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Abstract

Objective: This study investigated associations between couples' interpersonal behavior, depressive symptoms, and relationship distress over the course of couple psychotherapy. **Method:** After every other session of Integrative Systemic Therapy (M = 13 sessions), $N = 100$ individuals within 50 couples rated their in-session affiliation and autonomy behavior using the circumplex-based Structural Analysis of Social Behavior Intrex. Concurrent and prospective associations of interpersonal behavior with depressive symptoms and relationship distress were evaluated via multivariate multilevel modeling using the Actor-Partner Interdependence Model. **Results:** An individual's hostility, as well as the partner's hostility, positively predicted an individual's concurrent depressive symptoms and relationship distress, as well as his or her relationship distress at the following session. Partner hostility during one session predicted an individual's subsequent depressive symptoms. During sessions in which individuals controlled the partner, and separated themselves from the partner, they reported more concurrent depressive symptoms and relationship distress, and more subsequent relationship distress. When partners separated themselves, individuals reported more concurrent depressive symptoms and relationship distress, and more subsequent relationship distress. **Conclusions:** Results underscore the importance of couples' in-session affiliation and autonomy behavior in the treatment of depressive symptoms and relationship distress within couple therapy.

Keywords: couples; relationship distress; depression; interpersonal behavior

Interpersonal behavior in couple therapy:

Concurrent and prospective associations with depressive symptoms and relationship distress

Depression is strongly co-associated with distress within intimate relationships (for review, see Whisman, 2013). For example, results from a meta-analysis investigating the association between depressive symptoms and relationship discord found a weighted effect size (r) of 0.37 for men and 0.42 for women (Whisman, 2001). Depressive symptoms and relationship distress also covary over time (Davila, Karney, Hall, & Bradbury, 2003; Proulux, Helms, & Buehler, 2007), and existing evidence suggests that the associations between depression and relationship distress are causal and bidirectional (Beach & Whisman, 2012).

Several interpersonal theories of depression have been advanced to explain the links between depression and relationship distress among couples (e.g., Coyne, 1976; Joiner, Alfano, & Metalsky, 1993). These theories suggest that depressed individuals and their partners engage in maladaptive, repetitive sequences of interpersonal behavior which underlie both depression and relationship distress. Indeed, the interpersonal interactions of couples suffering from depression are marked by hostility, control, and distance (e.g., Davila, Bradbury, Cohan, & Tochluk, 1997; Knobloch-Fedders et al., 2014; Knobloch-Fedders, Knobloch, Durbin, Rosen, & Critchfield, 2013).

While the maladaptive interactions of couples suffering from depression and relationship distress have been well-documented in community samples (for review, see Rehman, Gollan & Mortimer, 2008), interpersonal theories of depression imply that shifting these behaviors may be key to successful couple psychotherapy. However, a critical gap in both existing theory and empirical work concerns whether the interpersonal behavior of couples is associated with changes in depression or relationship distress across sessions of couple therapy. This study is

designed to address that gap by evaluating whether the in-session interpersonal behavior of couples predicts fluctuations in depressive symptoms and relationship distress from one session to the next. Next, we review the literature on the interpersonal behavior of couples suffering from depression and relationship distress, provide an overview of the current study, and outline our hypotheses and research questions.

Interpersonal behavior of couples with depression and relationship distress

Healthy interpersonal behavior can be defined as a baseline of friendly behavior, reciprocity of focus on self and other, and a balance between connection and separateness (Benjamin, Rothweiler, & Critchfield, 2006). Deviations from these relational patterns are associated with many forms of individual and relational pathology (Benjamin 1996; 2006), including among couples suffering from depression and relationship distress (e.g., Knobloch-Fedders et al., 2013; 2014; Knobloch-Fedders, Critchfield, & Staab, 2017).

Interpersonal behavior can be differentiated into two global dimensions, affiliation and autonomy (Benjamin, 1979; 1987; 2000), and both are associated with depression and relationship distress in couples. *Affiliation* represents the degree of friendliness versus hostility present in an interaction. Compared to non-depressed couples, couples with a depressed partner display more negative behavior (hostility) and less positive behavior (warmth and friendliness) than couples without depression (e.g., Knobloch-Fedders et al., 2013; McCabe & Gotlib, 1993). *Autonomy* denotes the amount of differentiation behavior (e.g., giving autonomy, separating) versus enmeshment behavior (e.g., controlling, submitting) present in an interaction. Within distressed couples, partners of depressed individuals are more likely to submit compared to partners of individuals who are not depressed (Knobloch-Fedders et al., 2013).

While these studies underscore the importance of affiliation and autonomy behavior among couples suffering from depression and relationship distress, left unclear is whether couples' in-session interpersonal behaviors are associated with depressive symptoms and relationship distress over the course of couple therapy. An important next step, therefore, is to evaluate whether the interpersonal behavior of couples is associated with changes in depressive symptoms or relationship distress from one therapy session to the next.

