<ATL> Compassionate and Self-Image Goals as Interpersonal Maintenance Factors in Clinical Depression and Anxiety</ATL>

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Abstract

Objective Interpersonal models of depression and anxiety have not examined the role of interpersonal goals in shaping relationships and symptoms. Striving to promote/protect desired self-images (self-image goals) may undermine relationships and increase symptoms, whereas striving to support others (compassionate goals) may be protective, but clinical relevance is unknown.

Method We tested effects of compassionate versus self-image goals on interpersonal functioning and symptoms in clinically depressed and/or anxious participants (N = 47) during 10 days of experience sampling, over a 6-week follow-up, and in a dyadic relationship.

Results Participants reported higher conflict and symptoms on days that they most pursued self-image goals, but noted higher perceived support and lower symptoms when pursuing compassionate goals. Goals prospectively predicted symptom changes 6 weeks later. Last, informant-rated interpersonal goals predicted relationship satisfaction of both patients and significant others.

Conclusion Results suggest the relevance of self-image and compassionate goals for the interpersonal maintenance of depression and anxiety.

<H1> **KEYWORDS**

anxiety, compassion, depression, interpersonal goals, worry

<P> Anxiety and depressive disorders are among the most common and impairing disorders (Kessler, Chiu, Demler, & Walters, 2005). Although there exist important differences between these disorder types, anxiety and depression are jointly characterized by high levels of negative emotion or distress (Anderson & Hope, 2008; Naragon-Gainey, Gallagher, & Brown, 2013) and tend to be comorbid (e.g., Lamers et al., 2011). Such phenotypic overlap may be due, in part, to shared genetic loadings for risk factors including negative emotionality (e.g., Hettema, Neale, Myers, Prescott, & Kendler, 2006) and experiences of life-stress (Uliaszek et al., 2012). However, although genes and life stress may confer broad vulnerability to depression and anxiety, they do not explain mechanisms whereby individuals may contribute to their own distress in daily life.

<P> In contrast, interpersonal processes are common in both anxiety and depression and may represent such a mechanism, for several reasons. For instance, threatening thoughts about others or maladaptive interpersonal perceptions are common in depression (Cruwys, Haslam, Dingle, Haslam, & Jetten, 2014; Gotlib, Krasnoperova, Neubauer Yue, & Joorman, 2004), generalized anxiety disorder (GAD; Erickson & Newman, 2007), social anxiety (Alden & Taylor, 2004; Rodebaugh et al., 2014), and panic disorder/agoraphobia (PD/A; Chambless et al., 2017).

Interpersonal models of these disorders (e.g., Alden & Taylor, 2004; Hames, Hagan, & Joiner, 2013; Newman & Erickson, 2010), while not identical, posit that problematic social perceptions lead to dysfunctional social behavior, which subsequently evokes negative responses from others and undermines social support, thereby perpetuating one's own depression or anxiety. Evidence of such negative reactions from others is present for depression (Starr & Davila, 2008), social anxiety (Heerey & Kring, 2007), and worry and GAD symptoms (Erickson & Newman, 2007), for instance. Accordingly, relationship satisfaction is relatively low for depressed and anxious individuals (Whisman, Sheldon, & Goering, 2000) and their significant others (Whisman, Uebelacker, & Weinstock, 2004).

<P> Interpersonal difficulties and perceived conflict, in turn, predict worse response to cognitive behavioral therapy (CBT) for both anxiety and depression (e.g., Borkovec, Newman, Pincus, & Lytle, 2002; Chambless et al., 2017; Renner et al., 2012), whereas perceived social support predicts lower symptoms over time (e.g., Crocker, Canevello, Breines, & Flynn, 2010; Stice, Ragan, & Randall, 2004), suggesting prospective interpersonal effects on symptom maintenance. However, most studies have collected only one-time, cross-sectional data. Moreover, despite evidence that interpersonal stressors maintain emotional distress in depression and anxiety (Uliaszek et al., 2012), precise mechanisms are not fully known. Even less research examines the means by which individuals may elicit relational support and satisfaction, and thereby attenuate symptoms. Social motives or goals may play an

important role in the interpersonal maintenance of anxiety and depressive disorders

(Horowitz, 2004).

<P> Goals—cognitive representations of desired ends (Freund & Hennecke,

2015)—are clearly relevant to negative emotional states, including depressive and

anxiety symptoms (Moberly & Watkins, 2010; Sideridis, 2008; Trew, 2011). However,

many of the standard models linking goal cognition to emotion emphasize the

process of goal striving regardless of specific goal *content* (i.e., what individuals

strive for). For instance, striving to avoid undesirable goals, rather than approaching

desired goals, is associated with negative emotionality (Dickson & MacLeod, 2004;

Elliot & Thrash, 2002), parallel with research linking *prevention* goals (in contrast to

promotion goals) to depression and anxiety symptoms (Brodscholl, Kober, & Higgins,

2007). Similarly, perceived low competence or ability to reach one's goals (Carver,

2015) or discrepancy between current and desired goal states (Cornette, Strauman,

Abramson, & Busch, 2009; Watson, Bryan, & Thrash, 2014) consistently predict

dysphoria and anxiety, regardless of the actual content of goals.

<P> However, the content of goals may also matter, particularly in the

interpersonal domain. In nonclinical samples, individuals endorsing power, social

approval, financial gain, or physical attractiveness (i.e., social status) as their most

valued goals, relative to goals such as building relationships and serving one's

community, feel externally controlled (Sheldon, Ryan, Deci, & Kasser, 2004) and

more dysphoric and anxious (subclinically), even when they perceive themselves as

attaining their goals (Sheldon et al., 2004; Sheldon & Kasser, 2008). These studies

dovetail with the theory that distinct neurobehavioral systems regulate *competition over hierarchy and self-preservation* versus *compassion, cooperation, and affiliation*; activation of these systems is thought to increase versus decrease distress responses, respectively (Gilbert, 2009; Porges, 2007; Wang, 2005).

