A Test of the Core Process Account of Psychopathology in a Heterogenous Clinical Sample

of Anxiety and Depression. A Case of the Blind Men and the Elephant?

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RUNNING HEAD: Core Process in Anxiety and Depression

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Abstract

Many cognitive and behavioral processes, such as selective attention to threat, self-focused attention, safety-seeking behaviors, worry and thought suppression, have their foundations in research on anxiety disorders. Yet, they are now known to be transdiagnostic, i.e. shared across a wide range of psychological disorders. A more pertinent clinical and theoretical question is whether these processes are themselves distinct, or whether they reflect a shared 'core' process that maintains psychopathology. The current study utilized a treatment-seeking clinical adult sample of 313 individuals with a range of anxiety disorders and/or depression who had completed self-report measures of widely ranging processes: affect control, rumination, worry, escape/avoidance, and safety-seeking behaviors. We found that only the first factor extracted from a principal components analysis of the items of these measures was associated with symptoms of anxiety and depression. Our findings supported the 'core process' account that had its origins in the field of anxiety disorders, and we discuss the implications for theory, clinical practice and future research across psychological disorders.

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Psychological therapies, such as cognitive behavioral therapy, have advanced through increased knowledge of the psychological processes that maintain and exacerbate mental health problems (Beck & Haigh, 2014; Harvey, Watkins, Mansell, & Shafran, 2004; Salkovskis, 2002). Many of these processes were initially studied in anxiety disorders (e.g. selective attention to threat – MacLeod & Mathews, 1988; safety-seeking behaviors – Salkovskis, 1991). Yet, for over a decade now, it has been established that the majority of maintenance processes are shared by a diverse range of psychological disorders, i.e. they are 'transdiagnostic' (Harvey et al., 2004). In tandem with this evidence, there is a compelling argument that transdiagnostic psychological interventions are likely to be more practical and efficient to train and deliver (McHugh, Murray, & Barlow, 2009; Mansell, Harvey, Watkins, & Shafran, 2009). To complement this rationale, reviews and meta-analyses have found evidence for their efficacy in treating symptoms (McEvoy, Nathan & Norton, 2009; Newby, McKinnon, Kuyken, Gilbody, & Dalgleish, 2015).

Despite the burgeoning of scientific interest in the transdiagnostic approach, the theoretical underpinnings of the approach are diverse and there is little consensus (Cowdrey, Lomax, Gregory & Barnard, 2016; Mansell et al., 2009). Moreover, with over twenty different potential transdiagnostic processes identified to date, we are left with two alternatives – (a) to combine many of the processes within a single model that is consistent with existing cognitive behavioral models (e.g. McManus, Shafran, & Cooper, 2010) or (b) to identify one core process that is the focus of a transdiagnostic intervention, such as experiential avoidance (Spinhoven, Drost, de Rooij, van Hemert, & Penninx, 2014), metacognition (Wells & Matthews, 1994), repetitive negative thinking (McEvoy et al., 2015; McEvoy, Erceg-Hurn, Anderson, Campbell, & Nathan, 2015), distress tolerance (Bardeen, Fergus, & Orcutt, 2013), or intolerance of uncertainty (McEvoy & Mahoney, 2012; Mahoney & McEvoy, 2012). In choosing between these alternatives, it is vital to entertain the

possibility that there is considerable conceptual, and statistical, overlap between *all* of these concepts (Bardeen et al., 2013; Mansell, 2005, 2008). In other words, what different theorists call by different terms may actually refer to the same process, which has been referred to in the social psychology literature as the 'déjà variable phenomenon' (Hagger, 2014). This is related to the example of the *Blind Men and the Elephant*. Just like several blind men feeling different parts of an elephant, insisting they are perceiving something different from one another, each theorist has, to date, an incomplete picture of the one process that they are all studying.

