Empirical Research

The interactive effect of cognitive fusion and experiential avoidance on anxiety, depression, stress and posttraumatic stress symptoms

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A B S T R A C T

Acceptance and Commitment Therapy, a popular transdiagnositic treatment approach, is based on the central tenant that human suffering develops and is exacerbated by psychological inflexibility. Cognitive fusion and experiential avoidance are two interrelated processes central to psychological inflexibility. Despite substantive theoretical rationale that these two processes impact one another's association with emotional distress and psychopathology, the interaction between cognitive fusion and experiential avoidance in relation to psychological distress has yet to be empirically examined in the extant literature. As such, we examined this interactive effect in relation to four indices of psychological distress (anxiety, depression, stress, and posttraumatic stress) in a large sample of community adults recruited via the internet ($N=955$). The predicted interactive effect was found across all four symptom measures, with the significant positive association between cognitive fusion and symptom measures being strongest at higher levels of experiential avoidance. These results provide support for proposals that individuals with high cognitive fusion and high experiential avoidance may be particularly prone to experiencing psychological distress.

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1. Introduction

Transdiagnostic conceptual models and treatments are based on the idea that there are common factors that cut across related forms of psychopathology, such as emotional disorders (Barlow, Allen, & Choate, 2004; Mansell, Harvey, Watkins, & Shafran, 2008). The transdiagnostic approach has numerous advantages, including helping to clarify the extensive comorbidity that exists among emotional disorders (Brown, Campbell, Lehman, Grisham, & Mancill, 2001) and facilitating the development of efficacious treatment components that can be applied across a number of related pathological presentations. For example, Acceptance and Commitment Therapy (ACT), a popular transdiagnositic treatment approach, is based on the central tenant that human suffering develops and is exacerbated by psychological inflexibility (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Psychological inflexibility is marked by six interrelated processes (i.e., experiential avoidance, cognitive fusion, attachment to conceptualized self, lack of contact with the present-moment lack of values clarity, unworkable action). Of these processes, experiential avoidance (EA), has received the bulk of empirical attention (Chawla & Ostafin, 2007). EA

represents a general unwillingness to stay in contact with unwanted inner experiences (e.g., thoughts, memories, bodily sensations) through the use of maladaptive avoidance strategies (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996).

Although the avoidance of unwanted inner experiences may alleviate distress in the short-term, it paradoxically exacerbates distress over longer periods of time (e.g., Abramowitz & Moore, 2007; Bardeen, 2015; Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Hodgson & Rachman, 1972). As such, EA has been suggested as a core vulnerability factor for emotional distress (Hayes et al., 1996). Consistent with this proposition, positive associations between EA and constructs marked by emotional distress have been observed across a number of laboratory and correlational studies (see Chawla & Ostafin, 2007, for a review). Moreover, the use of longitudinal study designs has provided temporal evidence of EA as a risk factor for the development of emotional distress. For example, Kumpula, Orcutt, Bardeen, and Varkovitzky (2011) assessed EA and posttraumatic stress symptoms both prior to and following a potentially traumatic event and found that pre-event EA acted as a risk factor for elevations in posttraumatic stress symptoms at both one and eight months post-event.

Although all six of the processes of psychological inflexibility are interrelated, each process is thought to be more fundamentally linked to one process more than the others (Hayes, Strosahl, & Wilson, 2012). Specifically, three process pairs have been

described in terms of the following response styles: (1) open/ closed (experiential avoidance and cognitive fusion), (2) centered/ decentered (attachment to conceptualized self and lack of contact with the present-moment), and (3) engaged/disengaged (lack of values clarity and unworkable action; Hayes et al., 2012). If any one of these process pairs is out of alignment, one is more likely to experience maladaptive outcomes. However, of these pairs, the open/closed domain, consisting of EA and cognitive fusion, is hypothesized to be the cornerstone of psychopathology (Hayes, Strosahl, & Wilson, 2012).

Cognitive fusion represents the phenomenon by which individuals believe the literal meaning of their thoughts instead of viewing them as transient internal states (e.g., the thought, *I am hopeless*, is equivalent to the psychological experience of hopelessness; Greco, Lambert, & Baer, 2008). Compared to the EA literature, far less research, to date, has examined relations between cognitive fusion and emotional distress. Nonetheless, empirical research has provided evidence that cognitive fusion is positively associated with anxiety and depression (Gillanders et al., 2014), body dissatisfaction and eating disorder-symptomatology (Trindade & Ferreira, 2014), health anxiety (Fergus, 2015), and anxiety sensitivity (Sole et al., in press). Such findings provide preliminary support for the potential transdiagnostic importance of cognitive fusion.