<P> Recent research suggests that particular types of interpersonal goals may be relevant to the maintenance of depression and anxiety. In humans, approach goals to obtain status or approval and goals of avoiding vulnerability during social interactions correlate highly (subsumed as "self-image" goals), as do approach goals of prosocial striving to help others and avoiding selfish behavior (subsumed as "compassionate goals"; Crocker & Canevello, 2008, 2012). Compassionate goals predicted increased support given to and received from college roommates over 10 weeks and decreased dysphoria and anxiety over time; self-image goals predicted increased conflict, decreased support given and received, and increased symptoms (Crocker & Canevello, 2008; Crocker et al., 2010). These effects were not explained by approach versus avoidance, attachment styles, dysfunctional attitudes, or personality traits (Crocker et al., 2010), suggesting that interpersonal goals are unique mechanisms by which people might shape their relationships and emotional states. However, such a conclusion remains premature because the role of these goals has yet to be examined in the lives of individuals struggling with clinical levels of depression and/or anxiety.

<P> Testing a model of compassionate and self-image goals as interpersonal maintenance factors for depression and anxiety would require not only examination

in a clinical context, but also differentiating *interpersonal* versus *intrapersonal* mechanisms. Self-image goals presumably promote survival in competitive contexts but may *interpersonally* cause conflict and lower relationship satisfaction in oneself and significant others, consistent with evidence that they predict less responsiveness to and less perceived responsiveness from roommates (Canevello & Crocker, 2011). Such an interpersonal process implies "slow" transactional effects by which people elicit unsupportive responses from others over time in interpersonal models of depression and anxiety (e.g., Eberhart & Hammen, 2010; Hames et al., 2013). In contrast, if compassionate goals are perceived by others, they may *interpersonally* elicit support (which predicts lower stress; e.g., Rosal, King, Ma, & Reed, 2004) and mutual relationship satisfaction over time. Additionally, adopting self-image goals may also cause "fast" *intrapersonal* effects such as construing interactions as competitive, which triggers stress (Edwards, Wetzel, & Wyner, 2006), whereas compassionate goals may *intrapersonally* induce the cooperative perspective that the good of others and the self are interdependent.

<P> The experience of *giving* support (not just *receiving* support or rejection, which are central in interpersonal models of depression and anxiety) may itself shift social perceptions and emotional distress. Indeed, giving support predicted faster recovery from bereavement, independent of received social support (Brown, Brown, House, & Smith, 2008), and contributes to increased physiological regulation, including reduced cortisol secretion, lower blood pressure, and increased heart rate variability (Konrath & Brown, 2013). Therefore, compassionate and self-image goals

may predict both interpersonal and intrapersonal processes relevant to maintaining or attenuating the distress symptoms of individuals with clinical depression and/or anxiety.

<H1> **THE PRESENT STUDY AND HYPOTHESES**

<P> The present study aimed to test the relevance of interpersonal goals to the maintenance of symptoms in clinical depression and anxiety and investigate both intrapersonal and interpersonal processes in this context. A robust investigation of these issues required a clinical sample with a broad range of distress symptoms (depression and anxiety), repeated measures to capture day-to-day variability and prospective effects, and assessment of goals as rated by significant others in addition to self-reports. In this study, treatment-seeking individuals with depressive and/or anxiety disorders reported interpersonal goals, social perceptions, and symptoms at pretest, across 10 days of experience sampling, and at a 6-week posttest (Part 1). Additionally, participants and their significant others gave informant ratings of their partners' goals to test effects on the relationship satisfaction of both parties (Part 2).

<P> Based on the theory that self-image goals foster a competitive mindset and emotional distress, we expected that on days that participants had high self-image goals, they would report higher belief in individualistic competition, interpersonal conflict, dysphoria, and anxiety and lower perceived support and belief

in mutual cooperation (with daily variability implying relatively "fast" effects of goals). In contrast, we hypothesized the opposite pattern of results for compassionate goals. Moreover, we expected these relationships even after accounting for goal *process* variables such as approach/avoidance and a sense of self-competence as a proxy for efficacy to achieve one's goals. Theorizing that goals shift social perceptions, which shape emotional distress, we also expected indirect effects of daily goals on symptoms via perceived social support and conflict.

<P> Theorizing that interpersonal goals play a role in maintaining emotional distress, we hypothesized that mean self-image goals across 10 days would prospectively predict increased distress symptoms 6 weeks later (e.g., depression, anxiety, stress, worry), whereas mean compassionate goals would exert opposite effects. Self-image goals may undermine the effect of compassionate goals over time (Crocker & Canevello, 2008) and vice versa, so we expected an interaction of goals on changes in symptoms.

<P> The foregoing hypotheses test interpersonal goals' effects on social perceptions (e.g., conflict, support) known to influence distress symptoms. However, they rely on self-reports, pertaining to global perceptions rather than a specific relationship, and leave open whether such effects are entirely *intrapersonal* (i.e., my goals may shift my social perceptions without influencing others' perceptions). Thus, in a specific dyadic relationship with a significant other, we tested whether informant-rated interpersonal goals would have effects on the relationship satisfaction of both partners, with compassionate and self-image goals positively and negatively

predicting satisfaction, respectively. Such effects would show both that individuals are sensitive to others' goals and that these goals have interpersonal *and* intrapersonal effects. Given the high relationship dissatisfaction of depressed and anxious individuals (Whisman et al., 2000), we also expected a negative association between patients' own satisfaction and distress (depression, anxiety, stress).

<H1> **PART 1: PREDICTING OUTCOMES IN DAILY LIFE AND OVER 6 WEEKS**

<H1> **METHOD**

<H2> **Participants**

<P> At the end of diagnostic intake interviews, patients received an invitation to participate in an investigation of emotions, social support, and goals. Participants included 47 community-dwelling patients (32 women, 15 men) seeking treatment for depressive and/or anxiety disorders at an academic medical center in the Midwest (age: mean [*M*] = 36.45, standard deviation [*SD]* = 11.41). Analyses testing other hypotheses in these data were reported in [removed for blinding <zaq;1>]. Inclusion criteria were a primary depressive or anxiety disorder, Internet access, and informed consent. We recruited participants with varying levels of depression and anxiety symptoms consistent with the idea that symptoms reflect dimensions that cut across diagnostic categories (Cuthbert & Insel, 2013). Patients self-identified as White (40), Asian American (3), Latino (1), American Indian (2), and African American (1). Primary diagnoses included major depressive disorder (*n* = 18), depression not otherwise specified (10), panic disorder (6), generalized anxiety disorder (5),

obsessive-compulsive disorder (4), social anxiety disorder (1), and adjustment disorder with depressive (1), anxious (1), or mixed features (1).