What evidence supports a core process of psychopathology? To begin with, there is convergent evidence from three fields of psychiatry research. First, the symptoms of psychiatric disorders appear to share a great deal of variance. One recent analysis assessed psychiatric symptoms over 38 years in 1007 individuals from the Dunedin birth cohort study (Caspi, Houts, Belsky, Goldman-Mellor, Harrington et al., 2014). They used confirmatory factor analysis to assess the fit of a hierarchical model in which one general psychopathology factor ('p) combines with three lower order factors – externalizing, internalizing and thought disorder. They found that the 'p' factor correlated with the majority of measures of life impairment more strongly than the specific factors, with the exception of the externalizing factor correlating with certain specific impairments (e.g. suicide attempts, violence convictions). Second, there appears to be a specific brain network that is common to a range of psychiatric disorders as revealed by functional imaging studies (Buckholtz & Meyer-Lindenberg, 2012). Third, there appear to be shared genes that confer risk for a wide range of psychiatric disorders (CDGPGC, 2013; Kendler, Aggen, Knudsen, Røysamb, Neale, & Reichborn-Kjennerud, 2011). In addition, several studies have tested the core psychological process approach directly using different methodologies, measures, analytic methods and samples (Bardeen et al., 2013; Bird, Mansell, & Tai, 2013; Hong & Cheung, 2015; McEvoy & Brans, 2013; McEvoy, Mahoney & Moulds, 2010; Patel, Mansell, & Veale, 2015). In each case, the research questions are the same – can a single factor account for

the majority of variance in measures of transdiagnostic processes, or do multiple factors provide a more valid account? A key index of validity is whether the core process is associated with transdiagnostic symptoms - namely anxiety, depression, and in some cases a range of additional diagnostic symptoms.

We identified three studies that concluded that a one-factor model was superior. One study used three measures to identify a core process across experiential avoidance, thought suppression and worry. The study reported a student sample and a community sample of people with chronic physical illnesses (Bird et al., 2013). Structural equation modeling revealed that a single latent factor predicted symptoms of both anxiety and depression at least as well as a three-factor model. The single factor was therefore concluded to be more parsimonious. A meta-analytic study of 73 published articles reported a structural equation model of published effect sizes of the relationship between psychological processes and measures of depression and anxiety. A single factor indicated the best fit (Hong & Cheung, 2013). A third study of two samples - a non-clinical and a mixed clinical sample – used parallel analysis to extract a single factor that emerged from a new scale – the Cognitive Behavioural Processes Questionnaire (CBP-Q). This scale was formed from 15 separate items, each based on a different transdiagnostic process (Patel et al., 2015).

From the above literature, it appears that several studies of differing methodologies converge on a single factor solution. However, there remain a number of limitations. First, the studies to date have either used a limited number of standardized measures or not attempted to analyze the variance at the item level within existing scales. A study is required that collates variance at the item level of detail across a wide range of transdiagnostic measures. We address this limitation in the current study. A second limitation is the clarity of the theoretical mechanism underlying the core process. Essentially, if the core process transcends existing measures, then it is important to sample a wide range of different measures, otherwise the core processes identified may be biased by the initial selection of measures to a restricted domain.

For example, several studies have explored the shared features of transdiagnostic thinking styles. On the one hand, there is evidence in non-clinical and clinical samples that a single factor of recurrent negative thinking (RNT) is correlated with symptoms of multiple different disorders (Mahoney, McEvoy, & Moulds, 2012; McEvoy et al., 2010). Yet further investigation has revealed two qualifications of these findings. First, an additional study of 450 mixed anxious and depressed patients revealed that, in addition to RNT, three further factors - worry, reflection and brooding were extracted and two of these (brooding and worry) independently correlated with symptoms (McEvoy & Brans, 2013). Second, further studies have identified a range of other processes that may mediate the effects of RNT, including intolerance of uncertainty (McEvoy & Mahoney, 2012), metacognitive beliefs, cognitive avoidance and thought control strategies (McEvoy, Moulds, & Mahoney, 2013). Thus, while RNT has been identified as predicting a wide range of symptomology, it is unlikely itself to be the 'core process' itself. In a parallel line of work, a 'core process' known as *distress tolerance* has been identified as a higher order factor that unites intolerance of uncertainty, ambiguity, frustration, physical discomfort and negative emotion (Bardeen et al., 2013). Yet, this study did not include any other measures of transdiagnostic processes to clarify whether distress tolerance is the core feature across these processes too.

