Article

Cognitive Attentional Syndrome and Metacognitive Beliefs in Male Sexual Dysfunction: An Exploratory Study

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Abstract

Erectile dysfunction (ED) and premature ejaculation (PE) are two forms of male sexual disorder with both psychological and physical features. While their cognitive, attentional, and affective components have been investigated separately, there is a lack of knowledge about the role played by cognitive attentional syndrome in their onset and maintenance. The aim of the present study was to investigate the possible contribution of perseverative thinking styles and thought control strategies to the development and maintenance of ED and PE. The authors hypothesized that such modes of processing might constitute a cognitive attentional syndrome specific to these disorders and sustained by particular metacognitive beliefs. A semistructured interview was administered to 11 participants with ED and 10 with PE in order to assess their metacognitive beliefs and cognitive attentional processes. The results suggest that individuals with ED and PE adopt a range of cognitive attentional strategies aimed at improving their sexual performance, and endorse both positive and negative metacognitive beliefs about these thinking responses. Overall, their cognitive and attentional patterns worsened negative internal states, reduced sexual excitement, detached them from their bodily sensations, and hindered sexual functioning. These preliminary findings suggest that perseverative thinking, thought control strategies, and metacognitive beliefs may play a key role in the onset and maintenance of male sexual dysfunction.

Keywords

premature ejaculation, erectile dysfunction, metacognitive beliefs, cognitive therapy, cognitive attentional syndrome

Introduction

The present study investigated two male sexual disorders: erectile dysfunction (ED) and premature ejaculation (PE), respectively defined as a "persistent or recurrent inability to attain, or to maintain an adequate erection until completion of the sexual activity" and "persistent or recurrent ejaculation with minimal sexual stimulation before, on, or shortly after penetration and before the person wishes it" (American Psychiatric Association, 2000, p. 230) or within 2 minutes of penetration (Waldinger, Berendsen, Blok, Olivier, & Holstege, 1998). There is little agreement about the causes of these dysfunctions beyond the fact that they may be determined by multiple factors (Wincze & Carey, 2001). Among psychological factors, the literature places particular emphasis on the association between sexual dysfunction and emotional disorders (e.g., depression and anxiety). For this reason, it has been theorized that conditions such as anxiety and depression are part of a latent internalizing dimension that also includes sexual dysfunction (Laurent & Simons, 2009). Furthermore, clinical evidence and empirical research have pointed up a connection between negative affect and sexual dysfunction (e.g., Kaplan, 1974; Zilbergeld, 1978) which appears to be complex and multidirectional (Weiner & Rosen, 1999) and has yet to be clearly defined (Laurent & Simons, 2009). With regard to mood disorders, it has been reported in the literature that depressed

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men tend to display impaired erective functioning (Thase et al., 1988), while up to 50% of men with ED are depressed or display depressive symptoms, and depression is two to three times more probable in men with ED than in healthy individuals (Laurent & Simons, 2009). In addition, a cross-national study reported that depression was associated with ED and that men with ED were 2.09 times more likely to be depressed (Nicolosi, Moreira, Villa, & Glasser, 2003). Associations between sexual impairment and anxiety have also been widely reported. More specifically, among a set of salient social, psychological, and physical issues, self-measured anxiety has been suggested to be the factor most strongly associated with PE (Dunn, Croft, & Hackett, 1999). However, although anxiety is common among people with sexual dysfunction, the causal relations underpinning this link are unknown (Norton & Jehu, 1984).

In relation to cognition, research has also explored the role of cognitive schemas (Nobre & Pinto-Gouveia, 2009a, 2009b), beliefs about sexual activity (Nobre & Pinto-Gouveia, 2006a; Nobre, Pinto-Gouveia, & Gomes, 2003), emotions (Nobre & Pinto-Gouveia, 2003, 2006b), and automatic thoughts (Nobre et al., 2003; Nobre & Pinto-Gouveia, 2008) in male sexual dysfunction. With regard to attention, studies have been conducted to investigate its role in sexual arousal (e.g., de Jong, 2009), while attention management has been conceptualized as a structural factor in PE (Soydan et al., 2013). Informed by the principles of cognitive theories, these studies have investigated what a man thinks, rather than the cognitive and attentional patterns typically displayed by men with sexual dysfunction.