Study Overview and Hypotheses

The study had two primary goals: evaluate whether couples' reports of their in-session interpersonal behavior predict (a) depressive symptoms, both concurrently and prospectively; and (b) relationship distress, both concurrently and prospectively. Given gender differences in interpersonal perception within the context of depression (e.g., Knobloch-Fedders, Critchfield et al., 2017), we used gender as a covariate to assess whether gender moderates the links between interpersonal behavior, depressive symptoms, and relationship distress.

Interpersonal behavior was measured using the self-report version of the Structural Analysis of Social Behavior model (SASB; Benjamin, 1979; 1987; 2000), a theoretically-derived, empirically-validated system for measuring interpersonal behavior. SASB allows for clear operationalization of healthy interpersonal behavior and departures from it (e.g., Pincus, Dickinson, Schut, Castonguay, & Bedics, 1999), and has been used successfully to identify the interpersonal correlates of psychopathology in couples (e.g., Knobloch-Fedders et al., 2013; Knobloch-Fedders, Caska-Wallace, Smith, & Renshaw, 2017).

Employing multivariate multilevel modeling using the Actor-Partner Interdependence Model (Baldwin, Imel, Braithwaite, & Atkins, 2014; Kenny, Kashy, & Cook, 2006), we tested four primary hypotheses and four research questions based on previous work suggesting that

affiliation and autonomy are associated with depression and relationship distress among couples (e.g., Knobloch-Fedders et al., 2013; 2014; Knobloch-Fedders, Critchfield et al., 2017). With regard to affiliation behavior, we hypothesized that hostility would be positively associated with depressive symptoms at that session (*H1*) and at the following session (*H2*). We also expected that hostility would predict relationship distress in that session (*H3*) as well as at the following session (*H4*).

With respect to autonomy behavior, because previous research has generated mixed results suggesting that both control and distance may be related to depression and relationship distress (e.g., Davila et al., 1997; Knobloch-Fedders et al., 2013; 2014), we did not advance directional hypotheses. Instead, we formed research questions to evaluate whether autonomy is associated with depressive symptoms at that session (*RQ1*) and at the following session (*RQ2*), and whether autonomy is associated with depressive symptoms at that session (*RQ3*) well as at the following session (*RQ4*).

Method

Participants

Participants were recruited using newspaper, radio, and Internet advertisements, along with flyers posted in community agencies, shopping centers, churches, and synagogues. These ads solicited couples in committed romantic relationships experiencing depression and / or relationship distress, and invited interested participants to call a research hotline for more information. To be eligible for participation, couples completed the Dyadic Adjustment Scale (DAS; Spanier, 1976; 1988) to assess relationship distress. Couples' DAS scores were averaged, and their average score was required to be below the recommended cutoff of ≤ 97 (Jacobson, Schmaling, & Holtzworth-Munroe, 1987), indicating clinically significant relationship distress.

Couples were ineligible if either partner reported current suicidal ideation, substance abuse or dependence, domestic violence, or psychosis.

In response to recruitment, 401 couples called requesting more information, 284 agreed to have study information mailed to them, and 118 couples completed study eligibility assessments. Of these, 68 couples were excluded because they did not meet the eligibility criteria and / or did not participate in treatment. The final sample included 100 individuals within 50 couples ($n = 49$ heterosexual couples, and $n = 1$ same-sex couple). Of these couples, 44 were married, three cohabiting, and three dating; their average relationship length was 12.1 years ($SD = 9.2$ years, *range* 0.5 – 39 years).

Participants ranged in age from 21 to 69 years old ($M = 44.3$, $SD = 10.8$). The sample was 74% White, 7% Black, 7% Asian / Asian American, 5% Latino/a, and 1% Native American / Pacific Islander. With respect to education, 3% completed high school, 11% attended some college, 3% had a technical school degree, 5% had an associate's degree, 37% had a bachelor's degree, 29% had a master's degree, and 7% had a doctoral or professional degree. All but four couples reported their annual household income: under $10,000 ($n = 1$), $10,000 – $40,000 ($n = 9$), $41,000 – 70,000 ($n = 6$), $71,000 – 100,000 ($n = 14$), and over $100,000 ($n = 16$). Thirteen couples (26%) had no children; among the remaining 37 couples (74%), 24 couples had one child, 9 had two children, and four had three children.

Treatment Delivery

Couples completed up to 16 sessions ($M = 13$, $SD = 4.5$, *median* $= 16$, *mode* $= 16$, *range* $= 2 – 16$) of Integrative Systemic Therapy (IST; Pinsof et al., 2017), formerly called Integrative Problem-Centered Metaframeworks (IPCM; Breunlin, Pinsof, Russell, & Lebow, 2011; Pinsof, Breunlin, Chambers, Solomon, & Russell, 2015; Pinsof, Breunlin, Russell, & Lebow, 2011).

This model of couple therapy has been shown to be effective for improving individual

functioning and relationship problems (Knobloch-Fedders, Pinsof, & Haase, 2015). An

integrative approach to treatment, IST focuses on changing the couple's presenting problem by

employing a sequence of interventions drawn from various therapeutic orientations. This

intervention sequence is failure driven: Initially, interventions are drawn from behavioral models

of therapy, and progressively move through cognitive, experiential, biological, family-of-origin,

and self-psychology levels of intervention if earlier efforts are ineffective. The decision to

change to the next level of intervention is idiographic, determined by a combination of clinical

judgment, conversations with the couple regarding a lack of change, and therapist interpretation

of patient progress ratings.