A related literature that informs the notion of a core process relates to the shared mechanism of change across psychological therapies (Higginson, Mansell & Wood, 2011; Mansell, 2011). There is an increasing recognition that psychological therapies share mechanisms of change. This has been articulated within conceptual reviews (Mennin, Ellard, Fresco, & Gross, 2013), transdiagnostic treatment models (Barlow, Allen, & Choate, 2004) and within mediation studies of treatment (Goldin, Morrison, Jazaieri, Brozovich, Heimberg, & Gross, 2016; Kocovski, Fleming, Hawley, Ho, & Antony, 2015; Swain, Hancock, Hainsworth, & Bowman, 2015). Taken together, there is an emerging view that the processes of cognitive reappraisal, reduction of emotional and behavioral avoidance, and the development of mindful, or decentered, stances towards experience are fostered across

different forms of cognitive behavioural therapies, and potentially across psychotherapies as a whole. These shared mechanisms do not, of course, necessarily converge on a single core process. Yet, there are theoretical perspectives that do make this prediction.

One such example is provided by Hayes and colleagues who have identified the role of *experiential avoidance* as the key functional property of transdiagnostic processes (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Experiential avoidance is defined as being unwilling to remain in contact with particular private experiences (e.g. emotions, thoughts, memories, impulses) and therefore taking steps to alter the form or frequency of these events or the situations that lead to them.

One possible limitation with the notion of experiential avoidance is that it is feasible to avoid private experiences for important, functional reasons. For example, a brain surgeon might need to control their anxiety when conducting an operation; an employee suffering at the hands of a bullying colleague might avoid this person's company. Therefore, an alternative perspective on a core process is required to explain what differentiates the causes of enduring psychological distress from situational attempts to avoid unpleasant experiences. We turn to perceptual control theory for such an account (PCT; Powers et al., 1960a,b; Powers, 1973, 2008). According to PCT, psychological distress is a manifestation of loss of control that emerges during states of chronic conflict between important personal goals. The state of conflict persists because the system governing the conflicting goals is kept outside awareness (for an empirical review, see Kelly, Mansell & Wood, 2015). When attention is allowed to shift and sustain on this system, changes can occur – through a trial-and-error process known as reorganization – until control is restored. Thus, from the perspective of PCT, any behavior, any thinking style, any strategy, any personal rule and any interpersonal style can be problematic if it is carried out without awareness of, or regard to, the important personal goals with which it might conflict (Mansell, 2005).

The current study tests for the existence of a core process of psychopathology by extracting the common variance across diverse measures of processes known to be associated with psychological distress across disorders, and testing the hypothesis that this core process will be singularly related to symptoms (Mansell, Carey, & Tai, 2015). Specifically, we collected data on cognitive (Repetitive Thinking Questionnaire, RTQ-10, McEvoy et al., 2014), affective (Affect Control Scale, ACS, Williams et al., 1997), and behavioral (Acceptance Safety behaviors, Escape and Avoidance Scale, AcSEAS, McEvoy et al., in prep) avoidance. Repetitive negative thinking has been conceptualized as a cognitive strategy for avoiding aversive affective and physical symptoms (Borkovec et al., 2004), the ACS measures fear and behavioral overcontrol of affective symptoms, and AcSEAS Escape/Avoidance subscale assesses escape and wholesale avoidance behaviors due to uncomfortable emotions and symptoms. Consistent with our aim, we expected the shared variance in these constructs to constitute the factor that is associated with symptoms of psychopathology.

In sum, there is a need to develop a parsimonious transdiagnostic model of psychopathology to guide psychological interventions. Therefore, the current study samples a wide range of self-reported processes in a treatment-seeking group of patients with mixed anxiety disorders and depression. We attempted to extract the common variance first using principal components analysis and then compare the validity of the single factor with the validity of later factors that are extracted. We hypothesized that the single factor will have high correlations with symptoms of anxiety and depression, both across the sample as a whole, and within each diagnostic grouping. The current study was not designed to identify the nature of the core process as keeping goal conflict outside awareness, but to complement earlier studies that converge on this account (see Alsawy, Mansell, Carey, McEvoy, & Tai, 2014).

