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Cognitive Content-Specificity for Anxiety and Depression: A Meta-Analysis

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A review and meta-analysis was conducted to evaluate the empirical evidence for the cognitive content-specificity hypothesis. The cognitive content-specificity hypothesis is a component of Aaron Beck's cognitive theory of emotional disorders (A.T. Beck, 1976) in which he postulates that affective states can be discriminated on the basis of unique cognitive content. The majority of investigations of this hypothesis have involved the assessment of self-reported cognitive features associated with anxious and depressive symptomatology. Across the 13 studies meeting the inclusion criteria, all effect sizes, even divergent relationships, were significantly different from zero indicating that depressive and anxious cognitive content shared significant variance with both depression and anxiety. More specific effect-size contrasts indicted that depressive cognitive content did display significant specificity, being more strongly related to depression than anxiety. Finally, the cognitive content measures were found to be highly correlated. These findings are generally inconsistent with the cognitive content-specificity hypothesis. Theoretical and psychometric recommendations are offered to address these issues in future cognitive content-specificity research.

KEY WORDS: cognitive specificity; cognitive content-specificity; cognition; depression; anxiety; meta-analysis.

INTRODUCTION

In addition to generating clinical techniques of enormous utility, Aaron Beck's cognitive theory of emotional disorders has also offered a number of testable hypotheses concerning the relationship between cognition and emotion, with some attention drawn to the overlap of depressive and anxious states (Beck, 1976). The cognitive content-specificity hypothesis, a product of Beck's cognitive theory, posits that mood states can be discriminated on the basis of unique cognitive content (Clark & Beck, 1989). Cognitive content, the automatic thoughts and appraisals available

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to introspection and for self-report, are considered to be cognitive products: the output of our information-processing "software" (Kendall & Ingram, 1989). Similarly, according to cognitive theory, emotional states are partly the product of idiosyncratic information-processing. Hence, according to the cognitive content-specificity hypothesis, automatic thoughts and subjectively perceived emotional states should be positively related.

Cognitive Content-Specificity for Anxiety and Depression

In the 1980s, the cognitive content-specificity hypothesis began to be intensively investigated. Some of this interest was partly in response to troubling assessment and diagnostic issues concerning the relationship between depression and anxiety. Evidence suggested a high comorbidity between the *DMS* (American Psychiatric Association, 1994) mood and anxiety disorders, with reports of estimated comorbidity indicating that approximately two thirds of depressed individuals meet criteria for one or more anxious disorders (Judd & Burrows, 1992; Roth, Gurney, Garside, & Kerr, 1972). The diagnostic picture was further clouded by consistent observations of substantial intercorrelations between self-report scales assessing depressed and anxious symptomatology (Dobson, 1985; Gotlib, 1984; Mendels, Weinstein, & Cochrane, 1972; Tanaka-Matsumi & Kameoka, 1986; Zuckerman, Persky, Eckman, & Hopkins, 1967). With assessment instruments lacking any consistent specificity, diagnostic decisions were difficult to justify quantitatively. However, it was speculated that because depression and anxiety are both negatively valanced subjective experiences with many shared symptom features, discriminating between these states strictly on the basis of emotional phenomenology would continue to be problematic. Cognitive specificity researchers proposed that assessment instruments aimed at assessing unique cognitive content would be an effective alternative for discriminating between depression and anxiety. Such an alternative would enable clinicians to use self-reported automatic thoughts as a guide in making diagnostic decisions.

Specifically, depressive cognitive content was hypothesized to be focused on themes of negative self-evaluation, hopelessness, and generally pessimistic assessments of the world (Clark, Beck, & Brown, 1989; Clark, Beck, & Stewart, 1990). More compactly, depressive cognitive content would reflect the themes of Beck's Negative Cognitive Triad (Beck, 1976): negative assessments of self, the world, and the future. Alternatively, anxious cognitive content was proposed to be related to thoughts concerning physical or psychological threats. Some have also speculated that the temporal focus in each of these cognitive sets also differs in that depressive thoughts are past-oriented, whereas anxious cognitions are future-oriented (Tellegen, 1985). One product of this research has been the development of assessment instruments aimed at discriminating anxious and depressive cognitive content. For example, the Cognitions Checklist (CCL; Beck, Brown, Eidelson, Steer, & Riskind, 1987), which has a person rate the frequency of depressive and anxious automatic thoughts across a variety of situations, has been a frequently used assessment tool in cognitive content-specificity research.

