



Rescripting Memory, Redefining the Self: A Meta-Emotional Perspective on the Hypothesized Mechanism(s) of Imagery Rescripting

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Imagery Rescripting (ImRs) is a therapeutic technique that aims to reduce the distress associated with negative memories of early aversive experiences. It consists of prompting patients to *rescript* the autobiographical memory in line with their unmet needs. In recent years, ImRs was found effective in reducing symptoms of disorders such as depression, social phobia, obsessive-compulsive disorder, post-traumatic stress disorder, and personality disorders. However, the cognitive mechanisms underlying such broad effectiveness are currently an object of debate. Empirical evidence has shown that ImRs reduces the negative self-belief derived from aversive memories in different types of mental disorders. However, existing accounts are not very accurate in explaining how this change in self-belief occurs and therefore why ImRs is effective across psychopathologies. We propose that ImRs changes the semantic self-representation encapsulated in the aversive memory by reducing the meta-emotional problem (i.e., perceiving a negative emotion as problematic and unacceptable). Empirical evidence implicates the meta-emotional problem or “secondary problem” in the maintenance of different disorders and has shown that treating it leads to symptoms reduction. Here we hypothesize that: (i) ImRs as a stand-alone treatment may lead to a reduction of symptoms; negative self-belief and the meta-emotional problem; and (ii) the reduction of the meta-emotional problem might mediate the relation between symptoms and negative self-belief reduction. To test our hypothesis, we present an experimental procedure that could be used in future studies. We conclude discussing the existing theoretical frameworks that attempt to unravel the mechanisms that play a role in ImRs.

Keywords: imagery rescripting, autobiographical memory, self-representation, psychopathology, emotional invalidation, secondary problem, meta-emotional problem

INTRODUCTION

Early traumatic experiences are considered to increase vulnerability to psychopathology by classical cognitive models of emotional disorders underlying cognitive behavioral therapy (CBT) (Beck, 1976; Beck et al., 1985; Foa and Kozak, 1986; Wells, 1997; Harvey et al., 2004). Childhood aversive events can be considered traumatic in two ways. In the stronger sense, the trauma corresponds

115 to single or repeated episodes of abuse or violence. In the weaker
 116 sense, trauma corresponds to experiences of lower emotional
 117 intensity over a longer time, such as a disorganized/unsure type
 118 of attachment between parents and children. According to both
 119 perspectives, traumatic experiences interfere with the self. For
 120 some authors, traumatic experiences interfere with the self as a
 121 process by disorganizing its structure and eliciting dissociation
 122 (Van der Kolk et al., 1996; Liotti, 2004). In contrast, we agree
 123 with those positions that see trauma as interfering with self-
 124 representation (i.e., a form of semantic memory that describes
 125 the quality associated with the self, Brewin, 2006). Specifically,
 126 the type of attachment to primary relational figures plays a
 127 pivotal role in forming “Internal Working Models,” “Internal
 128 Schemas,” or “Early Maladaptive Schemas” which trigger and
 129 maintain psychopathology (Beck, 1964; Lorenzini et al., 1985;
 130 Lorenzini and Sassaroli, 1995; Young et al., 2003). Accordingly,
 131 a vast body of literature indicates that issues in self-concept and
 132 emotional regulation are associated to “emotional invalidation”
 133 during childhood (Drea, 2016; Witkowski, 2017), which consists
 134 of the invalidation, negation, or trivialization of a child’s
 135 emotions and thoughts by caregivers (Linehan, 1993). These
 136 early aversive experiences are often associated with intrusive
 137 imagery and linked to distressing autobiographical memories.
 138 Imagery rescripting (ImRs) is a therapeutic technique, used in the
 139 context of Schema Therapy and CBT, that aims to reduce distress
 140 associated with these memories (Arntz and Weertman, 1999) and
 141 change their meaning (Arntz, 2011).

142 The classic procedure (Arntz and Weertman, 1999) consists
 143 of three phases. First, the patient is asked to enter a distressing
 144 memory with a similar emotional content of that characterizing
 145 current symptomatology. Ideally, the memory should belong
 146 to an event that occurred during childhood (see Ehlers et al.,
 147 2005 for examples of the procedure used in case of traumatic
 148 events occurred during adulthood). In this phase, the therapist
 149 encourages the patient to talk in the present tense from the child’s
 150 perspective. After the factual details are clear, the therapist asks
 151 the child about his/her emotions and needs. Then, the rescripting
 152 begins and the patient is asked to step into the image as an
 153 adult and to take care of the child-self. This may involve the
 154 prevention of abuse, the creation of a safe environment for the
 155 child, and doing whatever the adult feels is right in that situation
 156 considering the child’s needs. In the third phase, the child can ask
 157 the adult for further intervention until her/his needs are fully met.

