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Are depressed patients' coping strategies associated with psychotherapy treatment outcomes?

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Abstract

Background: In theory, depression is thought to be associated with deficits in adaptive and excesses in maladaptive coping strategies. This study aimed to investigate associations between coping strategies and depression treatment outcomes.

Method: Participants (N = 126) completed measures of adaptive and maladaptive coping strategies before and after accessing evidence-based psychotherapies for depression. The primary outcome was self-reported depression severity measured with the Patient Health Questionnaire (PHQ-9). Hierarchical regression was used to investigate associations between coping strategies and post-treatment depression symptoms, controlling for therapeutic alliance and relevant demographics.

Results: Lower pre-treatment *engagement coping* and higher *rumination* predicted higher post-treatment depression, but both of these effects became non-significant after controlling for baseline depression severity. Similarly, correlations between change in rumination and change in depression were no longer significant after controlling for baseline severity.

Conclusions: Deficits in adaptive (*engagement*) and excesses in maladaptive (*rumination*) coping strategies may simply be proxy indicators (epiphenomena) of depression severity.

Keywords: Psychotherapy; Depression; Coping; Emotion Regulation; Rumination

1 Introduction

Coping strategies refer to processes by which an individual responds to stressful circumstances, with the intention to ameliorate these circumstances, or to regulate one's emotional response (Folkman & Lazarus, 1984). The concept of coping strategies is related to the concept of emotion regulation, which refers to processes employed to alter, avoid or modulate a particular emotional state (Gross, 2015). As such, the terms *coping strategy* and *emotion regulation strategy* are often used to refer to the same processes (e.g., Naragon-Gainey et al., 2017; Skinner et al., 2003). This can include automatic, as well as deliberate processes; and *maladaptive* processes that are inadvertently harmful, as well as *adaptive* processes that are beneficial (Carver et al., 1989; Eisenberg et al., 2009; Gross, 2015).

Skinner et al. (2003) analysed 100 measures of coping and found that between them 400 different coping strategies were measured, hindering comparison between studies. Further, they concluded that the distinctions commonly drawn between specific types of coping strategies are redundant, and they suggest categorizing coping strategies by action type. Among these various measures, the Coping Orientation to Problems Experienced (COPE) questionnaire (Carver et al., 1989) is the most commonly used in prior research (Kato, 2013). Factor analytic studies of the COPE provide empirical support for three broad categories of coping strategies or action types: *engagement coping*, which includes problem-solving, reappraisal, and acceptance; *disengagement coping,* which includes behavioural disengagement, mental disengagement, and denial; and *help-seeking*, which includes support seeking, and venting emotions (Gutiérrez et al., 2007; Litman, 2006; Wang et al., 2018).

Emotion regulation and coping difficulties are central to a number of theories of depression (e.g. Beck, 1976; Gross & Muñoz, 1995; Nolen-Hoeksema, 1991). There is evidence that depression is characterised and maintained by infrequent use of putatively adaptive coping strategies such as reappraisal and problem-solving, and frequent use of putatively maladaptive coping strategies such as avoidance, suppression, and rumination (Aldao et al., 2010; Cludius et al., 2020; D'Avanzato et al., 2013; Dryman et al., 2018; Joormann & Stanton, 2016). Rumination in particular has been the focus of much depression

theory and research (Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 2008; Wells, 2009), and there is debate as to whether rumination is a coping strategy that inadvertently exacerbates depression, or an automatic, intrusive psychopathological process (Ehring & Watkins, 2008; Harvey et al., 2004; Hertel, 2004; Papageorgiou & Wells, 2001). However, there is evidence that people with depression often engage in rumination in an effort to gain greater understanding or control of their depression, and that positive beliefs and expectations about rumination lead to greater use thereof (Watkins & Moulds, 2005; Weber & Exner, 2013).

