



Mental Imagery in Psychopathology: Another Step; Editorial for the special issue of Journal of Experimental Psychopathology

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Mental Imagery in Psychopathology: Editorial

The importance of mental imagery for psychopathology has been increasingly recognised in the past decade. Vivid intrusive images have long been considered a central feature of posttraumatic stress disorder (PTSD) and obsessive compulsive disorder (American Psychiatric Association, 2000). However, in the last decade studies have illuminated that imagery may also be key in a wide range of other psychiatric disorder including agoraphobia (Day, Holmes & Hackmann, 2004), social phobia (Hirsch, Clark, Mathews, & Williams, 2003), simple phobia (Pratt, Cooper, & Hackmann, 2004), depression (Reynolds & Brewin, 1998; Williams & Moulds, 2008), bipolar disorder (Hales, Deeprope, Goodwin, & Holmes, 2011), schizophrenia (Oertel et al., 2009), and so forth. This editorial aims to place the special issue in the wider context of imagery and psychopathology research, drawing in particular on examples from our own research programs and that of the authors in this special issue.

The first journal-special issue on mental imagery was in “*Memory*” in 2004 (Holmes & Hackmann, 2004). It detailed the presence and characteristics of imagery in (autobiographical) memory across a range of psychiatric disorders. A second special issue in 2007 in the “*Journal of Behavior Therapy and Experimental Psychiatry*” began to consider not only depictions of imagery in psychopathology but also the therapeutic techniques of imagery rescripting (Holmes, Arntz, & Smucker, 2007). A third special issue in the *International Journal of Cognitive Therapy* (Krans, 2011; Moulds & Holmes, 2011) further explored one specific form of imagery: intrusive memories. Alongside these special issues, books have emerged relating to mental imagery and cognitive therapy (Hackmann, Bennett-Levy, & Holmes, 2011; Stopa, 2009), overall indicating the lively interest in the role of distressing imagery in psychopathology and the need to increase our understanding in its basic mechanisms.

Theories relating to emotional imagery and psychopathology have multiplied (Brewin, Gregory, Lipton, & Burgess, 2010; Holmes & Mathews, 2010; Kavanagh, Andrade, & May, 2005; May, Andrade, Panabokke, & Kavanagh, 2004; Steel, Fowler, & Holmes, 2005) and reached into new areas. For example, while most early studies considered imagery of past events (flashbacks) newer work has also

begun to consider prospective imagery 'flash-forwards' (Engelhard, Van den Hout, Janssen, & Van der Beek, 2010; Morina, Deeprose, Pusowski, Schmid, & Holmes, 2011), and imagery with an entirely imaginary basis (Krans, Näring, Holmes, & Becker, 2010).

Of course, mental imagery is not restricted to psychopathology. On the contrary, it is considered to play a dominant role in autobiographical memory in general (see Conway, 1990 and Brewer, 1996 for reviews). However, there seems to be a special relationship between mental imagery and emotional memory that might explain the salience of mental imagery in psychopathology. For example, information processed with the instructions to "imagine" rather than "verbally think about" elicits stronger emotional responses (Holmes, Mathews, Mackintosh, & Dalgleish, 2008). This has led to the suggestion of mental imagery as an "emotional amplifier" (Holmes, Geddes, Colom, & Goodwin, 2008). Reasons for why imagery may have a greater impact on emotion, and consequently emotional disorders have been reviewed elsewhere (Holmes & Mathews, 2010).

While compared to verbal processing, imagery may have a more powerful impact on emotion, importantly the reverse has also been found: viewing highly emotional material (an aversive film) has been found to lead to increased intrusive images of the film, but not intrusive verbal thoughts (Hagenaars, Brewin, van Minnen, Holmes, & Hoogduin, 2010). Relatedly, those parts of an emotional memory best remembered have been demonstrated to be the perceptual aspects (Arntz, de Groot, & Kindt, 2005). With image-based memory so closely linked to emotion, and psychiatric disorders being characterized by exaggerated or dysfunctional emotions, imagery may not just be a memory-feature but may also play a role in the aetiology of psychiatric disorders. As over eight years have passed since the first special issue on imagery, it is time for a new special issue, this time focusing on the psychological mechanisms underlying imagery and imagery's role in the aetiology of emotional disorders. In addition, some aspects regarding imagery and treatment are addressed.