Cognitive Content-Specificity Versus Cognitive Specificity

There has been some confusion in the empirical literature regarding the term "cognitive content-specificity." At times "cognitive content-specificity" has been used as an umbrella term to describe any cognitive feature or process that differs across depressed and anxious populations. At other times "cognitive content-specificity" is used to refer to a more specific claim that the themes described by the semantic content of automatic thoughts are unique to either depression or anxiety. To bring some order to this state of affairs Kendall and Ingram (1989) have proposed a "meta-construct" model to summarize the cognitive research concerning depression and anxiety. Specifically, they propose a taxonomy of cognitive variables distinguishing between structural (cognitive schema), propositional (stored cognitive content), operational (cognitive processes), and product (cognitive content) variables. For example, research has indicated that depressed and anxious subjects encode and retrieve information that is consistent with the underlying depressogenic or anxious schemas (Greenburg & Beck, 1989; Ingram, Kendall, Smith, Donnell, & Ronan, 1987; MaLeod, Matthews, & Tata, 1986). Certain attributional processes also seem to be unique to depressed versus anxious populations (Heimberg, Vermilyea, Dodge, Becker, & Barlow, 1987), although this finding has not been consistently observed (Craighead & Curry, 1990).

Following Kendall and Ingram's model (1989), in this study we make a discrimination between "cognitive specificity" and "cognitive content-specificity." We will use the term "cognitive specificity" as a broad generic description for any cognitive process—attributional style, content of automatic thoughts, memory or attentional biases, etc.—that appears specific to either depression or anxiety. We reserve the term "cognitive content-specificity" to describe the more specific claim that certain themes of semantic content in self-reported automatic thoughts are unique to either depression or anxiety as initially formulated by Beck (1976).

Finally, although Aaron Beck's formulation of the cognitive content-specificity hypothesis has been extensively investigated, there are alternative cognitive content-specificity formulations that are theorized to discriminate between the cognitive content in depressed and anxious populations. The self-discrepancy model as proposed by Higgins (1987) posits that the dissatisfaction and dejection seen in depressed individuals are due to discrepancies between beliefs regarding one's "actual self" (the perception of the attributes one actually possesses) and one's "ideal self" (the attributes one hopes or aspires to). Conversely, the apprehension, fear, and anxiety in anxious populations are due to discrepancies between one's "actual self" and the "ought self" (the attributes the person believes they have a moral duty or obligation to obtain). Although self-discrepancy theory has not been as extensively investigated as Aaron Beck's formulation, the cognitive content described by self-discrepancy theory has been shown to effectively discriminate depressed from anxious populations (Scott & O'Hara, 1993; Strauman & Higgins, 1988). However, for the purposes of the present review we have confined our attention to Aaron Beck's cognitive content-specificity formulation for depression and anxiety (Beck, 1976).

Psychometric Versus Theoretical Considerations

This study was an attempt to quantitatively review the cognitive content-specificity literature in an effort to synthesize over 15 years of empirical tests of this hypothesis with regard to anxiety and depression. However, it should be noted that there are two separate issues involved in such a review and the reader should bear these in mind throughout the subsequent discussion. The cognitive content-specificity *hypothesis* is one part of the larger framework of Beck's cognitive theory. Thus, the results of the present review might be expected to carry theoretical implications. However, the cognitive content-specificity *research* is primarily involved in examining discriminant and convergent correlations between symptomatology and cognitive content. Specifically, depressive cognitive content should be positively correlated with depressed symptomatology but should not be equally related to anxious symptomatology, with similar reasoning holding for anxious cognitive content. Consequently, in addition to potential theoretical implications, the results of this review might suggest directions for psychometric improvement.

