



# Attentional control moderates the relationship between activation of the cognitive attentional syndrome and symptoms of psychopathology

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## ABSTRACT

Wells's (2009) metacognitive theory suggests that inflexible and recurrent styles of thinking in response to negative thoughts, feelings, and beliefs exacerbate symptoms of psychopathology. Such styles of thinking underlie the cognitive attentional syndrome (CAS). Using a large nonclinical sample ( $N = 456$ ), the present study examined whether attentional control moderates the relationship between activation of the CAS and symptoms of psychopathology (i.e., depression, anxiety, and stress symptoms). Consistent with predictions, relationships between activation of the CAS and assessed symptoms became increasingly stronger as attentional control *decreased*. Thus, for individuals who have a relative inability to disengage and shift attention from threat information (i.e., low attentional control), use of CAS-relevant coping strategies (e.g., rumination, worry) appears to be associated with especially deleterious psychological effects. Conceptual and therapeutic implications are discussed.

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## 1. Introduction

A transdiagnostic approach is based on the notion that the focus of theory and treatment should be on features that cut across psychological disorders (Mansell, Harvey, Watkins, & Shafran, 2008). Wells's (2009) metacognitive model offers a promising transdiagnostic approach for conceptualizing and treating psychopathology, particularly for mood and anxiety disorders. According to Wells, metacognitive theory "deals with the way that people think and it assumes the problem rests with inflexible and recurrent styles of thinking in response to negative thoughts, feelings and beliefs" (p. 3). Wells termed this style of thinking as the cognitive attentional syndrome (CAS), which is marked by repetitive forms of thought (e.g., rumination, worry) and other maladaptive coping behaviors (e.g., thought suppression).

The CAS is believed to develop due to metacognitive beliefs about the usefulness of repetitive forms of thought and maladaptive coping behaviors. For example, an individual might hold positive beliefs about using repetitive forms of thought to reduce the likelihood of perceived threat (e.g., *Worrying about the future means I can avoid danger*; Wells, 2009). Such metacognitive beliefs purportedly lead to the development of a propensity for responding to negative thoughts, feelings, and beliefs with CAS-relevant coping strategies that maintain negative emotionality and

strengthen maladaptive beliefs (Wells, 2009). Wells's metacognitive theory differs from more traditional cognitive-behavioral perspectives in that it suggests that maladaptive beliefs are influenced by CAS-relevant coping strategies. That is, the theory holds that CAS-relevant coping strategies – and not the underlying maladaptive beliefs per se – lead to emotional and behavioral consequences. Wells asserts that the use of CAS-relevant coping strategies is associated with a number of deleterious outcomes, including development of attentional bias for perceived threat. A bias for attending to threat is thought to exacerbate mood and anxiety symptoms. As such, reducing use of CAS-relevant coping strategies is a core treatment goal of metacognitive therapy (Wells, 2009).

Consistent with metacognitive theory, individual differences in the ability to disengage from threat have been implicated in the maintenance and exacerbation of psychopathology. More specifically, Mathews (2004) stated that the "failure to disengage attention from threat information may be one causal factor in maintaining anxiety, by increasing the awareness of potential dangers. If so, then good attentional control may help to counter these adverse consequences, whereas poor control may exacerbate them." (p. 1023). In support of Mathews's assertion, research has shown that attentional control (AC: i.e., the use of top-down executive attentional processes to regulate bottom-up emotional responses; Derryberry & Reed, 2002) is positively associated with indicators of positive well-being (e.g., positive affect) and inversely associated with indicators of negative well-being (e.g., neuroticism: Compton, 2000; Eisenberg, Fabes, Guthrie, & Reiser, 2000).

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Research has provided additional support for the possibility that AC might serve as a protective individual difference variable against psychological symptoms. For example, research has shown that higher AC is associated with significantly faster recovery from trauma re-telling induced negative affect (Bardeen & Read, 2010) and lower AC is associated with externalizing behaviors and relatively poor social adaptation (Eisenberg et al., 2000). Further, AC has been shown to moderate the relation between emotional distress (i.e., trait anxiety, posttraumatic stress symptoms) and the ability to disengage from threat stimuli (Bardeen & Orcutt, 2011; Derryberry & Reed, 2002). That is, individuals with higher levels of emotional distress have greater difficulty disengaging from threat stimuli; however, among these individuals, those with higher AC disengage and shift attention significantly faster from threat information than those with lower AC (Bardeen & Orcutt, 2011). Taken together, findings suggest that higher levels of AC facilitate disengagement from threat, which in turn may improve emotional well-being.

Based on this information, AC may help link activation of the CAS to symptoms of psychopathology. This possibility is consistent with Spada, Georgiou, and Wells (2010), who proposed that the occurrence of symptoms of psychopathology is due to the *joint* impact of CAS-relevant metacognitive beliefs and AC. More specifically, Spada et al. opined that “individuals experiencing high states of anxiety may do so because of a combination of maladaptation in metacognitions and dysfunction in attentional control” (p. 65). However, despite proposing that these two variables work in concert with one another, Spada et al. only examined the main effects of CAS-relevant metacognitive beliefs and AC in relation to symptoms of psychopathology, with both of these variables evidencing unique relations with symptoms of psychopathology (i.e., state anxiety).