158 A prominent feature of ImRs is its efficacy across
 159 psychopathologies such as: personality disorders (PD), post-
 160 traumatic stress disorder (PTSD), social anxiety disorder (SAD),
 161 body dysmorphic disorder, bulimia nervosa, depression, and
 162 obsessive-compulsive disorder, both as part of a treatment
 163 package (Arntz, 2012) and, more recently, as a stand-alone
 164 treatment (Morina et al., 2017). However, despite these
 165 promising results, the cognitive mechanisms underlying such
 166 broad effectiveness are currently an object of debate.

167 Several studies support the view that ImRs impacts self-
 168 representation. Specifically, ImRs reduced the strength of
 169 negative self-beliefs encapsulated in aversive memories of
 170 socially anxious participants (Wild et al., 2007, 2008; Lee and
 171 Kwon, 2013). Unfortunately, in these studies, ImRs was always

172 preceded by cognitive restructuring, making it difficult to derive
 173 conclusions about ImRs’ direct impact. ImRs’ efficacy as a stand-
 174 alone treatment was investigated for SAD, revealing a significant
 175 reduction in participants’ ratings of the validity and accuracy
 176 of their memory-derived core beliefs, as well as in the content
 177 of these beliefs, which was revised following ImRs (Reimer and
 178 Moscovitch, 2015). Similarly, a single session of ImRs diminished
 179 negative self-belief in bulimia patients when compared to a
 180 control condition that consisted of verbally examining the effects
 181 of beliefs on current functioning, including dieting. Emotional
 182 (and rational) negative self-belief reduction was associated with
 183 mood and behavior change, including a decreased urge to binge
 184 (Cooper, 2011). Finally, a recent study assessed the impact
 185 of ImRs on self-structures as measured by state self-esteem;
 186 self-concept clarity; self-description consistency, on memory
 187 characteristics (i.e., vividness and distress) and on affective
 188 measures. At follow-up, participants rated the memory as less
 189 important for their sense of self than at the first ImRs session.
 190 They also reported higher state self-esteem and positive affect,
 191 as well as reduced negative affect and anxiety after recalling
 192 the memory (Çili et al., 2017). Taken together, these results
 193 seem to indicate that ImRs strongly affects what a person
 194 thinks or has learned about him/herself (i.e., self-representation).
 195 A change in self-representation could explain ImRs’ trans-
 196 diagnostic effectiveness, however, *how* does this change occur?
 197 Here, we propose that ImRs facilitates a change in self-belief *by*
 198 modifying the appraisal that the patient has learned to make
 199 about his/her own aversive emotions. Indeed, negative beliefs
 200 about aversive emotions may determine a secondary emotional
 201 response that might exacerbate and maintain the primary
 202 reaction and the consequent regulation attempts (Greenberg
 203 and Safran, 1990; Ellis, 1999; Greenberg, 2002; Hayes et al.,
 204 2006; Mennin and Farach, 2007; Clark and Beck, 2010). Indeed,
 205 perceiving an emotion as problematic, aversive, or unacceptable
 206 instead of normal, comprehensible, and acceptable can influence
 207 the way a person regulates the emotional state itself (Gardner,
 208 1988; Hofmann, 2013). This phenomenon, which has been
 209 defined as “*secondary problem or meta-emotional problem*” (Ellis,
 210 1980, 2003), has been considered by Clark and Beck (2010) as
 211 one of the most relevant factors in psychopathology. Indeed,
 212 the authors claimed that: “*the greatest differences between clinical*
 213 *and non-clinical anxiety are evident in the secondary, strategic*
 214 *controlled processes responsible for the persistence of anxiety.*”
 215 (p. 53).
 216
 217