METHOD

Inclusion Criteria

A search of psychological abstracts using the keywords "cognitive specificity" and "cognitive content-specificity" was conducted from the years 1950 through 1998 using the PsycINFO database. The studies obtained in this search were then cross-referenced to identify other studies not located in the initial search. Studies were included in the review if they assessed both anxious and depressive cognitive content as formulated by Aaron Beck's content-specificity hypothesis, anxious and depressed symptomatology, and reported zero-order correlation coefficients between each of these measures (Beck, 1976). Based on these inclusion criteria, 13 studies were included in this review.

Meta-Analytic Procedures

In a meta-analysis of correlational research, the zero-order correlation coefficient is the recommended index of effect size (Rosenthal, 1995). Because the zero-order correlation is a standardized index, it is ideally suited for comparing studies using dependent measures of varying metrics. Typically, correlations from each study are transformed using Fisher's r to Z transformation, summed, averaged and then converted back into r to produce an overall effect size for the relationship. However, there is some debate in the literature as to the necessity of the Fisher r to Z transformation (Wolf, 1986). In this review the overall transformed r's were identical (difference of .01) to the averaged correlations across studies. Consequently, for ease of interpretability, all of the effect sizes reported are simple Pearson correlation coefficients with the overall effect sizes computed as the mean of r for the specified studies.

To reduce potential confounding due to the nonindependence of data, effect sizes were averaged for multiple dependent measures within each study. For instance,

if a study included two measures of depression each of these would produce a correlation with depressive cognitive content. The average of these correlations would generate the effect size estimate from that study for the relationship between depression and depressive cognitive content. After averaging effect sizes within each study to create only one estimate for each cognition/symptomatology relationship, correlation coefficients were then summed and averaged across studies for analysis of convergent relationships (depressive cognitive content/depressed symptoms; anxious cognitive content/anxious symptoms), and for discriminant relationships (depressive cognitive content/anxious symptoms; anxious cognitive content/depressed symptoms; depressive cognitive content/anxious cognitive content).

To address the possibility of moderator variables affecting effect size, the studies were aggregated on the basis of sample and the assessment instruments used to assess cognitive content. Separate overall effect sizes were calculated for studies using clinical versus nonclinical samples. A sample was operationally defined as clinical in nature if the participants either were diagnosed with an Axis I mood disorder, were currently involved in psychotherapy, or were described as either a "depressed" or "anxious" group based upon clinically prescribed cut offs on a self-report symptomatology instrument. All other samples were considered nonclinical. Also, because a majority of studies used the Cognitions Checklist, separate effect sizes were calculated for studies using the CCL and for those not using the CCL. This additional computation was undertaken because not all of the cognitive content scales used across the studies under review were constructed with cognitive specificity as an assessment objective (like the CCL). Thus, it was possible that the aggregation of effect sizes based on assessment instrument might help to clarify the implications of the review. After studies were aggregated, effect sizes were then correlated with the grouping variable to determine if either sample or choice of cognitive content assessment instrument were significantly associated with effect size estimates (Rosenthal, 1995).

RESULTS

Table I presents the 13 studies included in the review noting the type of population assessed, number of subjects, and the assessment instruments used in the study. Table I also presents the effects sizes for each study. Six studies involved nonclinical populations with a total of 1572 participants. The remaining seven studies involved clinical samples with a total of 2965 participants. As can be seen in Table I, the Beck Anxiety and Depression Inventories and the Hamilton Rating Scales were the most frequently employed symptomatology instruments. The Cognitions Checklist was used in nine of the studies reviewed.