As described above, it is our position that such main effects might be qualified by an interactive effect between maladaptation in metacognitions and AC. More specifically, individuals high versus low in AC may be able to more easily disengage from threat information associated with use of CAS-relevant coping strategies. The relative inability of individuals with low AC to disengage from threat information in combination with the use of CAS-relevant coping strategies may lead to an exacerbation of mood and anxiety symptoms. Alternatively, the relative ability of individuals with high AC to disengage from threat associated with use of CAS-relevant coping strategies should serve as a protective factor against the deleterious effects of such coping strategies on psychological symptoms. If this pattern of relations is tenable, AC should moderate the relationship between activation of the CAS and symptoms of psychopathology. That is, the relationship between activation of the CAS and these symptoms should grow increasingly stronger as AC decreases. The present study sought to examine this possibility.

## 2. Methods

### 2.1. Participants

The sample consisted of 456 undergraduate students recruited through introductory psychology courses at a Midwestern US university. Students received partial course credit for participation. The sample had a mean age of 19.7 years ( $SD = 3.1$ ) and was 55.5% female. Participants predominantly self-identified as White (61.0%), with a relative minority self-identifying as Black (17.8%), Asian (9.2%), and “Other” (10.4%). Approximately 1.6% of participants did not report their racial identification. Approximately 9.9% of participants self-identified as being of Hispanic or Latino decent. Of the 456 participants, five participants (1.1% of total sample) omitted responses to all of the study measures and were excluded from reported analyses.

### 2.2. Measures

#### 2.2.1. Cognitive attentional syndrome-1 (CAS-1; Wells, 2009)

The CAS-1 is a 16-item measure developed to assess activation of the CAS. The first two items assess the degree to which individuals have been dwelling on or worrying about problems and focusing attention on threats, respectively. The next six items relate to the frequency in which individuals have used strategies to cope with negative feelings or thoughts (e.g., *Tried not to think about things*; *Tried to control my emotions*). Responses to these initial eight items are provided on a 0–8 scale. The final eight items assess the degree to which individuals hold metacognitive beliefs about the CAS (e.g., *Worrying helps me cope*; *Analyzing my problems will help me find answers*) and are all rated on a 0–100 scale, with each response option increasing by 10. To reduce the impact of the final eight items on the total scale score, the original item responses to these eight items were transformed to ensure observed responses fell between 0 and 8 (like responses to the other CAS-1 items). The 16 CAS-1 items were then summed to create a total scale. Presently, limited data pertaining to the psychometric properties of the CAS-1 exist; however, it is the only known measure that simultaneously assesses all components of the CAS and thus was used in the present study. Higher CAS-1 scores are indicative of *greater* activation of the CAS. In the present study, the CAS-1 demonstrated good internal consistency (Cronbach's  $\alpha = .86$ ).

#### 2.2.2. Attentional control scale (ACS; Derryberry & Reed, 2002)

The ACS is a 20-item measure designed to assess one's general capacity to control attention (e.g., *When I need to concentrate and solve a problem, I have trouble focusing my attention*; *When trying to focus my attention on something, I have difficulty blocking out distracting thoughts*). Responses are provided on a 1–4 scale. The ACS has shown adequate psychometric properties (Derryberry & Reed, 2002). Additionally, lower ACS scores are associated with greater difficulty disengaging from threat stimuli in anxious individuals (Derryberry & Reed, 2002). Eleven ACS items are reverse-scored. The ACS total scale score was used in the present study. Higher ACS scores are indicative of greater AC. In the present study, the ACS demonstrated good internal consistency (Cronbach's  $\alpha = .86$ ).

#### 2.2.3. Depression, anxiety, and stress scale-21-item version (DASS-21; Lovibond & Lovibond, 1995)

The DASS-21 is a 21-item measure that assesses depression (low positive affect: *I felt down-hearted and blue*), anxiety (physiological hyperarousal: *I felt I was close to panic*), and stress (tension/irritability: *I found it difficult to relax*; *I found myself getting agitated*) symptoms using three, 7-item scales. The DASS-21-stress scale is believed to assess symptoms relevant to both depression and anxiety (e.g., general distress; Antony, Bieling, Cox, Enns, & Swinson, 1998). Responses are provided on a 0–3 scale. The DASS-21 scales have shown adequate psychometric properties in prior studies, including DASS-21-depression sharing a strong convergent correlation ( $r = .79$ ) with another index of depression symptoms, DASS-21-anxiety sharing a strong convergent correlation ( $r = .85$ ) with another index of anxiety symptoms, and DASS-21-stress sharing a strong convergent correlation ( $r = .68$ ) with another index of general distress (Antony et al., 1998). Higher scores on the DASS-21 scales are indicative of *greater* symptomatology. In the present study, each of the DASS-21 scales demonstrated good internal consistency (Cronbach's  $\alpha$ s ranged from .85 to .91).

### 2.3. Procedure

This study was approved by the local university-based institutional review board. For this study, participants completed a fixed-order questionnaire packet that included the above mea-

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