218 AUTHORS’ HYPOTHESIS

219 Traditional ImRs procedure implies: (i) a change in perspective
 220 from that of the child to that of the adult and (ii) the attempt
 221 to meet the child’s unmet needs (Arntz and Weertman, 1999).
 222 Depending on the situation this could result in different types of
 223 actions (e.g., nurturing; protecting, soothing, empowering, etc.),
 224 however, in order to meet the needs of the child-self, the adult-
 225 self must first adopt an empathic disposition and acknowledge
 226 the child’s-self affective state. Indeed, clinical observation suggests
 227 that if the patient does not legitimate his/her own feelings it
 228

is very unlikely he/she will complete the exercise at all. In our perspective, this attitude of the adult-self could validate the child-self's suffering. Therefore, the new meaning that could emerge from ImRs is that child's suffering was legitimate, adequate, and deserving of care. In our view, this would be in contrast with the meaning inferred during childhood in attachment relations (i.e., the invalidation of the child negative emotions, Gardner et al., 1988). Indeed, in a meta-emotional perspective, if an individual believes that experiencing negative emotions is problematic, those could become aversive events, which amplify emotional reactivity (Greenberg and Safran, 1990; Ellis, 1999; Greenberg, 2002; Hayes et al., 2006; Mennin and Farach, 2007; Clark and Beck, 2010). Therefore it could be hypothesized that the secondary problem might negatively affect self-representation, ultimately maintaining psychopathology (Gardner et al., 1988; Hofmann, 2013).

Consistently, panic disorder is characterized by the catastrophic assessment of anxiety and its physiological correlates (i.e., anxiety sensitivity) (Clark, 1986). Similarly, social phobics often worry about the negative consequences of their anxiety in social contexts (e.g., being judged as weak or stupid; American Psychiatric Association [APA], 2013). Despite these observations, currently there is no direct empirical evidence that the meta-emotional problem is a trans-diagnostic phenomenon, or that it plays a role in ImRs effectiveness. Indirect support of the role played by the meta-emotional problem in amplifying emotional reactivity across different pathologies comes from research on self-criticism. There is evidence that trait self-criticism is a *trans*-diagnostic phenomenon implicated in the development and maintenance of a range of psychopathologies (Schanche, 2013) as it triggers, perpetuates, and intensifies emotional reactivity (Shahar, 2013). However, the key difference between self-criticism and the meta-emotional problem is that in the latter patients only criticize themselves for having a specific emotion, whereas self-criticism refers to all aspects of a patient's life (Couyoumdjian et al., 2016). A more direct relation between the meta-emotional problem and anxiety symptomatology has been empirically tested by (Wells, 2000) who applied his Metacognitive Therapy in the context of both generalized and social anxiety. The author found reductions in fear of negative evaluation after treatment to such anxiety disorders (Wells, 2007). Moreover, a recent study directly tested whether reducing the negative assessment of specific negative emotions related to phobic stimuli (i.e., secondary problem) also reduced the experience of the aversive emotion itself (i.e., primary problem). Results revealed that participants whose meta-emotional problem was addressed during therapy also presented a decrease in autonomic arousal (as observed by decreased heart rate and increased heart rate variability) during a second exposure to phobic stimuli (Couyoumdjian et al., 2016). Furthermore, the meta-emotional problem is considered to play a role in affective disorders. Indeed, depressive rumination, a key risk factor for clinical depression, is related to negative thinking about depressive symptoms (Nolen-Hoeksema, 1991, 2000) and fear of depressed mood and anxiety was associated with rumination and emotional avoidance (Trincas et al., 2016). Strikingly, this study revealed that the tendency to have

a negative secondary reaction to distress, as measured by the *Non-Acceptance* subscale of the Difficulty in Emotion Regulation Scale (Gratz and Roemer, 2008), was strongly correlated with higher negative beliefs about emotions (i.e., that emotions are irrational). Moreover, this idea was associated with feelings of guilt, shame, embarrassment, and weakness in reaction to emotional experience (Trincas et al., 2016). In line with this finding, it has been observed that feeling ashamed and humiliated for having PTSD or guilty about intrusive thoughts in OCD are predictors of poor therapy outcomes (Gilbert and Andrews, 1998; Clohessy and Ehlers, 1999) because patients avoid seeking treatment or engaging in exposure (Leahy, 2007). Finally, it has been found that negative appraisals of the sensations, emotions, or intrusive thoughts and images that are experienced are related to depression, anxiety, PTSD, metacognitive aspects of worry, alcohol abuse, marital discord, and PD (Leahy, 2001a,b, 2002, 2003; Leahy and Kaplan, 2004). Taken together, this literature seems to support the notion that the meta-emotional problem could be a trans-diagnostic phenomenon, whereas, to the best of our knowledge, there is still a lack of direct evidence that ImRs reduces the meta-emotional problem. Intriguingly, a pilot exploration of the use of Compassion-Focused imagery (CFI) in a group of self-critical people showed a significant improvement in the reported self-soothing abilities (Gilbert and Irons, 2004). However, self-criticism has been described as a personality trait that enhances people's frustrations and anger toward themselves in reaction to failures and setbacks (Blatt, 2004; Gilbert et al., 2004; Gilbert and Irons, 2004) while in the meta-emotional problem patients only criticize themselves for having negative emotions. Moreover, CFI is different from ImRs. Thus, our hypothesis needs further testing.