Three of the studies used noncognitive forms of either the Children's Depression Scale, BDI, or Hamilton Rating Scales. Because these inventories contain cognitive items that overlap in content with the cognitive content inventories, these researchers removed overlapping items from the symptomatology scales. We did consider making a statistical comparison between studies using traditional versus noncognitive forms, but the small number of studies using noncognitive forms makes this comparison

Table I. Studies Included in Meta-Analysis Noting Sample, Assessment Instruments, and Effects Sizes

Study	Sample	*N*	Cognitive content	Anxiety measures	Depression measures	Depression/ depressive cognition	Anxiety/ anxious cognition	Depression/ anxious cognition	Anxiety/ depressive cognition
Beck, Brown, Steer, Eidelson & Riskind, 1987	Adults†	408	CCL	HARS-R	HRSD-R	.59	.55	.40	.38
Bruch, Mattia, Heinberg, & Holt, 1993	College students	169	ASSQ, ATQ	SADS	BDI	.73	.29	.67	.32
Clark, Beck, & Brown, 1989	Adults†	228	CCL	HARS-R, BAI	HRSD-R, BDI	HRSD-R .60 BDI .66	HARS-R .50 BAI .59	HRSD-R .24 BDI .46	HARS-R .20 BAI .28
Clark, Beck, Stewart, 1990	Adults†	470	CCL	HARS-R, BAI	HRSD-R, BDI	HRSD-R .59 BDI .69	HARS-R .49 BAI .56	HRSD-R .21 BDI .41	HARS-R .12 BAI .24
Clark, Steer, Beck, & Snow, 1996	Adults†	1553	CCL	HARS-R, BAI	HRSD, BDI	HRSD-R .57 BDI .65	HARS-R .47 BAI .56	HRSD-R .24 BDI .45	HARS-R .18 BAI .28
Epkins, 1996	Children	211	CCL	SASC-R	CDI+	.52	.62	.48	.64
Garber, Weiss, & Shanley, 1993	Adolescents	688	CCL	STAI-C	CDI+, BDI+	CDI+ .68 BDI+ .56	.62	CDI+ .56 BDI+ .48	.69
Jolly, 1993	Adolescents†	80	CCL	HARS-R+, BAI+	HRSD-R+, BDI+	HRSD-R+ .39 BDI+ .53	HARS-R+ .53 BAI+ .57	HRSD-R+ .41 BDI+ .52	HARS-R+ .31 BAI+ .36
Jolly, Dyck, Kramer, & Wherry, 1994	Adults†	159	CCL	BAI, SCL-90-R	BDI, SCL-90-R	BDI .82 SCL-90-R .78	BAI .65 SCL-90-R .68	BDI .72 SCL-90-R .70	BAI .55 SCL-90-R .62
McDermut & Haaga, 1994	College students	155	ASSQ, ATQ	BAI	BDI	.81	.55	.70	.58
Thorpe, Barnes, Hunter, & Hines, 1983	Adults†	67	SSSASI	SSSASI	SSSASI	.73	.40	.75	.44
Westra & Kuiper, 1996	College students	277	CCL	ACL, CCAS	CES-D, CCDS	CES-D .57 CCDS .75	ACL .33 CCAS .47	CES-D .32 CCDS .55	ACL .57 CCAS .58
Wickless & Kirsch, 1988	College students	72	SM-SR	SM-SR	SM-SR	.59	.69	.12	.49

Note. CCL: Cognitions Checklist; ASSQ: Anxious Self-Statements Questionnaire; ATQ: Automatic Thoughts Questionnaire; SSSASI: Situational Self-Statement and Affective State Inventory; SM-SR: self-monitored-subject's ratings; BDI: Beck Depression Inventory; CDI: Children's Depression Inventory; CES-D: Center for Epidemiological Studies-Depression scale; HRSD-R: Hamilton Rating Scale of Depression—Revised; SCL-90-R: Symptom Checklist-90—Revised; ACL: Anxiety Checklist; STAI-C: Spielberger State-Trait Anxiety Inventory for Children; SASC-R: Social Anxiety Scale for Children—Revised; HARS-R: Hamilton Anxiety Rating Scale—Revised; SADS: Social Avoidance and Distress Scale; CCAS: Costello-Comery Anxiety Scale; CCDS: Costello-Comery Depression Scale.

†Indicates clinical sample.