Many psychological interventions for depression incorporate the development of particular coping strategies, and mitigate habitual or automatic use of others (Beck et al., 1979; Hayes et al., 1999; Jacobson et al., 2001; Nezu et al., 1989; Segal et al., 2018; Wells, 2009). However, the evidence for the relationship between coping strategies and psychotherapy outcomes for depression is mixed. Among studies that investigated pre-treatment coping strategies as predictors of psychotherapy outcomes for depression, some found that higher levels of active coping (Gunthert et al., 2005), problem-solving (Chen et al., 2006), and seeking emotional-support (Marquett et al., 2013) predicted better outcomes, as did lower levels of acceptance (Gunthert et al., 2015); whereas others found no significant effect of these strategies, or other strategies including reappraisal, denial, and disengagement (Burns & Nolen-Hoeksema, 1991; Drapeau et al., 2017; Gunthert et al., 2005; Marquett et al., 2013; Oei et al., 2013; Warmerdam et al., 2013). Three studies reported a moderate positive correlation between pre-treatment rumination and post-treatment depression, suggesting that higher levels of rumination predict poorer treatment response (Ciesla & Roberts, 2002; Lemmens et al., 2017; Teismann et al., 2012). However, Ciesla & Roberts (2002) found that this correlation shrank to almost zero when controlled for pre-treatment depression; and two studies found that rumination did not significantly predict depression treatment response (Carter et al., 2011; Huibers et al., 2014).

Similarly, a number of studies investigated the relationship between change in coping strategies, and change in depression during psychotherapy. There is an emerging consensus

that decrease in avoidance during psychotherapy predicts decrease in depression (Blalock et al., 2008; Berking et al., 2009; Chen et al., 2006; Drapeau et al., 2017; Klein et al., 2011), and some found that an increase in problem-solving predicts a decrease in depression (Chen et al., 2006; Klein et al., 2011). However, others found no relationship between change in depression and change in problem-solving, and no significant effect of change in other coping strategies such as acceptance and support seeking (Blalock et al., 2008; Drapeau et al., 2017). Three studies investigated rumination as a mediator of psychotherapy for depression, one found a significant indirect effect (van Aalderen et al., 2012), but two found that although change in rumination correlated with change in depression, there was no evidence for an indirect effect of psychotherapy on depression via rumination (Arnow et al., 2004; Lemmens et al., 2017). Furthermore, only one of these studies (Lemmens et al., 2017) controlled for the potentially confounding effect of therapeutic alliance, which is a well-established predictor of psychotherapy treatment outcomes (Flückiger et al., 2018).

Overall, there is mixed and inconclusive evidence regarding the relationship between specific coping strategies and depression treatment outcomes. Given these uncertainties, the present study aimed to investigate associations between coping strategies and depression treatment outcomes in a naturalistic sample of patients accessing evidence-based psychotherapies for depression in a primary care setting. Specific hypotheses formulated a priori were the following: [1] Higher frequency of engagement coping strategy use pre-treatment will predict lower depression symptom severity scores post-treatment; [2] lower frequency of disengagement coping strategy use will predict lower depression symptom severity scores post-treatment; [3] higher frequency of pre-treatment rumination will predict higher depression symptom severity scores post-treatment, but not when controlled for baseline depression symptom severity.

2 Materials and Methods

2.1 Design and Setting

This was a prospective observational cohort study in which participants completed coping strategy measures prior to commencing psychotherapy for depression, and later completed self-rated depression measures on a session-by-session basis during the treatment phase. Study participants were recruited from a community-based, primary care mental health service in the north of England. The service was part of the national *Improving Access to Psychological Therapies* (IAPT) programme, which offers evidence-based psychological interventions endorsed by clinical guidelines for the treatment of depression and anxiety disorders (Clark, 2018). Study participants were recruited by an independent research team and treated between November 2012 and February 2016. To be eligible for inclusion, patients seeking treatment during the study period had to [1] score above the threshold for clinically significant depression symptoms on the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001), and [2] were referred for high-intensity psychological treatment in the service. Approval for this study was granted by a National Health Service (NHS) research ethics committee (REF: 13/YH/0192).

2.2 Interventions

Study participants received one of four high-intensity and empirically supported treatments available in the service, all of which could last up to 20 sessions and were delivered following treatment manuals by practitioners qualified to a postgraduate level. Cognitive Behavioural Therapy (CBT) was delivered following the protocol by Beck et al. (1979). Counselling for Depression (CfD) followed the protocol by Sanders and Hill (2014). Interpersonal Psychotherapy (IPT) followed the protocol by Weissman et al. (2008). Dynamic Interpersonal Therapy (DIT) followed the protocol by Lemma et al. (2011). These interventions were closely supervised by experienced and accredited psychotherapists (equivalent of 1 hour supervision per week for full-time therapists), but no formal fidelity assessments were carried out or recorded in routine care.