FUTURE DIRECTIONS

Future studies could test whether: (i) ImRs as a stand-alone treatment leads to a reduction of symptoms; negative self-belief and meta-emotional problem; and (ii) the reduction of the meta-emotional problem mediates the relation between symptoms reduction and negative self-belief. Social anxiety patients would be a good target for several reasons. Firstly, the role of the meta-emotional experience is commonly acknowledged and included as part of cognitive treatments for social anxiety (DSM-5 APA; Wells, 2000, 2007). Therefore, the experimental sample receiving a session of ImRs could be compared with a control sample receiving Metacognitive Therapy (Wells, 2000). Secondly, the strength of negative self-beliefs encapsulated in aversive memories of socially anxious participants has previously been tested. A similar procedure could thus be used to extract the negative self-belief from the memory and assess its strength (Wild et al., 2007, 2008; Lee and Kwon, 2013). Several measures could be administered before and after treatments to assess the hypothesis that ImRs reduces the meta-emotional problem. Specifically, the Beliefs about Emotions Questionnaire (BAEQ; Manser et al., 2012) entails six dimensions consisting of beliefs about emotions such as: overwhelming and uncontrollable, shameful and irrational, invalid and meaningless, useless, damaging and

343 contagious. Furthermore, the Affective Control Scale (ACS; 400
344 Williams et al., 1997) was designed to assess fear of losing control 401
345 over emotions or fear of behavioral reactions to emotion. The 402
346 scale contains four dimensions: fear of anger, depression, anxiety, 403
347 and positive emotion. However, since the meta-emotional 404
348 problem refers specifically to aversive and problematic emotions, 405
349 its nature and intensity can be investigated more directly by 406
350 means of a semi-structured interview asking participants to 407
351 define what they think about their negative emotional reaction 408
352 and how much they believe such an evaluation to be true on 409
353 a Likert scale (Couyoumdjian et al., 2016). Moreover, since 410
354 previous results have shown that the *Non-Acceptance* subscale 411
355 of the DERS was strongly correlated with higher negative beliefs 412
356 about emotions, this scale could be included as a measure 413
357 of emotional regulation. Finally, changes in symptoms could 414
358 be assessed using measures used in previous studies such 415
359 as the Social Phobia Inventory (SPIN; Connor et al., 2000), 416
360 the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987), 417
361 and the Fear of Negative Evaluation Scale (FNE; Watson and 418
362 Friend, 1969). If the reduction of the meta-emotional problem 419
363 plays an active role in ImRs effectiveness, a reduction of SAD 420
364 symptoms; negative self-belief and meta-emotional problem 421
365 should be expected in the ImRs group. This reduction should be 422
366 comparable or greater than that observed in the Metacognitive 423
367 Therapy group. In addition, if as we here hypothesize, negative 424
368 self-belief is reduced by a reduction of the meta-emotional 425
369 problem, the relation between symptoms reduction and the 426
370 reduction in the strength of negative self-belief should be 427
371 mediated by a reduction in the meta-emotional problem. 428

372 373 374 **DISCUSSION OF EXISTING ACCOUNTS**

375
376 Here we proposed a meta-emotional perspective on the 429
377 mechanism underlying ImRs effectiveness. Specifically, a body 430
378 of literature shows ImRs to strongly impact self-representation, 431
379 but how? In our view, this question should be considered when 432
380 assessing the predictive power of the theories that attempted to 433
381 unravel the mechanisms underlying change in ImRs. 434