Interventions are implemented using a recursive process of hypothesizing (generating a

set of theories about the presenting problem and the factors that maintain it), planning

(brainstorming possible solutions), conversing (facilitating therapeutic dialogue between

members of the couple to address constraints to change), and feedback (gathering information

about the couple's attempts to solve problems). This process continues until problems are

resolved or transformed to the couple's satisfaction (Pinsof, Goldsmith, & Latta, 2012).

IST addresses maladaptive interpersonal sequences using action-oriented techniques

designed to help couples act differently within therapy sessions and extend these changes to their

interactions outside of treatment. To do this, IST draws on interventions from various

orientations of family therapy, including behavioral (Forgatch, Patterson, Degarmo, & Beldavs,

2009), structural (Minuchin, 1974), strategic (Haley, 1987; Watzlawick, Weakland, & Fisch,

1974), and solution-focused (de Shazer et al., 1986). For example, IST therapists may use in-

session enactments to stimulate and assess couple interaction, or teach couples more adaptive ways of communicating with each other (Pinsof et al., 2011, p. 319).

IST is the primary couple therapy treatment approach taught and practiced at the study site. Among the group of therapists who participated in this study, licensed clinicians practice, teach, and / or supervise this approach, and trainees participate in a series of IST-based seminars and practica. Due to this study's primary focus on evaluating the links between couples' in-session interpersonal behavior, depression, and relationship distress, treatment fidelity was not formally assessed.

Therapists

A total of 30 therapists treated couples in the study; most therapists saw one couple, and none treated more than four couples (M = 1.7 couples). Forty-eight percent of couples were treated by clinicians with doctoral degrees in clinical psychology (n = 2) or master's degrees in marriage and family therapy (n = 10); 52% were treated by supervised trainees in master's degree programs in MFT (n = 17) or counseling psychology (n = 1). Therapists' mean age was 29 years (*range* = 21 – 54). Male therapists treated 10% of couples, and female therapists treated 90%. Ninety-one percent of couples were treated by White therapists, 6% by Black therapists, and 3% by Latina therapists.

Measures

After every session, couples completed the Beck Depression Inventory-IA (BDI-IA; Beck & Steer, 1993) and the Dyadic Adjustment Scale (DAS; Spanier, 1976, 1988). Individuals rated their own in-session interpersonal behavior using the Structural Analysis of Social Behavior Intrex questionnaire (SASB Intrex; Benjamin, 2000). To reduce participant burden,

SASB Intrex ratings were made after every other session (i.e., sessions 2, 4, 6, 8, 10, 12, and 14).

Beck Depression Inventory (BDI-1A). The BDI is a 21-item measure that asks individuals to rate their emotional, cognitive, and somatic symptoms of depression on a 4-point scale. The BDI displays high internal consistency, strong test-retest reliability, and utility in both community and clinical samples (for review, see Beck, Steer, & Garbin, 1988). According to criteria developed by Beck and Steer (1993), the average pretreatment BDI score reflected a moderate degree of depressive symptoms ($M = 14.28$, $SD = 8.98$, *range* $0 - 39$, $a = .89$); 39% of participants reported none to mild depressive symptoms (BDI score < 10), 32% reported mild to moderate symptoms ($10 - 18$), 22% reported moderate to severe symptoms ($19 - 29$), and 7% reported severe symptoms (≥ 30). In four couples (8%), both partners met or exceeded the cutoff for moderate to severe depressive symptoms, and 21 couples (42%) had one partner with significantly elevated depressive symptoms (BDI ≥ 19). After treatment, participants' average BDI score was 9.51 ($SD = 9.04$, *range* $0 - 37$); of the 29 participants whose depressive symptoms were elevated before treatment, 20 had recovered (BDI < 19) at posttreatment.

Dyadic Adjustment Scale (DAS). Relationship distress was assessed using the 32-item DAS, which measures relationship satisfaction, expression of affection, and frequency of conflict. The DAS displays excellent measurement properties (Carey, Spector, Lantinga, & Krauss, 1993; Sabourin, Lussier, Laplante, & Wright, 1990). Lower scores indicate greater relationship distress. The average DAS score at pretreatment was 78.21 ($SD = 16.82$, *range* $26 - 110$, $a = .87$) and at posttreatment 82.66 ($SD = 27.67$, *range* $4 - 143$). At the conclusion of treatment, 15 couples (30%) no longer met criteria for relationship distress, given that their averaged DAS scores were below the clinical cutoff of ≤ 97 (Jacobson et al., 1987).