<P> A total of 12 participants met criteria for comorbid depressive and anxiety disorders. Chart review showed that between the time of the baseline and 6-week follow-up assessments, participants received psychotherapy (20; 12 cognitive behavioral therapy, 4 interpersonal therapy, 3 supportive therapy, and 1 dialectical behavior therapy), new medications (22), continuation on existing mediations (16) or therapy (4), supportive follow-up consultation (3), and electroconvulsive treatment (1). Other analyses testing questions separate from our aims were published elsewhere (Erickson & Abelson, 2012; Erickson et al., 2016).

<H2> **Procedure**

<P> Diagnosis involved a two-step clinic protocol. First, treatment team members (psychologists, psychiatry residents, clinical social workers) conducted semistructured interviews based on the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., *DSM-IV*; American Psychiatric Association, 1994) criteria for anxiety, mood, and related disorders. Second, an attending senior psychiatrist or psychologist interviewed each patient to corroborate diagnoses and met with the first assessor to achieve consensus. The diagnostic protocol used in this study showed agreement (.87-.90) with the Structured Clinical Interview for *DSM-IV* diagnosis in another study in the same clinic (Abelson, 2015). Individuals who consented to participate received in-person verbal and typed instructions on how to log onto the study website to complete the baseline measures and 10 daily surveys thereafter.

The researchers e-mailed the survey links and assessed compliance daily, contacting participants who missed a day and reminding them to resume completion. Participants received an e-mail link to posttest surveys 6 weeks after they completed the pretest surveys. Participants completed all surveys online.

<H2> **Measures**

<H3> *Pretest and posttest measures*

<P> At pretest and posttest, we assessed participants' self-image and compassionate goals (Crocker & Canevello, 2008; Study 1). They were asked, "In the past week, in the area of relationships or social interactions, how much did you want to or try to…," followed by 12 goal items. Five items measured self-image goals, including both approach (e.g., "get others to notice your positive qualities") and avoidance goals ("avoid showing your weaknesses"); seven items measured compassionate goals, including both approach (e.g., "make a positive difference in someone else's life") and avoidance goals ("avoid being selfish or self-centered"). Participants rated the items on a 1 (*not at all*) to 5 (*always*) scale.

<P> Crocker and Canevello (2008) provided evidence of reliability and validity, and showed item responses to load on self-image and compassionate goal factors. In the present study, participants' responses on these measures were internally consistent for self-image (pretest α = .72, posttest α = .85) and compassionate goals (pretest α = .64, posttest α = .87). Approach and avoidance items correlated for compassionate (*r* =. 42, .60, *p*s <.001) and self-image goals (*r*

=.27, *p* =.078; *r* = .47, *p* <.001). Cross-construct correlations were not significant (*p* > .24).

<P> We used the Depression Anxiety Stress Scales-21 (DASS-21; Lovibond & Lovibond, 1995) to measure past-week depression (e.g., "I felt down-hearted and blue"), anxiety (e.g., "I felt I was close to panic") and stress (e.g., "I found it difficult to relax"). Response options ranged from 0 (*did not apply to me at all*) to 3 (*applied to me very much, or most of the time*). Responses on the DASS have shown evidence of latent factors for depression, anxiety, and stress and a higher-order distress factor (Henry & Crawford, 2005). Pretest and posttest responses on the depression (α = .94, .96), anxiety (.84, .83), and stress (.88, .89) scales were internally consistent.

<P> We used the eight-item Brief Measure of Worry Severity (BMWS; Gladstone et al., 2005) to measure dysfunctional worry typical of GAD and other anxiety and mood disorders. Respondents rated items such as "I worry that bad things or events are certain to happen" on a 1 (*not true at all*) to 5 (*definitely true*) scale. Pretest and posttest responses were internally consistent (α = .91, .93). The BMWS correlates highly with longer measures of worry (Gladstone et al., 2005).

<H3> *Measures for daily surveys*

<P>Participants rated 16 goal items each day (modified for nonroommate interactions; Crocker & Canevello, 2008; Study 2): seven items measured self-image goals (mean daily α = .80, *SD* = .28) and nine items measured compassionate goals (mean α = .81, *SD* = .29). Mean approach and avoidance items correlated strongly

and solely for self-image (r =.67, p <.001) and compassionate goals (r =.82, p <.001).

<P>Participants rated social perceptions and beliefs (Crocker & Canevello, 2008) items, each of which began with the phrase, "Today in your relationships, how often did you…?" Participants rated the items on a 1 (*not at* all) to 5 (*always*) scale. Their responses were internally consistent for daily perceived social support ("receive support from others," "feel close to others," and "talk about your emotions with others"; mean daily α = .72, *SD* = .25) and social conflict ("find it hard to get along with others" and "have conflicts with others"; mean α = .70, *SD* = .22). Single items assessed belief in mutual cooperation ("feel it was important that people look out for one another") and individualistic competition ("feel it was important to look out for yourself").

<P>Perceived competence reflects a sense of agency or ability to accomplish one's goals (Cuddy, Fiske, & Glick, 2008; Tafarodi & Swann, 2001); we wished to control for this process when testing effects of interpersonal goals. On a 1 (*not at all*) to 5 (*extremely*) scale (mean α = .80, *SD* = .06), participants rated their daily sense of competence on brief adjectives (feeling successful, powerful, victorious, and superior), which were averaged.

<P> We used six items from the Brief Symptom Inventory subscales (Derogatis & Melisaratos, 1983) to assess daily symptoms of dysphoria ("feeling sad or blue," "feeling no interest in things," "feeling hopeless about the future") and anxiety ("feeling tense or keyed up," "feeling so restless you couldn't sit still,"

"nervousness or shakiness inside"). Participants rated the items on a 1 (*not at all*) to 5 (*extremely*) scale. Scores were internally consistent in this sample (mean dysphoria α = .81, *SD* = .23; anxiety α = .73, *SD* = .26).