2.3 Measures and Data Sources

2.3.1 Primary Outcome

The PHQ-9 is a nine-item self-report measure of depression, where each item on a Likert scale from 0 to 3 indicating the frequency of depressive symptoms over the previous two weeks (Kroenke et al., 2001). Sum scores range from 0 to 27; higher scores indicate more severe depression. A clinical cut-off ≥10 is recommended to screen for major depressive disorder with adequate specificity (88%) and sensitivity (88%). Each participant's first measure recorded pre-treatment (at initial assessments) was taken as a baseline measure and the last observed PHQ-9 score was recorded as a post-treatment outcome.

2.3.2 Coping Strategies

Coping strategies were measured using the Coping Orientation to Problems Experienced (COPE) questionnaire (Carver et al., 1989). This is a 60-item multidimensional, self-report measure where each item is rated on a Likert scale from 1 to 4 to indicate how frequently they respond to stress in the manner described by the item. The COPE was originally designed to measure 14 coping strategies across three proposed domains. However, factor analysis studies indicate that this questionnaire's factor structure varies in clinical and non-clinical samples (Kato, 2013; Litman, 2006; Lyne & Roger, 2000; Pang et al., 2012). The factors used in the present study were chosen via review of COPE factor analysis studies in clinical samples (Gutiérrez et al., 2007; Ortega et al., 2016; Pang et al., 2012; Pozzi et al., 2015), reliability analyses of hypothesized factor structures in the study dataset, and consideration of the ratio of cases to independent variables (IVs). The best fitting model in the study sample was a three-factor solution proposed by Gutiérrez et al. (2007), comprising 52 of the COPE items, and the factors: *Engagement coping* (Cronbach's alpha = .87), which encompasses planning, active-coping, positive-reinterpretation, suppression of competing activities, acceptance, and restraint; *disengagement coping* (alpha = .73), which encompasses denial, behavioural-disengagement, mental-disengagement, and turning to religion; and *help-seeking* (alpha = .89), which encompasses seeking emotional-support, seeking instrumental-support, and venting. This model is similar to that proposed by Litman (2006), and received support from a confirmatory factor analysis (Wang et al., 2018).

A meta-analysis found that the COPE was the most frequently used coping scale (Kato, 2013), hence employing the COPE in this study may aid comparability to similar studies (e.g., Oei et al., 2013). However, the COPE does not measure rumination, as it was designed before the rumination literature emerged (e.g., Nolen-Hoeksema, 1991; Nolen-Hoeksema & Morrow, 1993; Nolen-Hoeksema, Morrow, & Fredrickson, 1993). Therefore, given the well documented relationship between rumination and depression, a single factor measure of rumination was administered in addition to the COPE.

The COPE was administered by an independent research team before treatment to obtain baseline scores, and after the end of therapy in order to assess change. Mean scores were computed for each factor at baseline and post-treatment.

2.3.3 Rumination

Rumination was measured using the rumination subscale of the Response Styles Questionnaire (RSQ; Nolen-Hoeksema, 1987); this is a 22-item self-report measure. Participants rate each item on a Likert scale from 1 to 4 indicating how frequently they engage in aspects of rumination. Sum scores range from 22 to 88, with higher scores indicating more frequent rumination. The RSQ was administered alongside the COPE questionnaire. Cronbach's alpha for the RSQ in the study sample was .91.

2.3.4 Therapeutic Alliance

Therapeutic alliance is an established predictor of psychotherapy outcomes (Flückiger et al., 2018), and it is possible that therapeutic alliance covaries with particular coping strategies (d'Iuso et al., 2009; Santiago et al., 2002; Teismann et al., 2012). For this reason therapeutic alliance was included in the analysis as a potentially confounding variable. Therapeutic alliance was measured with the patient version of the Working Alliance Inventory Short Form (WAI-SF; Tracey & Kokotovic, 1989). This is a 12-item self-report measure where each item is rated on a Likert scale from 1 to 7; higher summed scores indicate better alliance. As is commonplace when measuring "early alliance" in psychotherapy studies, the WAIS-SF was administered at the third session by independent

researchers, so that this information was not available to the therapist. Cronbach's alpha for the WAI-SF was .91.

2.3.5 Demographic Features

Age and unemployment have consistently been found to be associated with psychotherapy outcomes in previous studies in this treatment context (e.g., Delgadillo et al., 2016, 2017; Finegan et al., 2020); therefore, participants' age at referral and a binary indicator of unemployment (1 = unemployed, 0 = other) were obtained from anonymised clinical records, and were included as potential confounding variables.