Structural Analysis of Social Behavior (SASB Intrex). SASB, a model for measuring interpersonal behavior, is built around three constructs: *behavioral focus, affiliation,* and *autonomy*. Interpersonal *focus* of behavior is measured using two global categories: "I focus on you" (transitive or other focus) or "I react to your focus on me" (intransitive or self focus; Benjamin, 2006, p. 20).[1] These two types of behavioral foci are represented spatially using two separate circular ("circumplex") surfaces (see Figure 1). *Focus on Other* (shown in the top circumplex of Figure 1) is transitive, describing behavior done to, for, or about another person (e.g., "he controls her" or "she protects him"). *Focus on Self* (represented in the bottom circumplex of Figure 1) is intransitive, describing behavior done to, for, or about the self in relation to the other person (e.g., "she submits to him" or "he relies on her").

Each SASB circumplex is comprised of two bipolar orthogonal dimensions (see Figure 1). Along the horizontal dimension, *affiliation* (AF) measures degrees of hostility to friendliness. It ranges from hate (direct attack of another; fearful recoil from another's attack) to love (loving approach; welcoming connection). Hostility directed at one's partner (Focus on Other) includes such behaviors as blaming, attacking and ignoring. Hostility exhibited in reaction to one's partner (Focus on Self) is characterized by behaviors such as sulking, recoiling, and walling off.

Along the vertical dimension, *autonomy* (AU) spans extremes of differentiation (give autonomy; be separate) to enmeshment (control; submit). For Focus on Other behaviors, the autonomy dimension ranges from granting autonomy (allowing one's partner to be separate) to taking control; for Focus on Self behaviors, it extends from taking one's autonomy (asserting and separating) to submitting (see Figure 1).

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[1] SASB also measures third type of behavioral focus, *Focus turned Inward* or *Introject* (Benjamin, 2006). It was not used in this study due to its intrapersonal, rather than interpersonal, focus.

Through the combination of behavioral focus, affiliation, and autonomy, SASB measures the full array of interpersonal behavior and includes mild, moderate, and extreme displays of hostility, friendliness, differentiation, and enmeshment. Specific behaviors (defined by combinations of the underlying interpersonal dimensions) are represented on the SASB model as *clusters*. Descriptive labels for each cluster are shown in Figure 1.

Participants rated their interpersonal behavior using the 16-item short form of the SASB Intrex (Benjamin, 2000). Each item measures a cluster of behavior on the SASB model. For example, the item "I let him speak freely, and warmly tried to understand him even if we disagreed" measures Affirming and Understanding behavior (see Figure 1).

The instructions given to couples when completing the SASB Intrex were as follows: "Based on the session you just had with your partner, rate how well each question describes you on a scale from 1 (not at all true) to 100 (very true)." Lower scores denote more hostility, control, and submission.

The SASB Intrex has strong validity and psychometric properties across a variety of settings (Benjamin, 2000). Because the short form of the SASB Intrex uses only one item to assess each cluster of behavior, usual tests of internal consistency (e.g., alpha, split-half-reliability) were precluded. However, the short form's item set is highly reliable with parallel sets of alternative items for each cluster,[2] and its test-retest reliability is also very strong (Benjamin, 2000).

Analytic Strategy

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[2] The short form is one of the two halves of the medium form of the Intrex questionnaire, which demonstrates excellent split-half reliability across a variety of studies described in the Intrex manual (Benjamin, 2000). For example, the average split-half reliability for a sample of 98 normal volunteers was .819 (*SD* = .207).

Given the longitudinal nature of our dyadic data, a multivariate multilevel modeling approach (Baldwin et al., 2014) using the Actor-Partner Interdependence Model (APIM; Kenny, et al., 2006) was employed. Multivariate multilevel modeling (Hox, 2010; MacCallum, Kim, Malarkey, & Kiecolt-Glaser, 1997) represents an extension of multilevel modeling utilized to simultaneously evaluate two or more outcomes (in this case, depressive symptoms and relationship distress). The APIM was used to investigate both actor and partner effects of interpersonal behavior on depressive symptoms and relationship distress. *Actor effects* represent the effects of an individual's independent variable score on his or her dependent variable score, while *partner effects* are the effects of the partner's independent variable score on the actor's dependent variable score (Kenny et al., 2006). All analyses were conducted in SAS version 9.4 (Cary, NC).

Hypotheses and research questions were evaluated using a series of three-level multivariate multilevel models in which sessions were nested within individuals, who in turn were nested within couples (Atkins, 2005). The Kenward-Roger degrees of freedom adjustment was used to control Type I error (Kenward & Roger, 1997). At Level 1, depressive symptoms and relationship distress were modeled as session-level outcomes. Because these two outcomes share a bidirectional association (e.g., Davila et al., 2003), we estimated them simultaneously using multivariate multilevel modeling to account for their correlation (Baldwin et al., 2014). At Level 2, each person's overall mean (e.g., the average of all observations across all sessions) was estimated for depressive symptoms and relationship distress as random effects. We also modeled each person's linear trajectory of depressive symptoms and relationship distress across the course of therapy using the REPEATED statement. At Level 3, models accounted for couple-level correlations with random couple-specific intercepts (e.g., each couple had their own depression

and relationship distress intercepts, averaged across all sessions). These random effects account for the within-person similarity of depression and relationship distress levels from session to session, as well as the within-couple similarity of partners' depression and relationship distress over time (Baldwin et al., 2014). Because participants were expected to improve across the course of therapy, all models also included the linear trends of the outcomes as fixed effects.