The metacognitive model, on the other hand, is based on the idea that "it is not merely what a person thinks but how he or she thinks, that determines emotions and the control one has over them." (Wells, 2008, p. 1). In line with this view, Wells and Matthews (1994), in their metacognitive theory of psychological dysfunction, proposed that psychological disturbance is underpinned by a set of metacognitive beliefs that are responsible for the maintenance of maladaptive attentive (e.g., threat monitoring) and cognitive (e.g., rumination, worry, thought suppression) coping strategies. These maladaptive patterns make up a cognitive attentional syndrome (CAS; Wells, 2000) that is underpinned by specific metacognitive beliefs and plans controlling the use of thought and attention. Metacognitive beliefs may be defined as the information individuals hold about their own cognition and the coping strategies that affect it. Particular metacognitive beliefs lead to the activation of CAS and interfere with emotion down-regulation (Wells, 2000). Examples of metacognitive beliefs may include "worrying will help me to cope" or "my thoughts are out of control." Metacognitive theory has informed the development of disorder-specific CAS models for generalized anxiety disorder, depression, obsessive-compulsive disorders, posttraumatic stress disorder and social phobia (Wells, 2008).

Some of the components of CAS have been investigated in relation to male sexual dysfunction, without being conceptualized as part of an overarching metacognitive framework. For example, Hartmann, Schedlowski, and Krüger (2005) reported that, compared with normal controls,

> during sexual intercourse, PE patients were totally preoccupied with thoughts about controlling their orgasm, while this was not a strong cognitive factor for the functional men. Other prevailing cognitions in PE patients referred to the anticipation of a possible failure and the embarrassing situation following a rapid ejaculation. (p.96).

Men with PE are also significantly more prone to having distracting thoughts and thoughts about maintaining their erections (Hartmann et al., 2005).

As far as the authors are aware, no studies have investigated whether CAS and metacognitive beliefs play a role in maintaining sexual dysfunction. The key aim of this study was to explore whether CAS thinking styles and related metacognitive beliefs are implicated in the sexual performances of men with PE and ED. In keeping with the metacognitive perspective, it was hypothesized that ED and PE might be triggered, maintained, or even worsened by CAS, a set of factors leading the individual to focus continuously on the problem itself in a maladaptive and unhelpful way during sexual activity. It was further hypothesized that this mode of processing would be underpinned by specific positive and negative metacognitive beliefs.

Participants' thinking patterns and metacognitive beliefs were assessed via the metacognitive profiling questions developed by Wells (2000), which elicit detailed information about the metacognitive processes that may be involved in the maintenance of psychological disorders. Given that little is known about CAS and metacognitive beliefs in ED and PE, the semistructured nature of the metacognitive profiling interview allowed the authors to investigate these aspects without imposing preconceived ideas as researchers on the informants. Metacognitive profiling has already been used in this way to investigate specific underlying factors in psychological distress across a wide range of situations and conditions, such as anger rumination (Simpson & Papageorgiou, 2003), alcohol use (Spada & Wells, 2006), body dysmorphic disorder (Cooper & Osman, 2007), procrastination (Fernie & Spada, 2008), desire thinking (Caselli & Spada, 2010), smoking (Nikčević & Spada, 2010), chronic fatigue syndrome (Maher-Edwards, Fernie, Murphy, Nikčević, & Spada, 2012), and gambling disorder (Spada,

Giustina, Rolandi, Fernie, & Caselli, 2015). Thus, the primary aim of the current study was to investigate the nature of metacognitive processes in ED and PE, and more specifically to identify the CAS thinking patterns and positive and negative metacognitive beliefs of individuals with these conditions. Given the preliminary and exploratory nature of the study, no detailed hypotheses were generated.