Method

Participants

Participants (N=313) were treatment-seeking patients referred by health practitioners to a community outpatient mental health clinic specializing in the treatment of adults with mood and anxiety disorders. Referred patients were routinely excluded from the service, and therefore this study, if they had current acute psychosis, schizophrenia, schizoaffective disorder, or significant alcohol or substance abuse or dependence. Participants were included if they had a primary Diagnostic and Statistical Manual of Mental Disorders-IV (APA, 2000) anxiety or depressive disorder and provided data for the measures used in this study.   Participants (202 women, 111 men) had a mean age of 33 years (SD = 12 years, Range = 18-70 years). In order to allow statistical analyses across diagnostic groupings, the participants were divided into the following groups: anxiety disorder and depression/dysthymia (n = 172; 117F, 55M; 55.0%), anxiety disorder and no depression (n = 54; 28F, 26M; 17.3%), comorbid anxiety disorders and no depression (n = 45; 28F, 17M; 14.3%); depression with no anxiety disorder (n = 42; 29F, 13M; 13.4%).Sex did not significantly differ across diagnostic groupings, χ^2 (3) = 5.19, *p* = .158. Mean age (see Table 1) did not differ between groups, F (3, 309) = 0.44, *ns..*

Procedure

As part of routine clinic procedures referred patients completed a questionnaire battery and attended an initial assessment appointment with a masters or doctoral-level clinical psychologist. During the assessment the psychologist administered a structured diagnostic interview and collected the completed questionnaires.

Measures

Diagnostic Interview. The MINI International Neuropsychiatric Interview is a short, structured diagnostic interview used to diagnose Axis I disorders based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; APA, 2000). The MINI has good validity and has been found to converge with lengthier diagnostic interviews, including the

Structured Clinical Interview for DSM (SCID) and Composite International Diagnostic

Interview (CIDI, Lecrubier et al., 1997; Sheehan et al., 1997a, 1997b; Sheehan et al., 1998).

Affective assessment. The Affect Control Scale (ACS, Williams, Chambless, &

Ahrens, 1997) is a 42-item measure of fear of emotions (e.g., "It scares me when I'm

nervous") and reactions to emotions (e.g., "Depression could really take me over, so it is

important to fight off sad feelings"). Items assess reactions to anger, depression, anxiety,

and positive emotions, and include aspects of losing behavioral, emotional, cognitive, and

physical control. Respondents indicate their level of agreement with each statement on a 7-

point Likert scale from *very strongly disagree* (1) to *very strongly agree* (7). Internal

consistency for the total scale in the current study was high (α=.92).

Cognitive assessment. Three measures were used to assess repetitive negative

thinking as a form of cognitive control and avoidance, including the Penn State Worry

Questionnaire (PSWQ, Meyers et al., 1990), the Ruminative Responses Questionnaire

(RRS, Treynor et al., 2003), and the Repetitive Thinking Questionnaire (RTQ-10, McEvoy et

al., 2014). The PSWQ has 16 items (e.g., "My worries overwhelm me") that are rated on a 5-

point scale. The RRS has 26 items rated on a 4-point scale qualified by *almost never* (1),

sometimes (2), *often* (3), and *almost always* (4). However, following study Treynor et al.

(2003), the 12 items closely overlapping with depressive symptoms were excluded in order

to prevent criterion overlap with one of the dependent variables in the current study. The

RTQ-10 has 10-items that are rated on a 5-point scale from *not true at all* (1), *somewhat true*

(3), to *very true* (5). Consistent with avoidance theory (Borkovec et al., 2004), verbal-

linguistic worry can be conceptualised as a form of cognitive avoidance and control of

physiological arousal associated with anxiety-provoking negative imagery. Worry has been

found to be transdiagnostic as it is consistently associated with both anxiety and depression

(McEvoy & Brans, 2013; Segerstrom et al., 2000). Moreover, most variance across

measures of worry and rumination is shared, and can be largely captured by a common

repetitive negative thinking construct (McEvoy & Brans, 2013; McEvoy et al., 2010; McEvoy

et al., 2012; Segerstrom et al., 2000). Internal consistencies in the current study were high for the PSWQ (α=.91), RRS (α=.87), and RTQ-10 (α=.91).