2.4 Statistical Analysis

Missing outcomes data (22.19%) were imputed using an expectation maximization approach, in order to undertake an *intention-to-treat* analysis unbiased by missing data. Variables with skewed distributions were square-root transformed. A three-step hierarchical regression analysis was conducted with post-treatment PHQ-9 as a dependent variable. The first step entered the baseline RSQ score and baseline scores for the three COPE factors (engagement coping, disengagement coping, help-seeking) as key predictors of interest. The second step additionally controlled for baseline PHQ-9. The third step additionally controlled for alliance (WAI-SF), age, and unemployment. In this way, the three hypotheses specified above could be tested empirically (in step 1) and after controlling for potential confounders (in steps 2-3). Additionally, two exploratory sub-group analyses were performed whereby the hierarchical regression analysis was repeated including [1] only participants with a primary affective disorder diagnosis, and [2] only patients who were treated with CBT, in order to explore differences due to diagnosis and treatment type.

In a secondary analysis, correlations between pre-post treatment change in coping and change in depression were examined. Change scores in all measures were computed so that negative scores indicate reduction and positive scores indicate increase. Pearson correlations were examined for bivariate associations; then partial correlations controlled for potential confounders.

3 Results

3.1 Sample Characteristics and Treatment Outcomes

Overall, 126 eligible patients consented to participate. Most were females (66.1%) from a white British background (90.6%). Ages ranged from 18 to 81 (M=46.6, SD=13.7) and almost half were unemployed (41.7%). Most participants had a primary affective disorder recorded in clinical records (78.8%) and others had primary anxiety disorders comorbid with clinically significant depression symptoms. Approximately 20.5% reported having a disability. Chronicity of mental disorders ranged from 0 to 483 months, with a median of 24 months. Around 22.0% had a prior history of psychological treatment in the service and 26.8% were currently taking antidepressant medications.

Treatments received by participants were CBT (n = 79), CfD (n = 30), IPT (n = 16), and DIT (n = 1). The number of treatment sessions ranged from 1 to 22, with a mean of 9.9 (SD = 5.5). A paired samples t-test indicated that the decrease in depression severity (PHQ-9) from baseline to post-treatment was statistically significant (t (125) = 11.428, p < .001), with a large effect-size (d = 1.24).

3.2 Primary Analysis

Hierarchical regression models are displayed in Table 1. In step 1, coping strategies significantly explained 12.2% of variance in post-treatment depression (R^2 = .122, F (4, 121) = 4.205, p = .003). However only engagement coping (β = -0.199, p = .036) and rumination (β = 0.227, p = .016) significantly contribute to the model. In step 2, adding baseline depression symptom severity significantly improved the model (R^2 = .215, F (1, 120) = 14.144, p < .001), explaining an additional 9.3% variance. Baseline depression was a significant predictor (β = 0.340, p < .001), however engagement coping and rumination were no longer significant in this step. Step 3 indicates that adding therapeutic alliance, unemployment, and age to the model explains an additional 1.4% variance, but does not significantly improve the model (R^2 = .229, F (3, 117) = 0.718, p = .543). In step 3, therapeutic alliance, unemployment, and age were not significant, and baseline depression was the only significant predictor (β = 0.345, p < .001).

3.3 Sub-group Analyses

The results of these analyses are fully reported in the supplemental materials. A summary of findings is provided below.

3.3.1 Participants with a primary affective disorder diagnosis (*n* = 100)

The results of step 1 (R^2 = .159, F (4, 95) = 4.502, p = .002) differed to the primary analysis in that lower levels of disengagement coping significantly predicted lower levels of post-treatment depression (β = 0.220, p = .044), as well as higher levels of engagement coping (β = -0.263, p = .014) and lower levels of rumination (β = 0.231, p = .026). However, all three of these coefficients became non-significant in step 2 (R^2 = .237, F (1, 94) = 9.607, p = .003) when baseline depression (β = 0.325, p = .003) was added to the model. Like the primary regression analysis, in step 3 (R^2 = .243, F (3, 91) = 0.221, p = .882) baseline depression was the only significant predictor (β = 0.328, p = .003).