RESULTS

Preliminary Analyses

All analyses were conducted in IBM SPSS (version 24.0). Patient sex (female = 1, male = 0) did not significantly correlate with compassionate or self-image goals at baseline (*r* = .04, *p* = .783; *r* = -.20, *p* = .162) or daily (*r* = .23, *p* = .101; *r* = -.18, *p* = .214). Consistent with diagnoses, participants with primary depression endorsed higher levels of DASS depression at pretest than those with primary anxiety diagnoses, $t(43)$ = 2.86, *p* = .007, *d* = .90. DASS depression, anxiety, stress, and BMWS worry scores and self-image goals decreased significantly from pre- to posttest, but compassionate goals did not significantly change (see Table 1 {TBL1} for these statistics and for all descriptive statistics). All results remained significant or marginally so when controlling for sex, primary depressive versus anxiety diagnosis, receiving psychotherapy, and receiving medication, so we report results with the full sample.

Daily Goals Predicting Social Functioning and Symptoms

We used the MIXED command in IBM SPSS for multilevel modeling (MLM), which avoids the untenable assumption of independent errors required by ordinary least squares (OLS) regression. Participants' daily records (Level 1) were nested

within individuals (Level 2). We calculated restricted maximum likelihood (REML) parameter estimates, which are less biased than maximum likelihood estimates in smaller samples and appropriate when not testing the fit of nested models (Heck, Thomas, & Tabata, 2010). Tests of unconditional models showed significant variability of intercepts (differences between individuals) for all outcomes, warranting examination of whether daily fluctuation in goal striving accounts for variance in outcomes. All models included random intercepts (but not random slopes, given lack of significant variance in slopes). Additionally, intraclass correlations ranged from .31 to .73 (M = .55, SD = .16), suggesting substantial between-person variability and therefore justifying the use of MLM over OLS regression. We assumed an autoregressive covariance structure (correlated errors within individuals due to repeated measures), which was supported by significant *rho* coefficients in all models.

<P>We included compassionate and self-image goals as simultaneous predictors to obtain unique effects, time (coded as number of days from initial assessment), and feeling competent. Controlling for time and competence ensured that any effects of goals could not be attributed to symptom changes that might occur early in seeking services or to a general sense of perceived efficacy over one's goals. Predictors were grand-mean centered, so coefficients reflect deviations from the mean of all participants each day. Patients completed an average of 9.36 records (SD = 2.79; 440 total records); 93% of daily records were completed within the requested window of 14 days, suggesting relatively high contiguity of days sampled.

Only 2% of responses were missing, and participants' number of records did not correlate with study variables beyond chance. However, to handle missing data, we used multiple imputation (five imputations) to derive pooled parameter estimates.

<P>Time effects were significant only for anxiety, suggesting slight decrease in anxiety but otherwise minimal linear change in outcomes over those 10 days. Competence predicted lower conflict, dysphoria, and anxiety, as would be expected, but no other variables. However, even after controlling for these variables, higher daily self-image goals predicted higher belief in competition, higher perceived conflict, anxiety, and dysphoria, and marginally lower support, as expected (see Table 2 {TBL2}). Contrary to expectations, self-image goals did not negatively predict lower belief in cooperation. As hypothesized, even with time and competence controlled, higher daily compassionate goals predicted higher belief in cooperation and perceived support, and lower belief in competition, conflict, anxiety, and dysphoria.[1]

<P>To test indirect effects of goals on symptoms via social perceptions, we conducted Monte Carlo mediation tests to derive 95% confidence intervals appropriate for MLM (Bauer, Preacher, & Gil, 2006; Selig & Preacher, 2008; intervals not including a zero reflect significant indirect effects). Contrary to hypotheses, indirect effects of compassionate goals on anxiety (-.05, .18) and dysphoria (-.31, .34) via daily support were not significant, nor were indirect effects of self-image goals on anxiety (-.02, .03) or dysphoria (-.03, .04). However, as hypothesized, daily self-image goals had significant indirect effects on anxiety, 95% CI [.02, .12], and

dysphoria, 95% CI [.04, .12], via higher daily conflict. Conversely, daily

compassionate goals had significant indirect effects on anxiety, 95% CI [-.06, -.01],

and 95% CI dysphoria, [-.07, -.01], via lower daily conflict. Results thus suggested

that perceptions of interpersonal conflict mediated some of the effects of

interpersonal goals on symptoms.

<H2> **Mean Daily Goals Predicting Pretest-Posttest Changes in Social and**
Symptom Outcomes

<P> We tested whether patients' mean goals across 10 daily records and the

interaction of goals predicted changes in symptoms over 6 weeks. In hierarchical

multiple regression analyses, we included both goals (centered) and an interaction

term as simultaneous predictors of residual change (controlling for each outcome

variable at pretest). We also controlled for pretest symptoms so that effects of goals

reflected prediction of residualized change in symptom outcomes, above and beyond

pretest levels.

<H2> As theorized, higher mean self-image goals predicted 6-week increases

in depression, anxiety, stress, and worry from pretest to posttest (see Table 3

{TBL3}). Contrary to our hypotheses, compassionate goals did not predict symptom

changes, although effects were generally in the expected direction. However,

compassionate and self-image goals interacted in predicting symptom change;

specifically, compassionate goals attenuated the degree to which self-image goals

predicted increased worry and (marginally) depression, as expected (see Figure 1

{FIG1}). In simple slope analyses, self-image goals predicted increases in worry for