+Indicates cognitive items removed from scale.

unstable. An examination of the effect sizes in Table I, however, seems to indicate that the use of noncognitive forms of the symptomatology scales did not confer any clear psychometric advantage.

Summary Statistics and Significance Tests for Effect Sizes and Effect Size Comparisons

The overall effect sizes across all 13 studies are presented in Table II along with 95% confidence intervals and significance tests. Each of the effect sizes were significantly different from zero. Contrary to the cognitive content-specificity hypotheses, this pattern of results indicates that depressed and anxious symptomatology share a significant portion of their variance with both anxious *and* depressed cognitive content. However, the specificity relationship could be reframed by stating that depressive symptomatology should share significantly more variance with depressive cognition than anxious cognition (the same reasoning would also apply for the anxiety constructs). A superficial examination of Table II indicates that this may indeed be the case. However, to make a quantitative comparison of the effect sizes we ran paired sample t tests to determine which effect sizes were significantly different. The correlations and t-test comparisons for each effect size pair are presented in Table III.

As can be seen in Table III, the depressive symptomatology/depressive cognition relationship was significantly greater than all other symptomatology/cognition relationships. This finding is consistent with the specificity position: Depressed symptomatology shared significantly more of its variance with depressed cognitive content than with anxious cognitive content. By contrast, anxious cognitive content did not display significant trends toward specificity. In sum, the contrast of effect sizes was only partially supportive of the cognitive content-specificity position.

Only 5 of the 13 studies reported correlations between the measures of depressive and anxious cognitive content. Across these five studies the average correlation between anxious and depressive cognitive content was .66. By contrast, the averaged correlation between measures of anxiety and depression across the 13 studies was .45. This finding is problematic for cognitive content-specificity research because much of the motivation behind this line of inquiry was to reduce the intercorrelations between anxiety and depression measures.

Table II. Summary Statistics Across All Studies ($N = 13$)

	Depression/depressive cognition	Anxiety/anxious cognition	Depression/anxious cognition	Anxiety/depressive cognition
Mean r	.65	.53	.48	.43
Median r	.63	.55	.47	.44
SD of r	.10	.11	.19	.17
95% Confidence intervals	Lower: .58 Upper: .71	Lower: .47 Upper: .60	Lower: .37 Upper: .59	Lower: .34 Upper: .54
t and p values	$t\ (12) = 22.90$, $p < .001$	$t\ (12) = 16.97$, $p < .001$	$t\ (12) = 9.38$, $p < .001$	$t\ (12) = 9.32$, $p < .001$

Table III. Paired *t* Tests Comparing Mean Correlation Coefficients Across All Studies ($N = 13$)

	1.	2.	3.	4.
1. Depression/depressive cognition	**.65 (.10)**	$t\ (12) = 2.36^{*}$	$t\ (12) = 4.07^{**}$	$t\ (12) = 4.13^{**}$
2. Anxiety/anxious cognition	−.26	**.53 (.11)**	$t\ (12) = .74$	$t\ (12) = 2.05$
3. Depression/anxious cognition	$.63^{*}$	−.38	**.48 (.19)**	$t\ (12) = .79$
4. Anxiety/depressive cognition	.18	.34	.35	**.43 (.17)**

Note. Means and standard deviations of the correlation coefficients are presented on the diagonal (in bold). Correlations are presented below the diagonal; *t* tests are presented above the diagonal. $^{*}p < .05$. $^{**}p < .01$.

Summary Statistics and Significance Tests for Aggregated Effect Sizes

Table IV presents the aggregated effects sizes based on clinical and nonclinical populations. In addition, Table IV also present a significance tests for the effect size comparisons (clinical vs. nonclinical sample). This comparison, recommended by Rosenthal (1995), was in the form of a point-biserial correlation between the effect sizes and the dummy coded grouping variable. A significant correlation would indicate a significant difference between groups.

As can be seen in Table IV, effect sizes, with one exception, were not significantly different across clinical and nonclinical samples. The noted exception was that in nonclinical samples anxiety was more highly correlated with depressive cognition when compared to clinical samples. Overall, then, the effect size trends observed in Tables II and III cannot be attributed to the type of sample employed by a particular study.

