Sleep Medicine Reviews 45 (2019) 131–132

Contents lists available at ScienceDirect

Sleep Medicine Reviews

journal homepage: www.elsevier.com/locate/smrv

REPLY

Reply to Jenkins' commentary on "The mechanisms of action underlying the efficacy of psychological nightmare treatments"

In 2017 we conducted a systematic review combined with a qualitative thematic analysis to document the mechanisms of action of nightmare treatments discussed in the scientific literature. We regrouped different arguments from 64 articles into six mechanisms of action that summarized experts' opinions on how the various nightmare treatment protocols and techniques worked, that is, through increased sense of mastery, emotional processing, modification of beliefs, restoration of sleep functions, decreased arousal and prevention of avoidance. We also proposed an illustrated conceptualization of the relations between these six mechanisms of action. We assigned an overarching position to emotional processing, mostly because it was the most operationally defined, empirically supported and comprehensive mechanism of action, but also because that, contrary to the others, there is evidence supporting that emotional processing of the nightmare content or situation happens during both waking and sleep states.

In his Commentary "Nightmare resolution: Where to begin, where to end?", Dr. David Jenkins shared his theoretical perspective on the psychological mechanisms involved in nightmare treatment. He underlined the need to address nightmare content, i.e., the specific meaning of the nightmare, the nightmare endpoint and the overall dream life, as an important therapeutic ingredient. He also argued for the relevance of mastery, and that our findings' interpretation did not adequately recognize its importance. In this response, we will elaborate a little further on the importance of meaning and mastery in the psychological treatment of nightmares.

Discussing and assigning meaning to nightmares is one important focus in the psychodynamic approaches to nightmare treatment. As stressed out in a recent consensus paper on the etiology and treatment of nightmare disorder [1], evidence of the effectiveness of these approaches is currently restricted to a small number of uncontrolled case series. Since we systematically selected only evidence-based treatments (as listed in [2]), this may explain why assignment of meaning was not included explicitly in our list of therapeutic strategies. However, when we discussed modification of beliefs, we did address the relevance of nightmare meaning: we underlined the importance of exploring the nightmare theme, either directly, or indirectly, as could be the case if the experience of a traumatic event was emotionally processed as part of a PTSD treatment without the nightmare being specifically discussed. Indeed, most patients with PTSD (77%) report a significant improvement of their nightmares even when they are not directly addressed in treatment [3]. Many authors argued that nightmare treatment works because it contributes to change the perception of the nightmare experience, from an uncontrollable unwanted event to a modifiable script, thus changing its distressing content as well as the catastrophic beliefs surrounding the nightmare experience. Exploring and gaining control over the nightmare theme would enable individuals to cognitively restructure the meaning of the traumatic aspects of the nightmare and to understand it. However, because some early evidence exists that modifying a nightmare script without conviction, or in a meaningless way, is inefficient, and because the exploration of a nightmare theme can happen without targeting nightmares directly in treatment, we have argued that thematic exploration may be a moderator of nightmare treatment more than a mechanism of action. Of course, all of these explanations remain hypotheses that need to be empirically tested.

Mastery is defined as a deep conviction that one is in control of one's nightmares. Empirical observations of mastery as a mechanism of action have been reported in the beginning of the 2000s [4,5]; the construct as an explanation of nightmare treatment efficacy was proposed as early as 1978 [6]. Far from demoting it, our review showed that it is the most frequently discussed mechanism of action for nightmare treatment. To use the words of Spoormaker and collaborators, "to know that one can control the nightmare is possibly equally as important as actually controlling it" ([7], p. 185), and a lot of our clinical work with patients suffering from chronic nightmares, whatever our approach may be, lies in our ability to demonstrate that they can regain control over their dreaming experience. The main problem with mastery relies in its operationalization and its measure. Current research on mastery relies on qualitative material provided by the patients (e.g., written scenarios; [4]) or on questions targeting locus of control [8] or control of dream content [9]. In a treatment study of nightmares and PTSD among sexual assault victims, our own team faced the challenge of finding a psychometrically sound way to measure mastery. We chose to develop self-efficacy scales: self-efficacy is a concept similar to mastery roughly defined as an individual's belief in their innate ability to achieve goals. Our results showed that self-efficacy scales could allow for the mastery construct to be measured as a mechanism of action in nightmare treatment (more specifically, imagery rehearsal therapy or IRT); they showed that IRT increased self-efficacy to overcome nightmares, which in turn predicted post-treatment sleep quality [10]. However, the results did not show a mediation effect, suggesting that self-efficacy, and therefore mastery, may not be a primary mechanism of action of nightmare treatment.

There may be still more questions than answers regarding meaning and mastery in the dream world; we were happy that our paper sparked discussion and debate. Efforts in making nightmare treatment known and available to patients are crucially

https://doi.org/10.1016/j.smrv.2019.03.007

needed: less than one-third of nightmare sufferers believe their nightmares are treatable and only 38% talked about it to a health-care provider [1]. If debate leads to better research, great research to wider dissemination, and dissemination to improved care for patients, then we are on the right path.

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15 March 2019
Available online 3 April 2019