patients low (-1 *SD*) in compassionate goals (*b* = 3.97, standard error [*SE]* = 1.40, *p* = .005), but not those high (+1 *SD*) in compassionate goals (*b* = -.01, *SE* = .994, *p* = .991). Analogously, self-image goals predicted increased depression for those with low (*b* = 2.71, *SE* = 1.16, *p* = .020), but not high (*b* = .46, *SE* = .90, *p* = .613) compassionate goals.
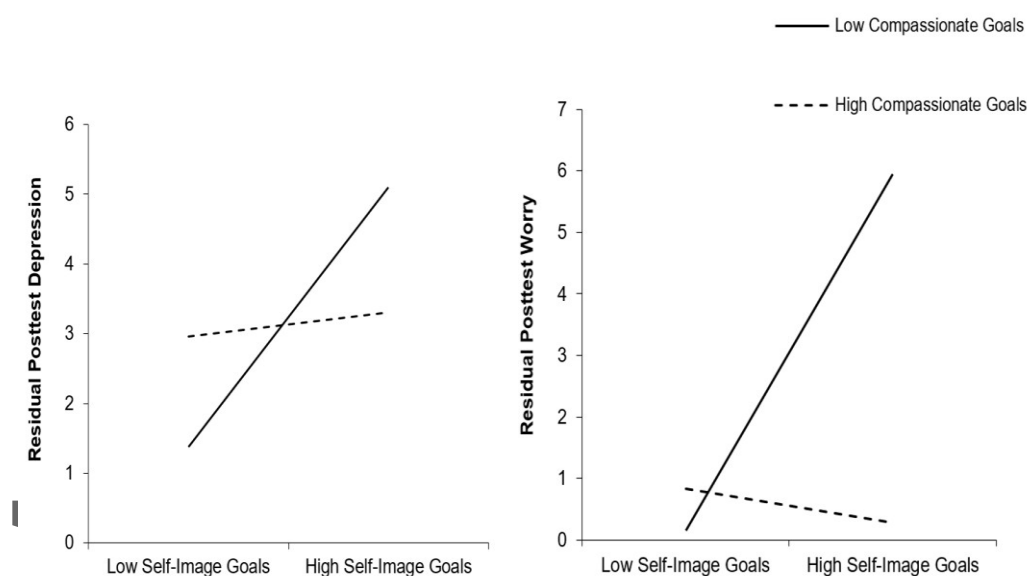
{FIG1}<TC>**FIGURE 1** Compassionate goals attenuate the effect of self-image goals on 6-week changes in depression symptoms and worry

Note. High and low goals reflect 1 SD above and below the mean.

<H1> **PART 2: INTERPERSONAL GOALS IN A DYADIC RELATIONSHIP**

<P> Part 1 findings demonstrated effects of self-reported compassionate and self-image goals on clinical anxiety and depression and are consistent with a model of goals shaping symptoms via social perceptions. However, the findings leave open

whether these goals have solely *intrapersonal* effects or also *interpersonal* effects on patients' relationship partners. For instance, it may be that these goals shape one's own satisfaction in a dyadic relationship without influencing the satisfaction of one's partner (e.g., only *intrapersonal* effects). On the other hand, the interpersonal goals one pursues in a relationship might also predict the satisfaction of one's partner.

<P> Also, Part 1 relied only on self-reports, leaving it unclear whether interpersonal goals *as rated by a significant other* might predict satisfaction in both parties. In Part 2, patients and significant others (dyads) each rated perceptions of their partners' goals and their own relationship satisfaction. These informant ratings of goals permitted tests of whether perceptions of one's partner's goals predict the relationship satisfaction of both members of the dyad. If informant-rated goals predict both the informants' own and their partner's satisfaction, then it would further support the idea that interpersonal goals may shape relational processes relevant to emotional well-being, even in clinically depressed or anxious individuals.

<H1>**METHOD**

<H2> **Participants and Procedure**

<P> The 47 patients from Part 1 invited a "significant other who knew them well" to participate at the pretest. Consenting significant others were compensated $10, and included 19 men and 13 women (*N* = 32), self-described as White (*n* = 29), African American (2), and Latino (1). Their relation to the patient included spouses (16), unmarried romantic partners (7), family members (6), or close friends (3). Patients

and their significant others completed Internet-based surveys during the pretest week.

Measures

Self-image and compassionate goals

Dyad members rated perceptions of their partners' self-image (six items) and compassionate goals (seven items) in the relationship for the past 2 weeks (adapted from Crocker & Canevello, 2008; Study 1). Items began with the phrase, "In the past two weeks, in your relationship with this person, how much did you think s/he wanted or tried to…?" Respondents rated the items on a 1 (*not at all*) to 5 (*extremely*) scale (α = .72-.92). Patients' self-reported goals correlated with significant others' ratings of patient goals for compassionate goals (r = .37, p = .041), but not self-image goals (r = -.02, p = .943), suggesting convergent validity for compassionate goals as well as evidence that patients and others were less likely to agree on the extent of patients' self-image goals. However, we were interested in informants' ratings of goals in their own right in Part 2, to complement the focus on self-reported goals in Part 1.

General relationship satisfaction

Participants completed a three-item measure of satisfaction in the specific relationship (past 2 weeks). Participants rated two items ("How satisfied are you with the relationship?" and "How happy are you about the ways things are between you?") on a 0 (*not at all*) to 10 (*extremely*) scale. A third item ("How would you rate

the overall quality of the relationship?") was rated on a 0 (*extremely low*) to 10 (*extremely high*) scale. Scores were internally consistent (patient α = .95; significant other α = .97).

RESULTS

Overview of Analyses

Actor-partner interdependence modeling (APIM; Campbell & Kashy, 2002) is a type of MLM developed for testing regression hypotheses in the context of dyadic data. Whereas MLMs in Part 1 involved diary entries that are likely to be correlated due to repeated measures (Level 1) nested within individuals (Level 2), APIM nests scores of individual dyad members (Level 1) in the context of the dyad (Level 2) as the higher-order unit. Individuals in dyads are likely to influence each other (i.e., interdependence), and the correlated error terms that are present in this situation make OLS regression inappropriate given that it requires assumption of independent errors. In APIM, nesting individuals within dyads and specifying random intercepts explicitly models interdependence between dyad members' outcome variables.

APIM requires arrangement of data such that each participant provides both predictor (e.g., informant-rated compassionate goals) and outcome variables (i.e., relationship satisfaction). This permits tests that distinguish between *actor effects* (effects on one's own outcomes) and *partner effects* (effects on a partner's outcomes). We tested both actor effects (whether my perceptions of my partner's goals predict my satisfaction) and partner effects (whether my perceptions of my

partner's goals predict his/her satisfaction). We grand-mean centered the predictors (goals), entered both goals simultaneously (to determine unique effects of compassionate versus self-image goals), and specified random intercepts to model interdependence between actors' and partners' outcome variables. We derived REML parameter estimates. To handle missing data (8.34%), we used multiple (five) imputation procedures, yielding pooled parameter estimates. We used the MIXED command in IBM SPSS (version 24.0).