In a preliminary step, we tested the significance of additional covariates for depressive symptoms and relationship distress: the quadratic trend across sessions, gender, age, relationship length, marital status, race, children, and income. Significant covariates were retained in the models; nonsignificant factors were trimmed for the sake of parsimony.

Two sets of multivariate multilevel models were constructed, one evaluating concurrent effects and one investigating lagged. Concurrent and lag-1 session-level SASB Intrex effects could not be estimated simultaneously because these ratings were collected at every other session; thus, the most appropriate covariate for lagged models was each person's Level-2 SASB Intrex mean (Tabachnick & Fidell, 2007). These Level-2 means also served to separate between-person from within-person variance (Tabachnick & Fidell, 2007).

For each SASB Intrex dimension, four parameters were estimated: the actor's Level-2 mean, the partner's Level-2 mean, and the actor's and partner's concurrent or lagged session-level ratings at Level 1. Thereafter, we also tested for gender moderation of the associations between Level-1 SASB Intrex ratings and outcome.

<div align="center">**Results**</div>

Preliminary Analyses

Depressive symptoms and relationship distress were correlated but not redundant ($r = -.48$ for women and $r = -.37$ for men; see Table 1). Intraclass correlation coefficients (ICCs) were

calculated to estimate the percentage of variance in depressive symptoms and relationship distress attributable to between-couple, between-person, and within-person differences (Kenny et al., 2006). For depressive symptoms, person-level factors accounted for almost half of the variability (47.5%), but symptoms also fluctuated considerably from session to session (22.9%). For relationship distress, couple-level factors were responsible for the majority of variance (53.4%), but within-person fluctuations were also substantial (24.5%).

Of the demographic covariates tested, only gender accounted for significant variance: On average, women reported higher relationship distress compared to men (B = -6.558, SE = 2.551, p = .013). Across treatment, significant linear improvement occurred in depressive symptoms (B = -0.375, SE = 0.159, p = .019), but not in relationship distress (p = .374). However, likelihood ratio tests revealed that over the course of therapy, reduction in both depressive symptoms ($\chi^2(1)$ = 271.80, p < .0001) and relationship distress ($\chi^2(1)$ = 254.70, p < .0001) varied significantly from person to person. Age, relationship length, marital status, race, children, income, and the quadratic trend across sessions did not significantly predict depressive symptoms or relationship distress (all p's > .127).

A final preliminary analysis evaluated therapist effects. To do this, a series of four-level models were estimated in which couples were nested within therapists to account for the variability in depressive symptoms and relationship distress across couples treated by different therapists. These models were identical to the three-level models described above, except that therapist was evaluated as a random effect at Level 4. These four-level models failed to converge, consistent with the fact that the amount of variance at the therapist level was largely redundant with the amount of variance at the couple level. Indeed, the majority of study therapists treated only one couple.

Depressive Symptoms

    Affiliation behavior (hostility vs. friendliness). The results of multivariate multilevel models evaluating the concurrent associations between couples' in-session interpersonal behavior and depressive symptoms are displayed in Table 2. As predicted by *H1*, when individuals displayed more hostility, both towards the partner (other-focused hostility B = -0.014, SE = 0.004, p = .001) and in reaction to the partner (self-focused hostility B = -0.016, SE = 0.004, $p < .0001$), they also reported more depressive symptoms. Gender qualified the main effect of self-focused affiliation on depressive symptoms (interaction B = -0.022, SE = 0.008, p = .007) such that this association was statistically significant for women (B = -0.025, SE = 0.005, $p < .0001$) but not for men (B = -0.003, SE = 0.006, p = .573).

    These concurrent actor effects were mirrored by similar partner effects. Controlling for an individual's interpersonal behavior, he or she reported more depressive symptoms when his or her partner displayed more hostility, both other-focused (B = -0.015, SE = 0.004, p = .0004) and self-focused (B = -0.014, SE = 0.004, p = 0.001).

    With regard to prospective associations (*H2*), lagged analyses revealed that an individual's interpersonal behavior during one session did not predict his or her depressive symptoms at the following session (ps > .077; see Table 2). However, when partners reported more hostility in a session, individuals reported higher levels of depressive symptoms at the next session (other-focused hostility B = -0.011, SE = 0.005, p = .031; self-focused hostility B = -0.013, SE = 0.005, p = .008).

    Autonomy behavior (autonomy granting / taking vs. control / submit). When evaluating concurrent associations between autonomy behavior and depressive symptoms (*RQ1*), two actor effects emerged (see Table 2). When individuals exhibited more controlling behavior

(other-focused autonomy B = -0.012, SE = 0.006, p = .041) and separated themselves from the

partner (self-focused autonomy B = 0.013, SE = 0.006, p = .017), they reported more depressive

symptoms. With respect to *RQ2*, lagged analyses revealed that neither actor nor partner

autonomy during one session predicted an individual's depressive symptoms at the following

session (ps > .083; see Table 2).