3.3.2 Participants treated with CBT (*n* = 79)

In step 1 (R^2 = .137, F (4, 74) = 2.936, p = .026) only higher levels of engagement coping (β = -0.226, p = .049) significantly predicted lower levels of post-treatment depression. Unlike the previous two analyses, in step 2 (R^2 = .258, F (1, 73) = 11.887, p = .001) engagement coping remained a significant predictor (β = -0.231, p = .032) when baseline depression (β = 0.377, p = .001) was added to the model, and became non-significant in step 3 (R^2 = .267, F (3, 70) = 0.306, p = .821) when the remaining potentially confounding variables were added. Again, baseline depression was the only significant predictor in the final step of the analysis (β = 0.367, p = .002).

3.4 Secondary Analysis

Pearson correlations shown in Table 2 revealed a significant, positive correlation between pre-post treatment change in rumination and change in depression (r = .20, p = .025). However this became non-significant when baseline depression was controlled in partial correlation tests (r = .15, p = .105).

4 Discussion

4.1 Summary of Findings

This study investigated the relationship between coping strategies and depression treatment outcomes for patients who received evidence-based psychotherapies. In partial support of our first hypothesis, a higher level of engagement coping was associated with a better depression treatment outcome, but this was no longer significant after controlling for baseline symptom severity. Our second hypothesis, expecting an association between low disengagement coping and better depression outcomes, was not supported by the data. Our third hypothesis was supported by the finding that higher pre-treatment rumination predicted higher post-treatment depression, but not when controlling for baseline depression. Furthermore, potential confounding variables (therapeutic alliance, age and unemployment) did not significantly contribute to the model. Similarly, there was no evidence of significant associations between change in depression and change in coping styles during treatment, after controlling for baseline depression. Overall, baseline depression severity was the only reliable prognostic indicator, and there is little evidence that the coping strategies examined in this study are associated with depression treatment outcomes.

A plausible interpretation for these findings is that lower levels of engagement coping and higher levels of rumination are simply proxy indicators of depression severity. This is congruent with previous findings that pre-treatment coping strategies do not significantly predict psychotherapy outcomes when controlling for baseline depression (Ciesla & Roberts, 2002; Drapeau et al., 2017; Huibers et al., 2014; Oei et al., 2013). However, the second sub-group analysis suggested that higher engagement coping may remain a significant predictor of better CBT outcomes for depression after controlling for baseline depression. Engagement coping became non-significant in the third step when the potential confounding variables were added to the model, but we note that the confounders did not actually contribute to explained variance.

Like in previous studies (e.g., Arnow et al., 2004; Ciesla & Roberts, 2002; Lemmens et al., 2017), a decrease in rumination correlated with decrease in depression during treatment, but this correlation became non-significant when controlled for baseline depression. Such evidence challenges the theoretical assumption that change in coping strategies is a mechanism of change in psychotherapy, and change possibly occurs through different processes such as cognitive change (Beck & Haigh, 2014; Lorenzo-Luaces et al., 2015, 2016) or common factors (Wampold, 2015). However, there is some debate as to whether these are mechanisms or simply correlates of symptom change (Kazdin, 2007), and the present study found that therapeutic alliance did not significantly contribute to the prediction of psychotherapy outcomes after controlling for baseline symptom severity. Overall, we cannot draw any strong inferences about mechanisms of change from the data in this study.

4.2 Limitations

Although the study sample was adequate to carry out the primary analysis, it was not large enough to conduct a reliable factor analysis of the COPE measure. Hence, it was necessary to rely on factor analysis results from previous studies. Nevertheless, internal consistency indices for the three-factor solution we applied in this sample were adequate (Cronbach's alpha = .73 to .89). The limited sample size also precluded the investigation of interactions between coping strategies and treatment type, and the lack of a control group or mid-treatment coping measures prevented more robust moderator and mediator analyses (Kazdin, 2007; Kraemer et al., 2002). It remains unclear if these coping strategies may be more or less relevant in different models of psychotherapy such as person-centred, cognitive-behavioural or interpersonal approaches. However, the sub-group analysis of patients who received CBT suggested that pre-treatment engagement coping strategy use may be more relevant to CBT than to other forms of therapy. Similarly, it is possible that the relationship between coping strategy use and psychotherapy outcomes may vary by primary diagnosis (e.g. Oei et al., 2013).