<H2> Preliminary Analyses

<P> Participant sex was unrelated to compassionate (r = -.07, p = .634) or self-image goals (r = -.11, p = .469). We report analyses treating each participant as both an "actor" and "partner" regardless of patient status, because of standard APIM procedures (Campbell & Kashy, 2002) and because the results were similar for both groups. Similarly, the same pattern of results was obtained (though with slightly higher p-values) when sex, primary diagnosis (depression versus anxiety), and treatment type were controlled, and when limiting the sample only to spouse/romantic partner dyads; we thus report full sample results. Additionally, patients' relationship satisfaction correlated negatively with DASS depression (r = -.40, p =.009), anxiety (r = -.35, p =.044), and stress (r = -.31, p =.044), warranting tests of whether interpersonal goals predict satisfaction; we could not predict symptoms in APIM analyses given that only patients reported them, and APIM requires the same variables for all participants. See Table 1 for descriptive statistics.

<H2> **Actor and Partner Effects of Goals on Relationship Satisfaction**

<P> We first tested for actor effects of perceived goals on satisfaction, finding them for both goal types. As hypothesized, actors' perceptions of compassionate goals predict higher actor satisfaction. Specifically, when actors' perceived their partners as high in compassionate goals, actors reported much higher satisfaction in the relationship (see Table 4 {TBL4} for all APIM parameter estimates). Conversely, actors' perceived self-image goals predicted lower actor satisfaction. In other words, when actors perceived their partners as high in self-image goals, actors felt less satisfied in the relationship. These *intrapersonal* or "actor" effects show that participants' satisfaction in their dyadic relationship depended on how they perceived the goals of the other person.

<P> We also found *interpersonal* or "partner effects" of perceived goals on satisfaction. As expected, actors' perceptions of partners' self-image goals negatively predicted partners' satisfaction. In other words, relationship satisfaction was lower in individuals who were perceived by their partners as higher in self-image goals. In contrast, actors' perceptions of partners' compassionate goals positively predicted partners' satisfaction (the associated test of statistical significance indicated marginal significance). In other words, relationship satisfaction was slightly higher in individuals who were perceived by the partner as high in compassionate goals in the particular relationship.

<P> Thus, Part 2 results further support the theory that self-image and compassionate goals differentially predict relational well-being. These results also

extend the Part 1 findings with self-reported goals by showing that one's goals, as rated by a knowledgeable informant, predict relationship satisfaction in both dyad members. Such findings fit with interpersonal models of psychopathology and provide initial evidence of the relevance of compassionate and self-image goals to the overall ratings of relationships between patients and their significant others.

<H1> **DISCUSSION**

<P> Whereas previous research has linked negative social perceptions (e.g., Chambless et al., 2017; Gotlib et al., 2004; Rodebaugh et al., 2014) and unsupportive social reactions from others (e.g., Heerey & Kring, 2007; Starr & Davila, 2008) to clinical dysphoria and anxiety, the present findings implicate interpersonal goals as relatively unexplored factors that may shape social perceptions, relationship satisfaction, and distress symptoms. First, our results support hypothesized links between goals and symptoms: Participants experienced higher dysphoria and anxiety on days that they pursued high self-image goals relative to the sample, but lower symptoms when they pursued relatively high compassionate goals. Second, although not permitting full causal inference, results were consistent with the theory that interpersonal goals may shape symptoms over time.

<P> Higher mean daily self-image goals predicted prospective increases over 6 weeks in depression, anxiety, stress, and worry, whereas high compassionate

goals prospectively buffered against negative effects of self-image goals on worry and (marginally) depression. Predicting symptom increases is of note given that, on average, symptoms decreased over the course of the study, and effects of goals on symptoms were significant even when controlling for symptom changes over time. Daily self-image strivings may undermine the initial symptom alleviation typically associated with seeking mental health services, but the presence of compassionate goals offsets risks associated with self-image goals. It is also of note that these effects held constant regardless of whether analyses controlled for sex, primary depression vs. anxiety diagnosis, and treatment. Thus, results were consistent with the notion of interpersonal goals as factors that may play a role in the maintenance of depression and anxiety.

<P> In addition, our results hint at how interpersonal goals may influence symptoms. Specifically, goals predicted social perceptions and beliefs. On days participants endorsed higher self-image goals, they reported higher perceptions of conflict, higher belief in the need for individualistic competition, and marginally lower support (but not belief in cooperation). In contrast, on days participants endorsed high compassionate goals, they reported lower conflict and belief in competition and higher perceived social support and belief in cooperation. Moreover, goals predicted symptoms indirectly via perceptions of social conflict, as hypothesized. Namely, daily self-image goals predicted higher dysphoria and anxiety via higher conflict, whereas compassionate goals predicted lower dysphoria and anxiety via lower conflict. Although goals predicted perceived daily support, the latter unexpectedly did not

mediate effects on symptoms, suggesting the need for future studies to elucidate all pathways by which interpersonal goals influence symptoms.

<P> Supplementary analyses showed that self-image goals predicted next-day lagged increases in conflict and compassionate goals predicted lagged increases in cooperation belief, as well as the converse (conflict predicted lagged increase in self-image goals, and belief in cooperation and support predicted increased compassionate goals). Those effects suggest possible bidirectional relationships between goals and social processes (consistent with Crocker et al., 2010). The fact that daily goals predicted day-to-day variation in social perceptions is consistent with *intrapersonal* effects, in which one's goals shift one's social perceptions without necessarily requiring interpersonal feedback from others. However, the fact that informant-reported compassionate goals and self-image goals (positively and negatively, respectively) predicted relationship satisfaction in both members of relationship dyads suggests that (a) individuals' own satisfaction is strongly related to how they view partners' goals, and (b) goals also appear to have truly *interpersonal* effects in this clinical context.