Relationship Distress

      Affiliation behavior (hostility vs. friendliness). Table 2 displays the results of

multivariate multilevel models evaluating concurrent associations between couples' in-session

interpersonal behavior and relationship distress.[3] Consonant with *H3*, when individuals displayed

more hostility, both towards the partner (other-focused hostility B = 0.074, SE = 0.010, p <

.0001) and in reaction to the partner (self-focused hostility B = 0.080, SE = 0.010, p < .0001),

they reported more relationship distress. Similar partner effects emerged: Individuals reported

higher levels of relationship distress when their partners were more hostile during the session

(other-focused hostility B = 0.028, SE = 0.010, p = .008; self-focused hostility B = 0.034, SE =

0.010, p = .0004).

      With regard to prospective associations, results from lagged analyses supported *H4*:

When individuals reported more hostility during a session, they reported more relationship

distress at the next session (other-focused hostility B = 0.062, SE = 0.013, p < .0001; self-focused

hostility B = 0.051, SE = 0.012, p < .0001; see Table 2). Similarly, when partners demonstrated

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[3] Two multivariate-outcome models, relating other-focused autonomy and self-focused autonomy to subsequent relationship distress, failed to converge with all covariates included simultaneously. Thus, we tested the lagged effects of interest in four sub-models to determine their stability across variants. Sub-models examined actor and partner Level-1 effects (excluding person-level means), the actor Level-1 effect and Level-2 person means, the partner Level-1 effect and Level-2 person means, and all covariates in a univariate model, excluding the depressive symptoms outcome. Effects reported for other-focused autonomy and self-focused autonomy were stable across all model variations; the particular effects we report are the Level 1 estimates controlling for corresponding Level-2 person means.

more hostility at one session, individuals reported more relationship distress at the subsequent session (other-focused hostility $B = 0.030$, $SE = 0.013$, $p = .021$; self-focused hostility $B = 0.038$, $SE = 0.012$, $p = .002$).

Autonomy behavior (autonomy granting / taking vs. control / submit). The results of concurrent associations between autonomy behavior and relationship distress (*RQ3*) are presented in Table 2. Individuals reported higher levels of relationship distress in sessions when they exhibited more controlling behavior (other-focused autonomy $B = 0.042$, $SE = 0.015$, $p = .006$) and separated themselves more from the partner (self-focused autonomy $B = -0.041$, $SE = 0.015$, $p = .005$). A similar partner effect also emerged: Individuals reported higher levels of relationship distress when partners separated themselves during the session (self-focused autonomy $B = -0.035$, $SE = 0.015$, $p = .017$).

Lagged analyses evaluating *RQ4* revealed two actor effects (see Table 2). When individuals exhibited more control (other-focused autonomy $B = 0.045$, $SE = 0.017$, $p = .010$), and separated themselves more from the partner (self-focused autonomy $B = -0.042$, $SE = 0.017$, $p = .013$), they reported higher levels of relationship distress at the following session. One partner effect emerged: During sessions in which partners separated themselves, individuals reported more relationship distress at the following session (self-focused autonomy $B = -0.044$, $SE = 0.017$, $p = .009$). On the other hand, the lagged effect of partners' separating behavior on actors' relationship distress differed by gender (interaction $B = 0.069$, $SE = 0.031$, $p = .025$) such that this association was statistically significant for men ($B = -0.078$, $SE = 0.023$, $p = .001$), but not for women ($B = -0.009$, $SE = 0.023$, $p = .685$).

Discussion

Interpersonal theories of depression (e.g., Coyne, 1976; Joiner et al., 1993) suggest that dysfunctional interactions underlie both depression and relationship distress in couples. Indeed, a large body of evidence indicates that these couples exhibit more hostility, control, and distance within their interactions (e.g., Knobloch-Fedders et al., 2013; Rehman et al., 2008). Because shifting these interpersonal behaviors into more adaptive patterns is a key to successful couple psychotherapy (e.g., Beach & Whisman, 2012; Bodenmann et al., 2008; Greenberg & Goldman, 2008), we evaluated whether couples' in-session affiliation and autonomy behavior predicts fluctuations in their levels of depressive symptoms and relationship distress over the course of couple therapy.

Our study makes several important contributions to couple therapy research and practice. First, we investigated an integrative treatment approach, IST, which is similar to the orientation most commonly practiced by couple and family therapists in applied clinical settings (Pinsof & Wynne, 2000). This bolsters the external validity and generalizability of our results. Second, our work is the first to study IST within a sample of depressed couples, advancing theory and empirical evaluation of this treatment approach. Third, we employed SASB, a theoretically-derived, well-validated system for measuring interpersonal behavior. Although SASB has been used extensively to assess individual psychotherapy (Benjamin, 2006; Benjamin & Critchfield, 2010; Constantino, 2000), our study is the first to investigate change in couple therapy using SASB.