Method

Participants

The purposive convenience sample consisted of 11 ED and 10 PE participants. All diagnoses were based on *Diagnostic and Statistical Manual of Mental Disorders–Fourth edition* criteria (American Psychiatric Association, 1994). For the purposes of the present study, only participants' primary diagnosis was taken into account, defined as the first and most impairing disorder for which they had sought medical assistance. All participants were recruited through an andrology service they had consulted and none presented with a lifelong sexual dysfunction. Inclusion criteria were as follows: (a) the absence of organic causes for the sexual disorder, as assessed by andrology professionals; (b) participants of age 18 or older; (c) provision of informed consent; (d) good understanding of spoken and written Italian; (e) the absence of comorbidity, that is, no diagnoses of other Axis 1 or Axis 2 disorders, as assessed by independent interviewers who were blind to the aims of the study; (f) no history of past psychotherapy, in order to minimize the likelihood of a psychopathological condition predating onset of the sexual problem. All participants took part in the study anonymously and on a voluntary basis. Their ages ranged from 27 to 49 years and mean age was 40 years ($SD = 7.4$). The sample was entirely Caucasian.

This research was carried out in line with the American Psychological Association Ethics Code (American Psychological Association, 2010) and approved by the Ethics Committee of MIUR (Italian Ministry of Education, University, and Research). In addition, the study was approved by the institutional review board at Sigmund Freud University of Milan, Italy (www.milano-sfu.it). Participants were informed about aims and methods of the research and fully and clearly briefed about the interview in place to protect their privacy and anonymity before the data were gathered. All the participants provided explicit written consent and confirmed their understanding that their anonymity and confidentiality would be protected throughout dissemination of the research findings. All files will be deleted within 5 years of first storage.

Materials

The interview was based on the metacognitive profiling template developed by Wells (2000). The purpose of metacognitive profiling is to identify metacognitive beliefs and problematic cognitive processing patterns (CAS) that are activated under conditions of stress. To this end, the interviewee is asked a set of questions, which in the present study initially focused on a recent episode involving sexual dysfunction.

Procedure

All participants were first assessed by an andrology team to exclude both organic causes and lifelong presence of sexual disorder. Next, the sample was screened by independent interviewers who were blind at the aims of the study to evaluate the possible co-occurrence of another Axis 1 or Axis 2 psychological disorder. Finally, patients meeting all inclusion criteria were invited to participate in the study on a voluntary and unpaid basis. Informed consent was obtained from all those who volunteered to take part.

All participants were interviewed using the metacognitive profiling template (Wells, 2000) which had been adapted ad hoc to explore the cognitive aspects of experiencing sexual dysfunction. The interview schedule was designed to elicit data under four main predefined headings: (a) *Cognitive style during a negative sexual experience*: Participants were asked to describe a recent episode of negative sexual experience and to identify what triggered their perception of failure (e.g., "Can you recall a recent sexual episode perceived as problematic? What was your first thought? How did you feel? What physical sensations did you have?"). Participants were also asked to describe how they had attempted to cognitively manage these triggers during the sexual episode and whether this had included negative appraisal (e.g., "Did you have any specific thoughts about what you were feeling? Did you try to control your thoughts?"). (b) *Attentional focus during the sexual episode*: Participants were asked about the focus of their attention while engaging in sexual activity, and to explain what advantages and disadvantages they had noted of using their attention in that way (e.g., What did you pay attention to during the episode? Do you think that focusing your attention in that way was helpful or damaging to your performance? How?"). (c) *Pursued goal*: Participants were asked about the purpose of their cognitive and attentional response, whether they had reached it, how they knew when their goal had been achieved or when the process of achieving the goal had broken down (e.g., "Why did you focus your attention in that way? Why did you use your thoughts in that way? Did you feel you attained your goals? What was the

Table 1. Categorization of Participants' Answers (n = 21).

	10 PE	11 ED
Cognitive style	Self-imposed statements: 1	Self-imposed statements: 3
	Suppression and distraction: 9	Suppression and distraction: 2
	Rumination: 0	Rumination: 3
	Worry: 0	Worry: 3
Attentional focus	Partner: 6	Partner: 6
	Own thoughts and sensations: 4	Own thoughts and sensations: 5
Goal	Better performance: 10	Better performance: 7
	Better understanding: 0	Better understanding: 2
	No goal: 0	No goal: 2
Positive metacognitive beliefs	Enhancing performance: 8	Enhancing performance: 5
	Controlling negative thoughts and emotions: 2	Controlling negative thoughts and emotions: 3
	Better understanding: 0	Better understanding: 3
Negative metacognitive beliefs	Worsening performance: 8	Worsening performance: 6
	Increasing negative thoughts and emotions: 3	Increasing negative thoughts and emotions: 5
	Uncontrollability: 0	Uncontrollability: 6

Note. PE = premature ejaculation; ED = erectile dysfunction.

signal that indicated to you that your goal had been achieved?"). (d) *Metacognitive beliefs*: In order to examine positive and negative metacognitive beliefs, participants were asked what they perceived to be the advantages and disadvantages of their cognitive-attentional responses ("Do you think that there are advantages and/or disadvantages associated with using your thought and your attention in that way? Do you think it is helpful for you? Do you think it is damaging? How?").