Behavioral assessment. The Acceptance, Safety behaviors, Escape and Avoidance Scale (AcSEAS, pronounced "Axes"; McEvoy et al., in prep) is a 22-item measure that was constructed to assess three constructs: acceptance, safety behaviors, and escape/avoidance. Each of these is reported as the mean of a separate subscale: acceptance (e.g. "I can easily recognise when thoughts about something bad happening are 'just thoughts' that I don't need to respond to"), safety behaviors, (e.g. "When I'm in an uncomfortable situation, I will do things to try and prevent bad things from happening"), and escape/avoidance, (e.g., "I avoid uncomfortable situations at all costs" and "When I am uncomfortable about a particular situation, I plan how to escape.") The three-factor solution was developed using exploratory factor analysis on a clinical sample with anxiety and depressive disorders and cross-validated on a non-clinical sample, where the three-factor solution was superior to a two-factor (acceptance and avoidance) and one-factor solution. The three subscales demonstrated acceptable internal consistency in the clinical and non-clinical samples (α's = .70-.86, McEvoy et al., in prep). The AcSEAS subscales were also found to be associated with depression and anxiety symptoms cross-sectionally, and change scores were associated with change in symptoms during cognitive behavior therapy (McEvoy et al., in prep). Despite being in a developmental stage, this scale was important to include in the current study owing to its inclusive coverage of a wide range of behavioral strategies that apply across diagnoses and span a range of perspectives (acceptance-based; cognitive; behavioral). Patients were asked to rate the items with regard to "how you typically deal with uncomfortable situations and feelings. Please circle the number next to each item that best describes how typical or characteristic each item is of you." Items were rated on a 5-point Likert scale anchored by the qualifiers: *Not typical at all* (1), *Somewhat typical* (3), and *Very typical* (5).

Depression and anxiety symptoms. Depression and anxiety symptoms were measured by the 21-item *Beck Depression Inventory-II (BDI-II;* Beck et al., 1996) and *Beck Anxiety Inventory (BAI; Beck et al., 1988)*, respectively. Both have good psychometric properties and are rated on a scale from 0 to 3, with high scores signifying greater symptomatology (Beck et al., 1988; Beck et al., 1996; Clark & Watson, 1991; Sprinkle et al., 2002).

Results

Data for the psychological variables was available on all items for 313 individuals and they are shown in Table 1.

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We used SPSS 20 to conduct a principal components analysis on the total of 116 items comprising the psychological measures. The Bartlett's test of sphericity ($\chi^2 = 19{,}421.0$, $df = 5356$, $p < .001$) indicated that the between-item correlations were substantial. The Kaiser-Meyer-Olkin statistic (KMO = 0.88) indicated that the sample size was appropriate. The sampling adequacy was also assessed by inspecting the anti-image correlation matrix which revealed no correlations on the diagonal below $r = .5$. The correlation matrix between all items (all $Rs < .7$) indicated no problems of multicollinearity. The full results of the principal components analysis are available from the authors.

Our first hypothesis proposed that a single factor accounting for the majority of variance across the items would be extracted. This was largely confirmed. The first principal component accounted for 20.2% of the variance. Inspection of factor loadings revealed that 54 of the 116 items loaded at $r > .4$ on this factor, and these loadings were distributed across all measures. Indeed this breadth and diversity of items with high loadings was such that the factor could not be named on this basis. Inspection of the scree plot revealed a sharp descent between factor 1 and 2, followed by a falling off in the degree of variance accounted for by each factor, and then another inflexion point between factors 6 and 7. Thus, the first

point of inflexion was assumed to lay between factors 1 and 2, and a single factor solution initially proposed. Nonetheless the subsequent five factor scores were retained for later analyses as a conservative measure to confirm they did not correlate significantly with clinically important measures.