Our clear and consistent findings underscore the critical role of hostility among couples suffering from depression and relationship distress, consonant with a large body of research (Rehman et al., 2008). Our study advances this work into the context of couple therapy by examining the two types of interpersonal hostility differentiated by SASB: *other-focused* and

self-focused (Benjamin, 1979; 1987; 2000). We found that, for each type of hostility, both an individual's behavior and the behavior of his or her partner predicted higher concurrent levels of depressive symptoms and relationship distress. These actor and partner effects underscore the interdependent and bidirectional nature of individual and relational pathology (Whisman & Baucom, 2012).

Our results also highlight the lingering negative effects of hostility over time (Gottman & Levenson, 1992). An individual's and the partner's hostility in one session of couple therapy predicted his or her depressive symptoms and relationship distress at the next session.[4] These prospective effects underscore the importance of hostility expressed during therapy sessions, given its implications for the progress couples will make by the next session.

In contrast to hostility, autonomy behavior has been largely overlooked in studies of depression and relationship distress in couples (Knobloch-Fedders et al., 2013). However, SASB's ability to differentiate between two types of autonomy, *other-focused* (allowing one's partner to be separate vs. controlling) and *self-focused* (separating vs. submitting) is a distinct measurement advantage in this effort. Our analysis revealed that both types of autonomy consistently predicted depressive symptoms and relationship distress, with two behaviors emerging as particularly key: *control* and *separation.*

Within sessions of couple therapy, individuals who controlled the partner, as well as separated themselves from the partner, reported more concurrent depressive symptoms and relationship distress, as well as more relationship distress at the following session. The partner's separating behavior also predicted an individual's relationship distress concurrently and

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[4] The exception to this pattern of results was that the associations between an individual's hostility and his or her depressive symptoms at the following session failed to reach statistical significance (other-focused hostility $p = .115$; self-focused hostility $p = .077$).

prospectively, consistent with previous cross-sectional findings (e.g., Knobloch-Fedders et al., 2014). This effect was moderated by gender: To the extent that women separated themselves during a session of couple therapy, men reported more relationship distress at the following session.

Study Limitations and Future Directions

Limitations of our study highlight important directions for future work. First, we measured depression as self-reported symptoms rather than using standardized diagnostic criteria to assess depression as clinical disorder. Evaluating whether couples' in-session interpersonal behavior is linked with amelioration of depressive disorders would be a valuable next step.

Second, we relied on couples' reports of their interpersonal behavior, which may be subject to reactivity, social desirability bias, and perceptual bias within the context of depression and relationship distress (Gotlib & Krasnoperova, 1998; Overall & Hammond, 2013; Schwartzman et al., 2012). Moreover, couples' reports of their interpersonal behavior may have interacted with the treatment, impacting the internal and external validity of our results. Thus, comparing couples' self-reported interactions with session ratings conducted by outside observers is a key avenue for future investigation. Because SASB includes a parallel system for observational assessment of behavior (Benjamin & Cushing, 2000), allowing the perceptions of couples, therapists, and outside observers to be mapped onto the same metric, it is particularly well-suited to this effort.

Our study's sample of couples was predominantly heterosexual, and therapists were mainly female and White. Future studies should strive to incorporate greater diversity, especially with regard to sexual orientation, race, ethnicity, and gender.

Finally, this study focused on assessing the links between couples' in-session interpersonal behavior, depressive symptoms, and relationship distress. Follow-up work should seek to understand how the interactions of couples within therapy sessions spill over to affect their daily lives and, in turn, how everyday stressors may alter the course of interpersonal behavior during subsequent sessions.

Clinical and Methodological Significance

Our results provide empirical support for the theories of change advanced by several orientations to couple psychotherapy. For example, reducing hostility and increasing positivity are key to many models of couple therapy, including emotion-focused couple therapy (Greenberg & Goldman, 2008; Greenberg & Johnson, 2010), behaviorally-based couple therapy (Jacobson & Christensen, 1998; O'Farrell & Fals-Stewart, 2006), and coping-based couple therapy (Bodenmann et al., 2008). Along with hostility, our study highlights autonomy as a key domain of behavior relevant in the treatment of depression and relationship distress in couples, consonant with EFT's additional emphasis on hierarchy, dominance, and control as important dynamics in couple functioning (Greenberg & Goldman, 2008).