Various treatment interventions for psychiatric disorders have embraced the power of mental imagery (Hackmann et al., 2011). For example, evidence-based effective strategies such as 'imaginal exposure' involve imagining the traumatic event / feared situation as a main goal. In forms of imagery rescripting, patients imagine the original event but also create a new script with a more favourable outcome (Arntz, Tiesema, & Kindt, 2007; Holmes et al., 2007). Imagining this new script is thought to update the emotions evoked by the old memory or change its meaning (Hagenaars & Arntz, 2011). Three articles in this special issue address such image-based therapy: Arntz (2012, this issue) presents a review of the evidence for and mechanisms of imagery rescripting therapy, and two empirical studies have investigated imagery rescripting in both an experimental (Hagenaars, 2012, this issue) and clinical setting (Stopa, Brown, & Hirsch, 2012, this issue).

This special issue also includes two theoretical articles, investigating the role of mental imagery in motivated behaviour (Andrade, May, & Kavanagh, 2012, this issue), and connections with actual memory and perceptual processes (Van de Ven & Linden, 2012, this issue). Two articles are included that describe imagery in psychiatric disorders that have hitherto been little investigated; chronic pain disorder (Berna, Tracey, & Holmes, 2012, this issue; Berna et al., 2011) and anorexia (Blackburn, Thompson, & May, 2012, this issue).

Eight empirical studies are presented which address working mechanisms and explanations for the link between imagery and psychopathology. These studies explore different aspects and possible mechanisms of imagery. Four articles describe factors that influence mental imagery. Two innovative experiments address dual tasks that possibly affect imagery vividness and emotional intensity; clay modelling (Andrade, Bosworth, & Baugh, 2012, this issue) and eye movements (Engelhard et al., 2012, this issue). Such studies are obviously of great clinical relevance, for example in the context of reducing

the impact of stressful re-experiencing during (imaged-based) trauma recall in PTSD. Two other studies explore the role of thought processes (rumination: Ball, Scragg, & Brewin, 2012, this issue; unconscious thought: Krans & Bos, 2012, this issue) on intrusive images. With such intrusions being a hallmark of several psychiatric disorders, the results of such experiments may contribute to a refining of cognitive behaviour therapies. Four other empirical studies in this issue investigate the reverse process, i.e., how imagery affects emotional symptoms, addressing the effect of imagery strategies on self-concept (Stopa et al., 2012, this issue), affect (Nelis, Vanbrabant, Holmes, & Raes, 2012, this issue), and intrusive memories (Hagenaars, 2012, this issue), as well as the association between vantage perspective and experiential avoidance / dysphoria (Moulds, Williams, Grisham, & Nickerson, 2012, this issue). Such studies are of great importance and aim to stimulate further exploration of the underlying working mechanisms and consequences of mental imagery.

Future frontiers will be to continue in this vein, as this is still the start of a research field which is tiny in size compared to the wealth of research on “verbal” thought and processes. Aetiology of intrusive imagery is a key area that we need to understand more thoroughly, and while our own labs have begun to think about a variety of processes such as dissociation (Hagenaars & Krans, 2010) and tonic immobility (Hagenaars & Putman, 2011; Hagenaars, Van Minnen, Holmes, Brewin, & Hoogduin, 2008) many more processes require research attention and quite simply have not yet been examined. A new challenge will also be to improve treatments to deal with negative imagery (including imagery rescripting as discussed above) and also to promote more positive forms of mental imagery for emotional wellbeing (Pictet, Coughtrey, Mathews, & Holmes, 2011; Raes, Williams, & Hermans, 2009). Given the wealth of questions, and yet the relative scarcity of studies, clearly more researchers are needed in the field!

In conclusion, imagery seems to be a transdiagnostic feature of emotional memories that may be related to the development and maintenance of psychopathology. We have only started to understand when and where it occurs, and just begun the journey of investigating associated mechanisms. Yet an experimental psychopathology approach is an essential part of the puzzle eventually leading to improved psychological treatments. This special issue aims to continue to contribute to the understanding of the role of imagery in psychopathology by focusing on correlates, causes and consequences of imagery across a variety of disorders. No doubt a new special issue should be imagined soon.

Acknowledgements

M. Hagenaars was supported by a grant for innovative research (#016.105.142) from the Netherlands Organization for Scientific Research (NWO). Emily Holmes was supported by a Wellcome Trust Clinical Fellowship (WT088217) and is grateful for grant support from the Lupina Foundation, and the UK National Institute of Health Research (NIHR).

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