The following five factors accounted for 6.5%, 5.0%, 3.8%, 3.4% and 2.6% of the variance, respectively. The minimum number of items with high loadings on any of these factors was 2 and the maximum was 10. The remaining factors tended to have loadings from specific scales and therefore be highly distinctive. Factors 4 and 6 only had two item loadings above .4 and therefore they were not considered to be sufficiently robust. Factor 2 was formed from 9 items of the ACS that corresponded with fears of loss of control over positive mood states (e.g." I am afraid that I'll do something dumb if I get carried away with happiness"). Factor 3 was formed from 10 items of the AcSEAS that corresponded with going into situations despite feeling uncomfortable as assessed on the Acceptance subscale (e.g. "I rarely avoid situations because I feel uncomfortable"). Factor 5 was formed from 5 items of the AcSEAS that corresponded with carrying out an active response or strategy to deal with undesired feelings or thoughts as assessed by the Safety Behaviors subscale (e.g. "When I notice uncomfortable physical sensations in my body, I do something to get rid of them").

In addition to the principal components analysis, alternative forms of factor analysis were explored (with and without rotation) and they generated very similar solutions, with one factor accounting for at least 20% of the variance, and the second factor accounting for less than 7% of the variance.

Our second hypothesis was that the core process, represented by the regression variable generated for Factor 1, would correlate with indices of anxiety and depression. This was confirmed. Pearson correlations coefficients revealed $r(301) = .57$, $p < .001$, for the Beck Anxiety Inventory and $r(303) = .64$, $p < .001$, for the Beck Depression Inventory. Given

the close correlation between anxiety and depression, $r(301) = .60$, it was important to establish that the core process correlated with anxiety when controlling for its correlation with depression, and vice versa. This was confirmed through partial correlations, $r(298) = .31$, $p < .001$, for anxiety, and $r(298) = .46$, p < .001, for depression. In order to carry out a further conservative analysis, we examined the correlation between these symptom measures and the five later factors extracted from the analysis. Each of these were below $r = .2$ in either a positive or negative direction, indicating that these factors had a weak relationship with symptoms. Given this, we carried out no further analyses on these factors.

We examined the differences in the core process across diagnostic subgroups. A one-way ANOVA revealed a significant effect, $F(3, 309) = 17.35$, $p < .001$. Tukey HSD post hoc tests revealed that the mixed anxiety and depression group scored significantly higher ($M = 0.34$, $SD = 0.93$) on Factor 1 than the remaining groups, ps < .05, (mixed anxiety, M = -0.26, SD = 0.92; anxiety, M = -.44, SD = .94; depression, M = -0.54, SD = 0.91)). There were no statistically significant differences between the remaining diagnostic groupings.

Finally, we had hypothesised that the core process would be associated with symptoms of anxiety and depression within each of the diagnostic groupings. This was largely confirmed, with some exceptions. Table 2 reveals the findings. In all groups the core process correlated highly with symptoms of depression. In all groups except the comorbid anxiety with no depression groups, the core process correlated with symptoms of anxiety.

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Discussion

The current study aimed to test for a core process in a large treatment-seeking sample of participants with a range of anxiety disorders, with or without depression. Unlike earlier studies, we used individual items of scales that sampled several domains - affect regulation, thinking styles and behavior. As hypothesised, we found that a single factor accounted for the largest proportion of the variance in these items. This factor correlated

highly with symptoms of anxiety and depression across the whole sample, and also within most of the diagnostic groupings. This finding supports our hypothesis that a single core process accounts for a substantial proportion of shared variance across a wide range of diverse processes that have been shown to maintain psychological disorders.

There were several reasons to suggest that a single factor solution was the most compelling way to interpret our data. First, there was a clear inflection point in the scree plot after between factors 1 and 2. Second, the following five factors to be extracted each accounted for relatively small amounts of variance. Third, and most importantly, these five provisional factors showed no indication of a correlation with symptoms of anxiety or depression, in stark contrast to the high correlations with factor 1.