Table V presents the aggregated effect sizes based on use of the CCL and the point-biserial correlations between effect sizes and the dummy coded grouping variable (used CCL vs. used alternative). Overall, use of the CCL in assessing cognitive content did not convey a distinct advantage over other measures of the same construct. It appears then that assessment instruments like the Automatic Thoughts Questionnaire and the Anxious Self-Statements Questionnaire performed as well as the CCL in the cognitive specificity research. Consequently, the overall effect size trends observed in Tables II and III cannot be attributed to the type of cognitive content assessment instrument used in a given study.

Table IV. Comparison of Effects Sizes for Clinical ($N = 7$) Versus Nonclinical ($N = 6$) Samples

	Depression/depressive cognition	Anxiety/anxious cognition	Depression/anxious cognition	Anxiety/depressive cognition
Mean *r*	Clinical: .64 (.11) Nonclinical: .65 (.10)	Clinical: .54 (.08) Nonclinical: .53 (.15)	Clinical: .48 (.18) Nonclinical: .49 (.21)	Clinical: .34 (.14) Nonclinical: .55 (.13)
$r_{es,sa}$	$r = .09$, $p = .77$	$r = -.05$, $p = .88$	$r = .03$, $p = .92$	$r = .63$, $p = .02$

Note. Standard deviations are presented in parentheses. $r_{es,sa}$: correlation of study effect size with sample assignment (*clinical* = 0, *nonclinical* = 1).

Table V. Comparison of Effects Sizes for Studies Using the Cognitions Checklist ($N = 9$) Versus Alternative Cognitive Content Inventories ($N = 4$)

	Depression/depressive cognition	Anxiety/anxious cognition	Depression/anxious cognition	Anxiety/depressive cognition
Mean r	CCL: .61 (.09) Alternative: .72 (.09)	CCL: .56 (.08) Alternative: .48 (.17)	CCL: .45 (.12) Alternative: .56 (.30)	CCL: .43 (.20) Alternative: .46 (.11)
$r_{es,cog}$	$r = .48$, $p = .10$	$r = -.31$, $p = .30$	$r = .29$, $p = .34$	$r = .08$, $p = .80$

Note. Standard deviations are presented in parentheses. $r_{es,cog}$: correlation of study effect size with cognitive assessment instrument employed in study (*used CCL* = 0, *used alternative* = 1).

DISCUSSION

The Status of the Cognitive Content-Specificity Hypothesis

Overall, the results of the present review provide only partial support for the cognitive content-specificity hypothesis. Specifically, the meta-analysis found that all symptomatology/cognition relationships were statistically significant. This finding, on its surface, appears inconsistent with the cognitive content-specificity hypothesis. However, we can expect a fair degree of shared variance between depression and anxiety constructs. Consequently, we assessed another formulation of the specificity hypothesis that the convergent symptomatology/cognition relationships (depressive cognitive content/depressive symptomatology and anxious cognitive content/anxious symptomatology) should be significantly stronger than the divergent symptomatology/cognition relationships (depressive cognitive content/anxious symptomatology and anxious cognitive content/depressed symptomatology). These quantitative comparisons did reveal that a degree of specificity did exist for depressive cognitive content. However, this was not the case for anxious cognitive content that shared equal variance with depressive and anxious symptomatology. In sum, across the 13 studies included in the review, the cognitive content-specificity hypothesis was only supported for depressive cognitive content.

Another finding, although based on a small sample of five studies, was also found to be problematic for cognitive content-specificity research. Specifically, measures of anxious and depressive cognitive content were found to be highly correlated. Across the five studies that reported statistics for this relationship the average correlation between cognitive measures was .66 as compared to the average correlation of .45 between the anxiety and depression symptom measures. This confounding is a potential obstacle for future cognitive content-specificity research.

Theoretical Implications

Earlier it was noted that the results of the present review can be interpreted from either a theoretical or psychometric perspective. This division may prove helpful in explicating the current findings. Initially, we address those results that might require theoretical attention.