Data Handling and Analysis. The data were collected over a period of 6 months. Interviews were audio recorded, transcribed, and anonymized. Each interview lasted from 20 to 40 minutes approximately with an average duration of 32.46 minutes. To ensure accuracy of transcription, the texts were randomly checked against original recordings. Digitalized files containing participants' sensitive data and the transcripts were stored on the lead researcher's computer and password protected to ensure confidentiality; hard copies of the questionnaires, and signed consent forms were stored in a locked filing cabinet to which only the first author had access. Top-down thematic content analysis, based on a deductive method, was applied to the interview data. This analysis drew on both the primary material (*the patients' transcripts*) and secondary sources describing theoretical and therapeutic approaches (*metacognitive theory*). The transcripts were initially analyzed by an independent researcher who was not trained in the metacognitive protocol (Braun & Clarke, 2006), but implemented a descriptive and data-driven thematic approach which involved inductively identifying codes and themes from the raw data (Boyatzis, 1998). Once the initial descriptive thematic analysis had been completed, it emerged that there was a strong similarity between the categories derived from the raw data and the four categories making up the metacognitive profile template. The analytical process was therefore extended and the emerging themes grouped together under the metacognitive profile template categories. Triangulation strategies (Morse, Barrett, Mayan, Olson, & Spiers, 2002) were used to ensure methodological coherence, appropriateness of the sampling procedures, and negative case analysis. The first author held several debriefing sessions with the remainder of the research team to discuss data collection procedures, analytical steps, and interpretation issues.

Results

All participants provided answers to all of the interviewer's questions. Table 1 summarizes participants' answers by cognitive category.

Cognitive Style During a Negative Sexual Experience

Participants, regardless of the type of dysfunction with which they had been diagnosed, identified two types of trigger: negative bodily sensations (18 participants, e.g., "I perceived that I was losing my erection") and negative anticipatory thoughts about their sexual performance (14 participants, e.g., "I thought that I definitely would not be able to maintain a good enough erection"). With regard to cognitive style, participants reported using four different strategies in response to the trigger: (a) they ruminated about the trigger and its consequences (three participants, all with ED), (b) they worried about negative sexual

performance outcomes (three participants, all with ED), (c) they tried to motivate themselves via self-imposed statements (three participants with ED, one participant with PE), and (d) they tried to suppress, and to distract themselves from, negative thoughts or bodily sensations (two participants with ED, nine participants with PE).

Attentional Focus During Sexual Approach

Participants reported that their attention during sexual episodes was mainly focused on monitoring (a) their partner's reactions and sensations (six participants with ED, six participants with PE) or (b) their own thoughts and bodily sensations (five participants with ED, four participants with PE).

Pursued Goal

Seventeen participants reported using their particular strategies with the aim of achieving improved sexual performance (7 ED, 10 PE), two participants with ED stated that their aim was to understand the causes of their problem, and two participants with ED did not report any goal. Six participants with PE (none with ED) reported that they had partially reached their goal, while overall 14 participants reported they had not. Seven participants with PE stated that they had based their evaluation of goal attainment on duration (unspecified) of sexual activity, six participants (three with ED and three with PE) took their partner's orgasm as an indication of success, four participants with ED rated success in terms of a bodily sensation of erection, while four participants with ED could not specify what they had based their judgment on.

Metacognitive Beliefs

Table 2 summarizes participants' positive and negative metacognitive beliefs in light of four specific self-reported cognitive-attentional responses: *rumination, distraction, worry*, and *self-imposition* (Hsu et al., 2015).