When exploring the diagnostic subgroups, a number of unpredicted findings emerged. First, participants with an anxiety disorder and major depression scored higher on the core process than each of the other diagnostic groupings, who scored no differently from one another. One possible explanation is that this group represented people with a wider transdiagnostic symptom profile in that their symptoms spanned across anxiety disorders and a mood disorder, in contrast to the other groups that represented participants with either a single diagnosis, or two or more anxiety disorders. A second unexpected finding was that factor 1 correlated weakly and non-significantly with symptoms of anxiety in the group of participants with comorbid anxiety disorders and no depression.

Our study adds to the body of evidence of a core process across psychological disorders (Bird et al., 2013; Hayes et al., 1996; Hong & Cheung, 2013; Patel et al., 2015). Unlike these earlier studies, the current study utilized the items extracted from a wide range of standardized scales in a large treatment-seeking sample. The study also made a conservative test of whether additional factors might be related to symptoms in the sample, and retained a single factor solution. Naturally, our finding demands an interpretation - what does the single factor represent?

We review four possible interpretations: (a) symptom clustering, (b) a close relationship between different constructs, (c) an established transdiagnostic process, and (d) a single core process such as the process of 'maintaining goal conflict outside awareness'. First, it has already been established that the diverse symptoms of psychopathology load on a single 'g' factor (Caspi et al., 2014). Given that the current analysis is cross-sectional, it is therefore possible that the single factor represents a transdiagnostic symptom factor. It is important to note however, that the 'symptoms' of psychiatric disorders are rarely static epiphenomena; many of them represent the processes that are known to maintain psychological distress, such as behavioral avoidance, worry, and compulsive behaviors (Mansell, Carey, & Tai, 2015). Second, it has been proposed that cognitive behavioral processes may be closely related (Harvey et al., 2004). For example, a person who is afraid of their feelings of anxiety may engage in worry about them and as a consequence avoid situations that trigger them. Therefore it is possible that a single factor has emerged in factor analysis because of these close causal relationships between distinct processes. Such an explanation could not be ruled in or out from the cross-sectional data in the current study but would require an experimental approach that was able to assess the swift timeframe over which these sequences of processes are proposed to occur.

The third possibility is that the single factor represents one process that has already been established as transdiagnostic, such as experiential avoidance or distress tolerance. The measures used in the current study assess various aspects of fear, avoidance, acceptance, and control of emotions. The core process could therefore reflect the tendency to respond to uncomfortable experiences with a broad array of emotional, cognitive, and behavioral avoidance strategies with the functional aim of changing the form or frequency of aversive experiences (Barlow et al., 2004; Hayes et al., 1996), and there is evidence that avoidance is a transdiagnostic mechanism of change across different therapies (e.g., Hancock et al., in press). Identifying a single or small set of core processes may therefore have broad implications for distilling the most critical maintenance and change factors, and

thus guiding treatments to most efficiently and effectively ameliorate emotional disorder (Barlow et al., 2004; McEvoy et al., 2009). Experiential avoidance and distress tolerance, however, are broad constructs that have been defined and assessed in diverse ways. It is therefore important for future research to closely examine the commonalities and differences across these various conceptualizations to assess whether they can be further distilled into fewer (or a single) core processes (Leyro, Zvolensky, & Bernstein, 2010).

A disadvantage of investigating a particular subset of transdiagnostic factors to identify a core process is that the nature of *the* core process may differ depending upon the specific measures that are administered within a particular study. It therefore remains unclear whether different core processes identified across studies have resulted from true or faux uniqueness. A complementary approach to identifying core processes that may mitigate this problem is for research to be guided by theories that already propose a single or small set of core processes. PCT is one example of such a theory, which offers a fourth possible interpretation of our findings by positing that the single factor represents the core process of maintaining goal conflict outside awareness through *any* form of control. According to PCT, it is this property of any transdiagnostic process that accounts for its contribution to psychological distress, rather than the nature of the process itself. For example, worry is a problem to the extent that a person engages in it to the expense of spending time on pursuing important personal goals, such as engaging in close relationships and performing well at work. A process such as worry may also be a problem to the extent to which it takes awareness away from working on other important goals that are in conflict in the person's life. This occurs, for example, when people worry about trivial matters but not about important issues of genuine safety and risk.