To date, examinations of cognitive fusion, EA, and indices of emotional distress have focused on main effects analyses. Thus, it remains unclear whether these two processes operate in tandem, as is proposed by Hayes et al. (2012). Importantly, Hayes et al. suggest that thoughts in and of themselves are not problematic. Instead, it is the combination of fusion with, and avoidance of, the thought that is problematic. From this perspective, cognitive fusion in the absence, versus presence, of EA may result in relatively lower levels of emotional distress. For example, an individual experiencing anxiety symptoms while giving a class presentation may still choose an approach strategy (continue giving the presentation rather than running out of the room) even though s/he may have the thought, "I'm going to pass out if I continue." In contrast, as is often seen in clinical practice, others may end the speech early, or withdraw from the class before giving the presentation. Such avoidance behaviors often generalize to a wide variety of social/evaluative situations, thus causing significant impairment and emotional distress. Based on this rationale, it may be particularly important to examine the relation between cognitive fusion and emotional distress at varying levels of EA to better understand when cognitive fusion may be more or less problematic.

Although there is theoretical rationale for cognitive fusion and EA working in concert in relation to emotional distress (Hayes et al., 2012), these two factors have primarily only been examined in isolation of one another. As described above, it is our position that main effects of cognitive fusion and EA might be qualified by an interactive effect. More specifically, we predict that the relation between cognitive fusion and symptoms of emotional disorders (i.e., anxiety, depression, stress, posttraumatic stress) will be significantly stronger as EA scores increase. Thus, experiential willingness may buffer those who are prone to cognitive fusion from experiencing emotional distress. Evidence of the predicted patterns of relations across all four symptom measures will provide preliminary support for the potential transdiagnostic importance of the predicted interactive effect. Additionally, the hypothesized pattern of relations may have important implications in terms of assessment and treatment. In terms of putative risk factors, it may be especially important to identify, and offer primary prevention (e.g., brief acceptance-based interventions) to, those individuals who are high in both cognitive fusion and EA.

2. Methods

2.1. Participants and procedure

Participants ($N=955$: 301 males; 654 females) were recruited via Amazon Mechanical Turk (MTurk). MTurk is an online labor market where general population adults can be recruited to complete questionnaires in exchange for payment. MTurk samples tend to be more demographically diverse than American undergraduate samples (Buhrmester, Kwang, & Gosling, 2011) and a number of studies support the quality of data collected via MTurk (e.g., Behrend, Sharek, Meade, & Wiebe, 2011; Buhrmester et al., 2011; Paolacci, Chandler, & Ipeirotis, 2010; Shapiro, Chandler, & Mueller, 2013). In the present study, participation was restricted to MTurk workers with approval ratings above 95%. This method has been shown to increase the quality of data (Peer, Vosgerau, & Acquisti, 2014). Recruitment was limited to MTurk users located within the United Stated and over the age of 19. Participants completed informed consent and questionnaires using a secure online survey program from any computer with internet access. Only those participants who reported experiencing at least one potentially traumatic event (i.e., Criterion A of the Diagnostic and Statistical Manual of Mental Disorders [DSM-5]; American Psychiatric Association [APA], 2013) completed a measure of posttraumatic symptoms ($n=887$: 280 males; 607 females). Therefore, any reference hereafter to the PTSD Checklist-5-Civilian Version (PCL-5; Weathers, Blake et al., 2013) or posttraumatic stress symptoms is specific to this subsample. Participants were paid $1.50 upon study completion. This amount is consistent with precedence for paying MTurk workers in similar studies (Buhrmester et al., 2011). This study was approved by the local university-based institutional review board.

The full sample ($N=955$) had an average age of 36.1 years ($SD=11.5$) and 82% self-identified as White, 8% as Black, 5% as Asian, 0.9% as American Indian or Alaska Native, 0.1% as Native Hawaiian or other Pacific Islander, and 4% endorsed "other". Additionally, 7% of the sample reported being of Hispanic ethnicity. The subsample ($n=887$) of participants who completed the PCL-5 (Weathers, Blake et al., 2013) had an almost identical demographic profile (M age$=36.2$ years [$SD=11.6$]; 83% White, 7% Black, 5% Asian, 0.9% American Indian or Alaska Native, 0.1% Native Hawaiian or other Pacific Islander, 4% endorsed "other" and 6% Hispanic).

3. Measures

3.1. Cognitive Fusion Questionnaire (CFQ)

The 7-item CFQ (Gillanders et al., 2014) is a self-report measure that assesses cognitive fusion. CFQ items are rated on a 7-point scale (1=*never true* to 7=*always true*) based on the degree to which participants believe that each item pertains to them (e.g., "I get so caught up in my thoughts that I am unable to do the things that I most want to do"). The CFQ has demonstrated adequate psychometric properties, including internal consistency, retest reliability, and discriminant and convergent validity (Gillanders et al., 2014). Internal consistency for the CFQ total score in the full sample and trauma exposed subsample was adequate ($\alpha=.95$ for both groups).

3.2. Acceptance and Action Questionnaire-II (AAQ-II)

The 7-item AAQ-II (Bond et al., 2011) is a self–report measure that assesses EA. AAQ-II items are rated on a 7-point scale (1=*never true* to 7=*always true*) based on the degree to which