Eighteen participants identified positive metacognitive beliefs about the usefulness of their cognitive-attentional response in: (a) enhancing sexual performance (five participants with ED, eight with PE), (b) controlling negative thoughts and emotions (three participants with ED, two participants with PE), and (c) understanding the causes of their sexual problem (three participants with ED). Eighteen participants identified negative metacognitive beliefs, which concerned the following: (a) the direct negative impact of thought patterns on sexual functioning, that is to say, some of the reported ways of thinking and directing attention were damaging to overall sexual performance (six participants with ED, eight with PE); (b) an increase in negative thoughts and emotions (five participants with ED, three participants with PE); and (c) the uncontrollability of their cognitive-attentional response (six participants with ED).

Discussion

The results of this study indicate that metacognitive beliefs and CAS may play a role in the maintenance of sexual dysfunction and in the exacerbation of negative emotional states. The current findings suggest that there are both similarities and differences in the CAS models of individuals with ED and PE.

The similarities concern triggers, goals, and attentional focus. All individuals activated CAS patterns in response to negative sensations or thoughts associated with their sexual functioning, generally with the aim of improving their sexual performance or, in the case of only a few men with ED, of better understanding their sexual disorder. For both groups, attentional focus was almost equally distributed between internal bodily sensations and external partner reactions. Both of these attentional strategies may have been applied to monitor what individuals viewed as signals of (a) threat and (b) progress toward goals. Participants' goals appeared to be partly related to their cognitive style: all the men with PE reported that their goal was to improve their sexual performance, and consistently with this aim, none of them engaged in perseverative thinking styles such as worry or rumination. On the other hand, a few of the men with ED were committed to reaching a better understanding of their disorder, and it is possible that they tried to attain this goal by worrying or ruminating, as indicated by six of them.

The differences between ED and PE mainly concern cognitive style. ED participants predominantly activated a perseverative thinking style in the form of self-imposed statements, rumination, or worry. In contrast, PE participants reported more negative appraisal of triggers, and the activation of thought control strategies (e.g., seeking distraction) to suppress them: this aligns PE patients with patients with body dysmorphic disorder (Cooper & Osman, 2007). The participants with PE also reported a higher incidence of partial goal achievement than those with ED, despite admitting that they were unable to solve their problem. Thus, it may be that while thought control strategies can lead to a reduction in arousal and anxiety in the short term, in the longer term they may become a coping strategy used to achieve cognitive and emotional avoidance, which may also interfere with emotional processes and increase intrusive target-related thoughts via the well-established rebound effect (Davies & Clark, 1998). Positive metacognitive beliefs identified by participants concerned the contribution of their cognitive and

Table 2. Participants' Positive and Negative Metacognitive Beliefs About Their Cognitive-Attentional Responses (n = 21).

	Cognitive response	Positive metacognitive beliefs	Negative metacognitive beliefs
ED	Rumination	"It helps me to discover similar sides to different situations"	"Ruminating gets me down"
		"It helps me get a better insight into the problem"	"It is automatic and outside of my control"
ED	Distraction	"Distraction helps me to calm down: my penis starts to react"	—
ED	Worry	"It can help me to have good intercourse"	"I feel that worry increases my level of anxiety"
			"It keeps my attention on my flabby penis and I can't get an erection"
			"I have no control over it"
ED	Self-imposition	—	"It increases my anger and destroys my arousal"
ED	Rumination	—	"The more I think about it, the worse it is for my performance"
			"It's my nature"
			"I can't control this reaction"
ED	Self-imposition	"It can improve my performance and allow my partner to reach orgasm"	"It doesn't solve the problem and stops me from performing"
ED	Worry	"It stops me from going on with the intercourse and from becoming even more stressed"	"There is no more sexual intercourse and this makes me angrier"
ED	Rumination	"It helps me to understand the causes of my present and past failures"	"Rumination makes me more demoralized and leads me not to be able to have intercourse"
			"I can't control it"
ED	Worry	"It may help me to understand what I can do to perform better"	"Worrying doesn't help me get an erection and it makes me feel uncomfortable and disappointed"
			"Worry doesn't help me fix things"
			"When it starts I cannot stop"
ED	Distraction	" It prevents me from being disturbed by negative thoughts during intercourse"	"Sometimes distraction doesn't help at all or only for a short time"
ED	Self-Imposition	"This reaction spurs me to do my best"	"My emotions change in negative ways but I can't get control over my thoughts"
PE	Distraction	"I can extend the intercourse by some minutes"	"Getting distracted makes my erection weaker"
PE	Distraction	"It helps me to avoid ejaculating straight away"	"Distraction makes my erection weaker or makes it disappear"
PE	Self-imposition	"By reacting in this way, I remain focused on the intercourse"	"Needing to be distracted increases my anxiety and I usually reach orgasm too soon"
PE	Distraction	"Distraction allows me to continue intercourse and feel emotionally satisfied"	—
PE	Distraction	"Distracting myself helps me to prolong my performance a little"	"Distraction does not help me to perform for longer"
			"The negative thoughts keep coming back"
PE	Distraction	"I can reach orgasm later, and this helps my partner to reach orgasm"	"It doesn't change my negative thoughts or feeling of emergency"
PE	Distraction	"Distracting myself from the situation helps me to feel more relaxed both physically and emotionally"	"Distraction makes my erection weaker"
PE	Distraction	—	"Distraction makes my erection weaker, and my mood worse"
PE	Distraction	"It can keep my erection under control"	"I'm not thinking about what I'm doing and this is not honest towards my partner"
PE	Distraction	"This can improve my performance"	"Distraction doesn't help me to fix things"

