction in our sample due to floor effect.

Although it is not a strict requirement for the selected memories to be traumatic (Arntz, 2012), it is highly suggested to work with memories that evoke strong emotions since strong emotional activation was found to be crucial for facilitating the change of their negative meaning and make the distress reduction possible (Arntz & Weertman, 1999; Arntz, 2012). Following the suggestion of Strohm et al. (2016) in terms of increasing the treatment intensity and rescripting more adverse memories for enhanced baseline distress severity might have allowed us to draw more accurate conclusions on the intervention effectiveness and exploring the interplay of vividness and ImRs conditions.

Overall, it is difficult to interpret our results in line with the findings of previous clinical studies since our protocol deviated from the clinical ImRs application, as well as the lab studies since many previous experiments focused on investigating the effectiveness of ImRs in the memory formation phase while only a limited number of experiments explored its effects on already consolidated memories (Strohm et al., 2016). Moreover, no studies to our knowledge investigated the effectiveness of ImRs for fantasy prone individuals looking into the influences of vividness of rescripted scenarios and different ImRs conditions, which makes it challenging to refer to the previous studies while explaining our findings.

Limitations

The small sample size of our study ($n = 44$) might explain the lack of sufficient statistical power to test our hypotheses accurately. Moreover, higher prevalence of female participants in our sample ($n = 37$, 84%) decreases the generalizability of our findings. Replicating this study with a larger and more equally distributed sample size might allow for more accurate results and interpretations of tested hypotheses. In addition, having an experimental study protocol involving a healthy sample which deviates from the clinical ImRs application in terms of memory severity, intervention intensity, and baseline distress

levels might have led our findings to be non-representative of ImRs effectiveness in clinical settings for clients with psychopathology and/or psychotrauma. Finally, non-adherence to the assigned ImRs conditions and measurement difficulties of the "vividness" construct might have affected the reliability and validity of our results.

Strengths & Recommendations

Current study also possesses a number of strengths. Firstly, our study focuses on a unique topic that had not been investigated by previous studies, filling the gap in the literature by exploring role of the vividness of rescripted scenarios and different ImRs conditions on intervention effectiveness. Our study is also the first example to our knowledge that investigates fantasy proneness as a personality characteristics that could create an advantage in the effectiveness of ImRs. Further studies are necessary to deepen our understanding of this topic. It would be valuable to investigate how the vividness of original memories vs. rescripted scenarios influence intervention effectiveness, whether the higher involvement of fantastical elements into rescripting create a greater advantage for fantasy prone individuals, and how do ImRs conditions differ when a clinical protocol is followed.

Secondly, having a culturally diverse sample of international students and expats posits a rare example in the literature although ImRs is suggested to be an ideal technique for individuals from various cultures as it can be tailored to their specific backgrounds (Lechner-Meichsner et al., 2023). Although the exact number of represented countries and the cultural differences in rescripting were not investigated in our study, we hope that future studies with a wider sample of culturally diverse participants would be conducted to explore how culture/religion-specific needs, figures, actions manifest themselves during ImRs. Findings of such research would be highly valuable for clinical work, especially with clients who have a different cultural background, to tailor the sessions based on their individual needs optimally.

Additionally, our study explored the possibility of having effective ImRs sessions in an online setting. Our findings revealed even greater distress reduction ratings in online intervention groups ($M = 40.2$, $SD = 22.1$) than in in-person groups ($M = 29.4$, $SD = 24.4$), revealing no disadvantages for online application of ImRs. Further research investigating the effectiveness of online ImRs application could be beneficial, in which positive findings could allow for a more flexible use of this intervention, making it accessible to clients who are not able to visit clinics in-person due to any restrictions.

To conclude, our study aimed to investigate for which target group ImRs could be a good choice of treatment, exploring whether fantasy proneness could create an advantage in intervention effectiveness through the higher vividness of rescripted memories. The role of Experimenter-Guided and Participant-Guided ImRs conditions on distress reduction were compared to explore potential differences. The procedure involved two sessions, first one focusing on the detailed discussion of the distressing memory, and second one focusing on the rescripting. Our findings revealed no significant results due to small sample size and several challenges faced during the study. This study still serves as a valuable contribution to the literature since it explores a rarely studied topic further and involves an innovative approach in combining a unique set of variables that were not subject to previous studies.

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