A key limitation of the current study however, is that it cannot provide direct evidence regarding the nature of the single factor extracted. Future research would need to both demonstrate that the factor predicted distress and symptoms over time, and also that the factor indeed had the properties we suppose. An experimental task is needed to attempt to

operationalise the process of keeping conflict between important goals outside awareness. This is particularly difficult to assess because the goals involved are necessarily personal to each individual, at a superordinate level to the person's day-to-day concerns, and concealed from awareness. However, they are often revealed prospectively as certain individuals recover from their difficulties. Thus, in a prospective case series, we would predict patients experiencing recovery would increasingly report their goal conflict as they reduce their overall use of transdiagnostic processes. However, teasing out the unfolding of these processes over time would be particularly challenging. The current study is also limited by its use of a sample with only anxiety disorders and depression to test a transdiagnostic hypothesis. Inclusion of a broader array of mental disorders in future research will provide a more comprehensive test of the transdiagnostic hypothesis. Indeed, no studies in the literature to date have attempted to extract a core process from a sample that spans the full diagnostic spread of adult psychiatric disorders.

In summary, we utilised a clinical sample of patients with anxiety disorders and/or depression to test the hypothesis that a diverse range of cognitive and behavioral processes known to maintain psychological distress would converge on a single factor. Our findings supported this hypothesis, with other factors extracted from the data showing only weak associations with symptoms. This is consistent with a core process that spans the domains of behavior, cognitive style and affect regulation, and may represent experiential avoidance, distress tolerance, the degree to which individuals maintain conflict between important personal goals outside their awareness, or some other transdiagnostic and trans-therapy construct. We offered alternative explanations of our findings and pointed the way for future research to study the core process prospectively within a large, transdiagnostic sample.

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Table 1. Descriptive Characteristics of the Diagnostic Groupings and Across the Whole Sample

	Anxiety and Depression	Anxiety only	Comorbid anxiety	Depression	Total
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Age	34.0 (11.9)	32.7 (12.9)	31.9 (11.6)	33.6 (12.4)	33.4 (12.1)
BAI	22.0 (12.3)	14.6 (10.9)	20.6 (10.4)	10.3 (8.0)	19.0 (12.1)
BDI	30.7 (11.3)	16.5 (8.6)	20.7 (9.8)	24.1 (11.1)	25.9 (12.1)
ACS	4.3 (0.7)	3.7 (0.7)	3.6 (0.8)	3.8 (0.6)	4.0 (0.8)
PSWQ	51.2 (7.8)	48.3 (8.0)	52.3 (7.8)	43.6 (9.0)	49.8 (8.4)
RRSm	36.8 (7.6)	29.7 (7.9)	32.3 (7.7)	32.0 (7.9)	34.3 (8.2)
RTQ	40.3 (7.3)	36.8 (8.1)	37.4 (8.2)	37.0 (8.2)	38.8 (7.8)
AcSEAS					
Acceptance	2.4 (0.7)	2.8 (0.8)	2.7 (0.7)	2.7 (0.7)	2.5 (0.7)
Safety Behavior	2.8 (0.9)	2.9 (0.7)	2.9 (0.7)	2.5 (1.0)	2.8 (0.8)
Escape/Avoid	3.5 (1.0)	3.1 (0.9)	3.2 (1.1)	2.7 (0.8)	3.3 (1.0)

Notes. BAI = Beck Depression Inventory; BDI = Beck Depression Inventory; ACS = Affective Control Scale; PSWQ = Penn State Worry Questionnaire; RRSm = Rumunative Response Scale - modified (see Materials for details of modified version); RTQ = Repetitive Thinking Questionnaire; AcSEAS = Acceptance, Safety Behaviors, Escape and Avoidance Scale.

Table 2. Pearson correlations coefficients computed between the core process (Factor 1) and symptoms of anxiety and depression within each diagnostic grouping

Diagnostic Grouping	Beck Anxiety Inventory	Beck Depression Inventory
Anxiety and depression (n = 172)	.63**	.62**
Anxiety with no depression (n = 54)	.42*	.64***
Comorbid anxiety with no depression (n = 45)	.23	.42*
Depression with no anxiety (n = 42)	.48**	.56**

** p <.001 * p < .01