382 According to Arntz and colleagues (Arntz, 2012), ImRs 435
383 works by directly changing the valence associated with 436
384 an unconditioned stimulus (US) corresponding to the 437
385 representation of the aversive event. This theory has been 438
386 termed “US-revaluation” (Davey, 1989; Arntz and Weertman, 439
387 1999), a process where fear memories are weakened by changing 440
388 the meaning of such stimuli. Preliminary evidence in support 441
389 of the involvement of “US-revaluation” in ImRs comes from 442
390 a study showing that ImRs, added to extinction, reduced the 443
391 estimated probability of the occurrence of the “US” and a 444
392 reduction of the “US” negative valence (Dibbets et al., 2012). One 445
393 critical point of this perspective is that saying that ImRs works 446
394 by changing the valence of the memory does not necessarily 447
395 imply that the meaning of the self is changed. For instance, 448
396 Hagens and Arntz, 2012 found that ImRs brought about a 449
397 reduction in the development of self-blame cognitions along 450
398 with a reduction in intrusion development. In our view, the latter 451
399 result suggests that what is changed in the patient’s knowledge 452

400 system is not just the valence of the memory but a more general 401
402 system of learned goals, cognitions, and beliefs of oneself. 403
404 However, it appears unclear if, according to the US-revaluation 405
406 hypothesis, the reduction of negative self-blame cognition is 407
408 epiphenomenal or causal with respect to the change in memory 409
410 valence. It has been proposed that the expression of negative 411
412 emotions could restore a more general sense of control over 413
414 life, increasing self-efficacy (Arntz, 2012). However, concepts 415
416 like self-esteem or self-efficacy are rather aspecific and seem 417
418 neither sufficient nor necessary to explain the emergency and 419
420 maintenance of psychopathology or its remission. Additionally, 421
422 it has been suggested that the expression of inhibited emotions 423
424 facilitates the integration of the adverse memory within the 425
426 autobiographical knowledge base (Dibbets and Arntz, 2016). 427
428 Again, even acknowledging the cathartic power of the expression 429
430 of emotion, it seems unclear how a better integration of the 431
432 adverse memory in the autobiographical knowledge base would 433
434 result in the reduction of negative self-belief. Moreover, even 435
436 assuming that intrusions of aversive memory, as in PTSD, 437
438 are prevented by a higher integration of those memories 439
440 into the autobiographical knowledge base, integration seems 441
442 unnecessary in PD, where aversive memories seem perfectly 443
444 integrated with strong negative beliefs towards the self (i.e., 445
446 schema). 447

448 Alternatively, Brewin proposed that rather than schema 449
450 change at the core of CBT there is competition for retrieval 451
452 between alternative representations (Brewin, 2006). He suggested 453
454 that beliefs about the self do not only take the form of 455
456 abstract semantic knowledge (e.g., “*I am a failure*”) but are also 457
458 underpinned by episodic memories of specific autobiographical 459
460 events. Therefore, an improvement in symptoms could be 461
462 expected not only by verbally reappraising negative self-belief 463
464 but also preventing the retrieval of episodic memories in 464
465 support of the negative semantic knowledge. Consequently, ImRs 465
466 may “*draw on associative and automatic processes to create* 466
467 *an alternative image in memory that shares similar sensory* 467
468 *features but is accompanied by positive rather than negative* 468
469 *emotions*” (Wheatley et al., 2007). Furthermore, ImRs may 469
470 add new contextual information to the inflexible but more 470
471 salient sensory-bound representation of the aversive event, 471
472 making it more likely for the new representation to win the 472
473 retrieval competition (Brewin et al., 2010). However, it is 473
474 worth noting that the acquisition of new contextual information 474
475 relative to external events does not appear to be strictly 475
476 necessary in the traditional procedure (Arntz and Weertman, 476

477 In sum, previous accounts suggested that ImRs promotes 478
479 the reduction of symptoms and of negative self-belief either by 479
480 changing the valence of the aversive autobiographical memory or 480
481 by reducing their accessibility. In our view, both approaches offer 481
482 a plausible explanation of the observed reduction in negative self- 482
483 belief, however, they are not very accurate in clarifying how the 483
484 change in self-belief occurs. Additionally, none of the examined 484
485 theories considered the role played by emotional appraisal 485
486 in connecting the aversive memory to the negative self-belief 486
487 encapsulated within. Notably, appraisals concerning emotional 487
488 experiences involve individuals’ beliefs about emotions. 488

457 Because working with beliefs about emotions is a fundamental
458 part of cognitive and behavioral psychotherapies (Linehan, 1993;
459 Wells, 2008; Clark and Beck, 2009, 2010; Leahy, 2015) we here
460 propose a link between the change occurring in the beliefs about
461 one's own emotion and the change occurring in self-belief.

462 AUTHOR CONTRIBUTIONS

463 AM and FM substantially contributed to the conception of the
464 work and drafting the manuscript.

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