<P> As noted, daily goals predicted symptoms via social perceptions, and patients' relationship satisfaction correlated with lower symptoms (depression, anxiety, and stress). Our findings therefore fit interpersonal models of depression and anxiety in which interpersonal processes maintain emotional distress (e.g., Alden & Taylor, 2004; Hames et al., 2013). However, the findings complement such models by incorporating goals into these processes and accentuating *intrapersonal*

mechanisms for distress (i.e., how my social goals impact my symptoms) in addition to *interpersonal* mechanisms (i.e., how one's goals may negatively impact one's own and others' relationship satisfaction). Interpersonal goals may thus be one reason why relationship satisfaction is low in depressed/anxious individuals and partners (Whisman et al., 2000; 2004).

<P> As goal-striving beings, humans play a role in their own health, often by way of relational processes. Thus, individuals may be able to shift, to some measure, their own social cognitive and emotional well-being by shifting goals. Pursuing approach goals behaviorally may reduce both depression and anxiety symptoms (e.g., Hopko, Lejuez, & Hopko, 2004), and reducing avoidant strivings is recognized as a key transdiagnostic component to treating depression and particularly anxiety (e.g., Barlow, Allen, & Choate, 2016 Harvey, Watkins, Mansell, & Shafran, 2004). However, whereas these approaches and standard goal models (Carver, 2015) emphasize attainment of approach goals and reducing avoidance goals to increase positive affect and reduce distress *regardless of the goal,* our research suggests that goal *content* matters as well (Sheldon et al., 2004).

<P> Compassionate and self-image goals include both approach and avoidance goals, so beyond simply changing one's ratio of approach to avoidance goals, it may be important to address the nature of the goals toward which individuals strive with others. Distinct brain systems underlie approach and avoidance (and corresponding links to affect; Davidson, Jackson, & Kalin, 2000), but humans and other mammals are also theorized to possess distinct brain systems for

mobilizing competition for social status/resources versus caregiving and affiliation, with the latter down-regulating stress responses (Gilbert, 2009; Porges, 2007; Wang, 2005). It is possible that self-image and compassionate goals may (independent of approach/avoidance) activate the theorized caregiving system. In line with this theory, in a stressful mock job interview, adopting compassionate goals experimentally led to lower cortisol secretion relative to other brief cognitive interventions (Abelson et al., 2014). Moreover, in the present study, daily goals predicted social processes and symptoms even when controlling for a daily sense of competence (a proxy for self-efficacy in goal pursuit), implying that interpersonal goals may impact functioning independent of approach/avoidance and a sense of being able to reach goals.

<P> Patients' symptoms as well as self-image goals decreased on average from pretest to posttest, and daily anxiety decreased, suggesting that early experiences in the treatment-seeking process may influence these variables. However, compassionate goals changed surprisingly little from pre- to posttest and social perceptions did not change across daily surveys, despite the fact that goals fluctuated from day to day and predicted symptoms even when controlling for time (i.e., linear symptom changes). Along with the fact that interpersonal goals are not redundant with known psychological risk factors (Crocker et al., 2010), this implies that there may be room for further symptom reduction, by targeting social goals and processes not impacted by treatment as usual. Interventions explicitly targeting interpersonal goals may thus contribute to symptom reduction beyond "common

factors" (e.g., therapeutic alliance, expectations) associated with first seeking treatment.

<P> A few studies have shown that helping behaviors predicted lower distress in nonclinical (Schwartz, Bell Meisenhelder, Yunsheng, & Reed, 2003) and clinical samples (Pagano, Phillips, Stout, Menard, & Piliavin, 2007). Thus, fostering compassionate goals may be particularly important in clinically distressed populations. Interventions focused on cultivating lovingkindness (Kearney et al., 2013; Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008) and compassion (Gilbert, 2009; Jazaieri et al., 2014) may be of relevance but have not explicitly measured compassionate goals (or have emphasized self-compassion more than compassion for others; e.g., Gilbert, 2009). We note recent longitudinal field experiments showing that viewing uplifting or "morally elevating" (Haidt, 2000) videos during daily goal planning led to higher daily compassionate goals measured later each day, relative to emotionally neutral or amusing videos (Erickson, Scarsella, McGuire, Crouch, & Lewis, 2015). Further research experimentally modifying interpersonal goals is warranted.

<H2> **Limitations**

<P> Several study limitations deserve mention. First, as is the norm in naturalistic clinical samples, patients varied in services received, precluding comments on how specific interventions influenced interpersonal goals. Second, although the study was powered adequately to detect daily effects in MLM, a larger sample would provide greater power detecting APIM and regression effects (e.g., mean goals predicting 6-

week changes), and collecting longitudinal dyadic data on interpersonal goals and symptoms in future studies would expand upon the cross-sectional nature of our dyadic data. Also, a more racially diverse sample would enhance generalizability. In addition, participants' pretest responses on compassionate goals items showed marginally acceptable internal consistency. Nonetheless, evidence for internal consistency for responses on this construct was strong for posttest, daily records, and dyadic measures.

<P> Last, despite theoretical and empirical reasons to expect similar transdiagnostic effects of interpersonal goals across various anxiety and depressive disorders, our findings do not preclude the possibility of unique effects in particular diagnoses. However, the fact that results held when controlling for primary depression versus anxiety disorder suggests a reasonable generalization across this broad diagnostic distinction. We believe that specific diagnoses are meaningful but agree that it is important to understand transdiagnostic processes that are common across depression and anxiety disorders (Barlow et al., 2016). Our sample was heterogeneous in diagnosis, but all participants were seeking services for problems characterized by negative emotion, in line with the view of core symptom dimensions cutting across diagnostic categories (Cuthbert & Insel, 2013).

<H1> **CONCLUSION**

<P> The present study is the first clinical investigation of effects of self-image and compassionate goals, using multiple methods of assessment (self-report and informant-report) and appropriately modeling measurement error related to repeated

assessments of individuals and interdependence of dyad members. Our results are consistent with the theory that striving to prove and defend the self during social interactions may thwart support and relationship satisfaction, thereby maintaining symptoms, whereas striving for the good of others may promote intrapersonal and interpersonal processes that buffer against depression and anxiety.