Note. PE = premature ejaculation; ED = erectile dysfunction.

attentional responses to improving sexual functioning and to understanding and controlling negative sensations and thoughts. Such metacognitive beliefs may be involved in the activation of perseverative thinking and thought

control strategies, and are in line with those of patients with chronic fatigue syndrome (Maher-Edwards et al., 2012). Participants' negative metacognitive beliefs concerned the uncontrollability of perseverative thinking styles and the negative impact of CAS thought patterns on emotional states and sexual functioning. These beliefs may play a role in promoting negative affect and loss of arousal, which in turn may further exacerbate patients' CAS tendencies.

Taken together, these findings support application of the metacognitive model to sexual dysfunction. The CAS is activated on the basis of positive metacognitive beliefs with the aim of regulating emotions and improving sexual functioning; subsequently, however, CAS thinking patterns and styles worsen negative internal states, reduce sexual excitement, promote detachment from bodily sensations, and encourage recurrent negative thinking. This in turn leads to a perseveration in CAS because attempted goals are never or only partially reached. Consistently with this hypothesis, men with ED, who reported more negative metacognitive beliefs about uncontrollability, were also more inclined to adopt perseverative thinking styles such as worry and rumination. On the other hand, no men with PE reported negative metacognitive beliefs about uncontrollability, or worried, or ruminated about a trigger. This is consistent with the metacognitive model of generalized anxiety disorder (Wells, 2008) in which negative metacognitive beliefs concerning uncontrollability play an important role in triggering meta-worry, which in turn exacerbates both worry and negative emotions.

The limitations of this research include the small sample size and the possibility that individual participants may have been affected by more than one kind of sexual dysfunction. In fact, it is possible that following the onset of a particular dysfunction (e.g., ED), the individual may develop additional sexual issues (e.g., loss of an adequate erection). Consequently, the sample may have been contaminated by the presence of participants with concurrent symptoms, thus undermining the evidence for differential metacognitive profiles corresponding to single diagnoses.

Nonetheless, from a therapeutic perspective, the findings suggest that the techniques and principles of metacognitive therapy (e.g., Attentional Training; Wells, 2008) may be beneficial to some patients suffering from ED or PE. In particular, men with ED would benefit from developing more flexible control over their perseverative thinking style, while men with PE should reduce their need to control negative thoughts and to monitor the negative implications of their sexual functioning. Future studies investigating the role of CAS and related metacognitive beliefs should adopt specific psychometric measures for all variables with a view to collecting robust data to compare with these preliminary findings, and should recruit a large number of participants in order to confirm or disconfirm the pattern identified here. Despite the small sample size and the retrospective nature of the measures administered, the current findings provide preliminary evidence that CAS and metacognitive beliefs may play a key role in sexual dysfunctions, consistently with previous research on body dysmorphic disorder (Cooper & Osman, 2007), primary insomnia (Waine, Broomfield, Banham, & Espie, 2009), desire thinking (Caselli & Spada, 2010), smoking (Nikčević & Spada, 2010), chronic fatigue syndrome (Maher-Edwards et al., 2012), and gambling disorder (Spada et al., 2015).

Declaration of Conflicting Interests

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