A further limitation may have been the use of a self-report, trait measure of coping. Although the most commonly used measures of coping are self-report (Kato, 2013), the reliability and validity of such measures has been disputed (Kramer, 2017; Parker & Endler, 1992; Todd et al., 2004). Only one of the aforementioned studies of coping and psychotherapy outcomes for depression used an observer-reported measure; Drapeau et al., (2017) used *The Coping Patterns Rating Scale* (Perry et al., 2005), and found no relationship between pre-treatment coping strategies and depression outcomes, but a significant relationship between change in depression and change in *threat-based coping*, which includes strategies related to avoidance and disengagement (Skinner et al., 2003). This is consistent with other studies that investigated change in avoidance and change in depression (Blalock et al., 2008; Berking et al., 2009; Chen et al., 2006; Klein et al., 2011). Similarly, the self-reported PHQ-9 measure used as our primary outcome has been criticized for limitations concerning its diagnostic reliability (e.g., Eack, Greeno, & Lee, 2006) and its precision in measuring severe symptoms (Lisdonk & van Weert, 2009).

4.3 Conclusions

Overall, baseline depression severity was the most robust prognostic indicator. Deficits in adaptive (*engagement*) and excesses in maladaptive (*rumination, disengagement*) coping strategies may be proxy indicators (epiphenomena) of depression severity, and appear to explain little variation in psychotherapy response beyond that which is explained by baseline depression. However, there is some tentative evidence that this may vary by psychotherapeutic modality (i.e., deficits in engagement coping may impair treatment response in CBT).

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Table 1

*Hierarchical regression analysis predicting post-treatment depression from coping style and rumination, adjusted for baseline depression, therapeutic alliance, unemployment and age (*N = *126).*

Step	Variables	Unstandardized Coefficients		Standardized Coefficients	*t*	*p*	95% Confidence Interval for B		R^2	Model Change Statistics		
		B	*SE*	β			Lower Bound	Upper Bound		R^2 Change	*F* Change	*p*
1									.122	.122	4.205	.003
	(Constant)	1.812	0.661		2.743	.007	0.504	3.120				
	Engagement	-0.491	0.231	-0.199	-2.121	.036	-0.949	-0.033				
	Disengagement	0.408	0.247	0.159	1.650	.101	-0.081	0.897				
	Help-seeking	0.086	0.150	0.052	0.574	.567	-0.210	0.382				
	Rumination	0.020	0.008	0.227	2.451	.016	0.004	0.036				
2									.215	.093	14.144	<.001
	(Constant)	1.399	0.637		2.197	.030	0.138	2.660				
	Engagement	-0.347	0.223	-0.141	-1.557	.122	-0.789	0.094				
	Disengagement	0.261	0.238	0.102	1.097	.275	-0.210	0.732				
	Help-seeking	0.062	0.142	0.038	0.437	.663	-0.219	0.344				
	Rumination	0.010	0.008	0.110	1.172	.244	-0.007	0.026				
	Baseline Depression	0.065	0.017	0.340	3.761	<.001	0.031	0.100				
3									.229	.014	0.718	.543
	(Constant)	6.456	4.199		1.538	.127	-1.860	14.773				
	Engagement	-0.328	0.227	-0.133	-1.447	.151	-0.776	0.121				
	Disengagement	0.264	0.239	0.103	1.103	.272	-0.210	0.738				
	Help-seeking	0.077	0.144	0.047	0.532	.596	-0.209	0.362				

Rumination	0.009	0.008	0.099	1.031	.304	-0.008	0.025
Baseline Depression	0.066	0.018	0.345	3.789	<.001	0.032	0.101
Therapeutic Alliance	-0.059	0.050	-0.099	-1.183	.239	-0.159	0.040
Unemployed	-0.072	0.193	-0.032	-0.373	.710	-0.455	0.311
Age	-0.006	0.007	-0.079	-0.940	.349	-0.020	0.007

Note: The dependent variable (PHQ-9 depression measure) has been square root transformed, so the unstandardized coefficients are not interpretable on a conventional PHQ-9 scale; for this reason, standardizes coefficients are provided to aid interpretability.

Table 2

Correlations between change in coping styles, change in rumination, and change in depression

Variable	1	2	3	4	5
1. Depression[a]	—				
2. Engagement	-.06	—			
3. Disengagement[b]	.10	.16	—		
4. Help-seeking	-.08	.53**	-.07	—	
5. Rumination	.20*	-.17	.17	-.14	—

[a] PHQ-9 change-score winsorized for extreme outliers. [b] Disengagement coping change-score square root transformed.

* $p \leq .05$. ** $p \leq .01$.