Some theoretical attention might be directed toward the poor performance of anxious cognitive content in demonstrating specificity. Two explanations for the

observed lack of specificity for anxious cognition, each theoretical in nature, seem plausible. First, the theoretical construct and subsequent operationalization of "anxious cognitive content" might not be describing those cognitions that are truly specific to anxiety. "Anxiety" is a heterogeneous set of emotional, cognitive, and physiological responses. Consequently, is there a generic set of automatic thoughts that are correlated equally across the span of anxiety disorders, from generalized anxiety to panic? Or are there certain subsets of automatic thoughts that are only specific to various clusters of anxious symptoms? We suggest that future investigations might attempt to isolate a subset of anxious symptoms and examine the specificity of certain cognitions with those symptoms. For example, a recent effort by Woody, Taylor, McLean, and Koch (1998) to be operationally more precise with the construct of "anxious cognition" has generated cleaner results. Specifically, Woody et al. (1998) isolated and operationalized four domains of anxiety related cognition: Panic ("I am going to have a heart attack."), Worry ("I worry that something terrible will happen to my children."), Somatic preoccupation ("I have more aches and pains than most people."), and Social fears ("I am going to say something stupid."). By isolating these subsets of anxious cognition, Woody et al. (1998) were able to observe clearer trends in support of the specificity position. Future research might expand upon these results and develop an empirically derived taxonomy of anxious cognition. Such a taxonomy might ultimately improve the performance of anxious cognitive content in specificity research.

A second theoretical issue might also be revisited by cognitive content researchers. Specifically, the either/or nature of the cognitive content-specificity hypothesis might not be appropriate for mapping cognitive content onto the emotional phenomenology of depression and anxiety. Some have suggested that cognitive and affective variables be distinguished as either "shared" or "unique" to anxiety or depression (Kendall & Ingram, 1989). Perhaps the themes tapped by depressive cognitive content are unique to depression, but the themes involved in anxious cognitive content are shared cognitive variables. This suggestion parallels the positive and negative affectivity research (Watson & Clark, 1984; Watson & Tellegan, 1985), which states that low positive affect is unique to depression and that high negative affect is present in both depression and anxiety. This review suggests that a similar model might fit the cognitive phenomenology as well. Specifically, the meta-analysis indicated that depressive cognition is relative unique to depressed states whereas anxious cognitive content was shared with depression and anxiety. Some research has already indicated that low positive affect, the affective feature unique to depression, is correlated with depressive cognition, whereas high negative affect, the shared affective feature between anxiety and depression, is correlated with anxious cognition (Jolly, Dyck, Kramer, & Wherry, 1994).

Psychometric Implications

Obviously, psychometric innovations should parallel any theoretical developments in the cognitive content-specificity literature. However, one purely psychometric problem may be plaguing this line of inquiry. Most of the cognitive content-specificity research has been conduced using pencil and paper self-report instruments.

Consequently, the lack of observed specificity may be the product of confounding due to method variance in the assessment strategy. In light of the substantial correlations between the cognitive content and symptomatology measures, it is important to utilize alternative methods for assessing cognitive content. Multiple assessment strategies should clarify the exact nature of the shared variance between cognitive and symptomatology measures.

Clinical Implications and Conclusion

The differential diagnosis of anxiety and depression remains a thorny diagnostic problem. The current review suggests that this issue cannot be adequately resolved at present by the quantitative methods of cognitive-content specificity research. However, the results did lend some support for using depressive cognitive content to discriminate depression from anxiety. Despite this finding, our review suggests that diagnostic recommendations based on cognitive content-specificity in discriminating depression and anxiety would be premature.

The current review highlights several limitations and future challenges for cognitive content-specificity research. However, we feel continued empirical attention to this line of inquiry would be fruitful. At the least, we hope that the present findings bring renewed attention to cognitive content-specificity question. Theoretical and empirical innovations in this area should continue to enhance our understanding of the relationship between cognition and emotion.

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