{FN1}<FNTX> [1] We conducted supplementary analyses with lagged outcomes and only a few effects were significant. For instance, when we tested whether Day X goals and conflict predicted Day X+1 conflict (i.e., predicting residualized change), self-image goals uniquely predicted next-day increases in conflict ($B = .21$, $SE = .06$, $pr = .28$, $p = .002$). Similarly, compassionate goals uniquely predicted lagged increases in belief in cooperation ($B = .28$, $SE = .08$, $pr = .20$, $p < .001$). When lagged changes in goals were the outcome variable, belief in cooperation ($B = .18$, $SE = .03$, $pr = .36$, $p < .001$) and support ($B = .08$, $SE = .04$, $pr = .34$, $p = .045$) predicted increased next-day compassionate goals. Only conflict predicted next-day changes in self-image goals, surprisingly in a negative direction ($B = -.10$, $SE = .04$, $pr = -.13$, $p = .018$). All other effects were non-significant ($p = .11 - .99$).

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See ecopies for table edits

{TBL1}<TC>**TABLE 1** Means and standard deviations for all study variables

	M	SD	M	SD	t	p	d
Patients' mean (aggregated) daily measures							
<TB>Compassionate goals	3.27	0.62					
Self-image goals	2.34	0.76					
Perceived support	3.21	0.68					
Conflict	1.63	0.52					
Belief in individualistic competition	1.80	0.65					
Belief in mutual cooperation	3.00	0.97					
Dysphoria	2.01	0.93					
Anxiety	1.96	0.79					
Patients' pretest and posttest measures							
	Pretest		**Posttest**				
Compassionate goals	3.41	0.66	3.43	0.79	-0.17	.864	.02
Self-image goals	2.80	0.84	2.52	0.82	2.90	**.006**	.43

	M	SD	M	SD	t	p	d
Depression (DASS)	14.37	5.93	12.55	5.56	2.64	**.011**	.39
Anxiety (DASS)	11.02	4.23	9.07	2.26	3.96	**<.001**	.58
Stress (DASS)	14.85	4.63	12.53	3.65	3.51	**.001**	.52
Worry (BMWS)	22.17	6.85	19.66	6.58	3.61	**.001**	.53

Dyadic measures

	Patient		Significant Other	
Rating other's compassionate goals	3.71	0.88	3.36	0.96
Rating other's self-image goals	2.71	0.85	2.66	0.78
Relationship satisfaction	8.06	2.53	8.28	2.49

<TF>*Note.* M = mean; SD = standard deviation; DASS = Depression Anxiety Stress Scales; BMWS = Brief Measure of Worry Severity. Degree of freedom = 45 for pre-post paired-sample *t*-tests.

{TBL2}<TC>**TABLE 2** Parameter estimates for multilevel models of daily goals predicting social and emotional outcomes

<TH>	Time			Feeling Competent			Compassionate Goals			Self-Image Goals		
Outcome Variable	*b (SE)*	*pr*	*p*	*b (SE)*	*pr*	*p*	*b (SE)*	*pr*	*p*	*b (SE)*	*pr*	*p*
<TB>*Social beliefs*												

Belief in mutual cooperation	.01 (.01)	.05	.478	.01 (.08)	.02	.860	.58 (.07)	.36	**<.001**	-.03 (.07)	-.01	.698
Belief in individualistic competition	.02 (.01)	.15	.119	.05 (.08)	.03	.506	-.19 (.07)	-.15	**.006**	.31 (.07)	.25	**<.001**
Social perceptions												
Perceived social support	.06 (.04)	.25	.100	.07 (.20)	.02	.725	1.23 (.18)	.33	**<.001**	-.31 (.19)	-.09	.094
Perceived social conflict	-.01 (.01)	-.09	.275	-.13 (.06)	-.12	**.037**	-.26 (.05)	-.27	**<.001**	.43 (.05)	.50	**<.001**
Symptoms												
Anxiety (BSI)	-.02 (.01)	-.20	**.036**	-.15 (.06)	-.10	**.020**	-.20 (.06)	-.17	**.001**	.28 (.06)	.23	**<.001**
Dysphoria (BSI)	-.01 (.01)	-.12	.145	-.18 (.06)	-.13	**.006**	-.35 (.06)	-.28	**<.001**	.19 (.06)	.16	**.001**

{TBL3}<TC>**TABLE 3** Standardized coefficients of goals predicting changes in symptoms over 6 weeks

Outcome Variable	<TH>Baseline Symptoms			Compassionate Goals			Self-Image Goals			Interaction of Goals		
	b (SE)	*pr*	*p*	*b (SE)*	*pr*	*p*	*b (SE)*	*pr*	*p*	*b (SE)*	*pr*	*p*
<TB>Depression (DASS)	.65 (.10)	.71	**<.001**	-.05 (.95)	-.01	.957	1.58 (.77)	.29	**.041**	-1.79 (1.06)	-.25	.092
Anxiety (DASS)	.42 (.08)	.62	**<.001**	-.67 (.56)	-.18	.231	1.49 (.51)	.41	**.004**	-.65 (.67)	-.15	.331
Stress (DASS)	.27 (.12)	.33	**.030**	-1.27 (.86)	-.23	.142	2.18 (.75)	.41	**.004**	-.94 (.93)	-.15	.310
Worry (BMWS)	.82 (.10)	.79	**<.001**	-1.61 (1.03)	-.24	.120	2.01 (.91)	.33	**.028**	-3.36 (1.26)	-.39	**.008**

reflect prediction of residual symptoms at 6 weeks (symptom change), over and above baseline symptoms. *pr* = partial correlation.

{TBL4}<TC>**TABLE 4** Parameter estimates from actor-partner interdependence models of goals predicting relationship satisfaction

<TH>**Outcome**	**Predictor**	*b (SE)*	*pr*	*p*
<TB>Actor's relationship satisfaction (actor effects)				
	Actor's perception of partner's compassionate goals	1.84 (.19)	.74	**<.001**
	Actor's perception of partner's self-image goals	-.68 (.23)	-.35	**.003**
Partner's relationship satisfaction (partner effects)				
	Actor's perception of partner's compassionate goals	.63 (.33)	.34	.052
	Actor's perception of partner's self-image goals	-.86 (.35)	-.43	**.016**

<TF>*Note*. SE = standard error.