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FOCUS ON OTHER

1-1, FREEING & FORGETTING

1-8, IGNORING & NEGLECTING   1-2, AFFIRMING & UNDERSTANDING

II. Invoke hostile autonomy   I. Encourage friendly autonomy

1-7, ATTACKING & REJECTING   1-3, LOVING & APPROACHING

III. Hostile power   IV. Friendly influence

1-6, BELITTLING & BLAMING   1-4, NURTURING & PROTECTING

1-5, WATCHING & CONTROLLING

2-1, ASSERTING & SEPARATING

FOCUS ON SELF

2-8, WALLING-OFF & DISTANCING   2-2, DISCLOSING & EXPRESSING

II. Take hostile autonomy   I. Enjoy friendly autonomy

2-7, PROTESTING & RECOILING   2-3, JOYFULLY CONNECTING

III. Hostile comply   IV. Friendly accept

2-6, SULKING & SCURRYING   2-4, TRUSTING & RELYING
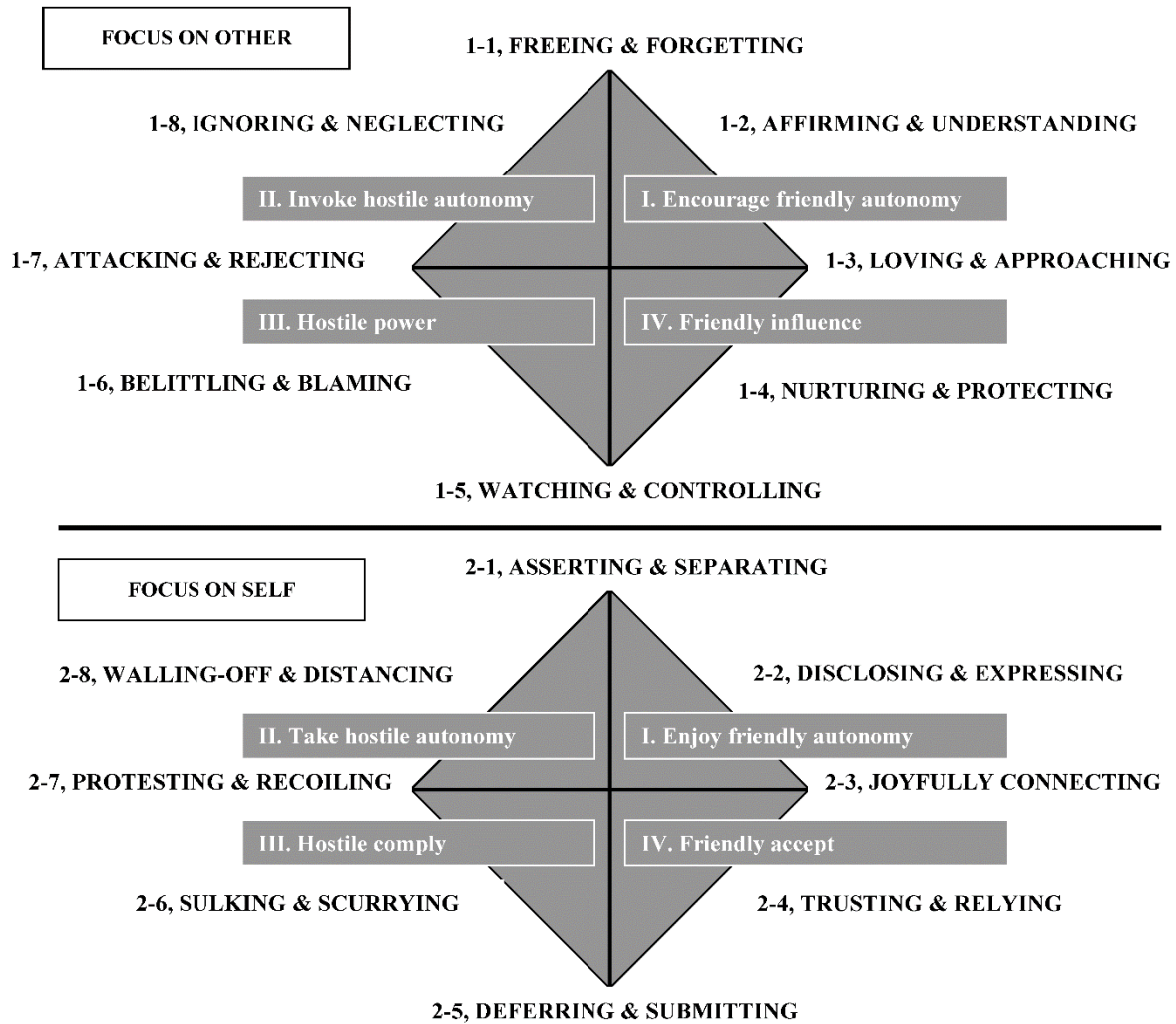
2-5, DEFERRING & SUBMITTING

Table 1

Description of session-level depressive symptoms, relationship distress, and interpersonal behavior

Measure	1	2	3	4	5	6	Women *M* (*SD*)	Men *M* (*SD*)
1. BDI	.34**	-.37***	-.24***	-.01	-.20**	.01	11.11 (8.81)	10.54 (7.72)
2. DAS	-.48***	.64***	.56***	.19**	.60***	.02	77.28 (22.10)	83.76 (19.90)
3. Other-focused affiliation	-.27***	.45***	.51***	.47***	.83***	-.27***	66.63 (65.61)	91.02 (55.15)
4. Other-focused autonomy	-.12*	.18**	.41***	.13*	.41***	-.15*	56.82 (33.69)	60.80 (32.36)
5. Self-focused affiliation	-.29***	.54***	.83***	.39***	.53***	-.20**	81.48 (62.90)	88.35 (55.87)
6. Self-focused autonomy	.06	-.24***	-.32***	-.08	-.28***	.01	65.00 (40.01)	55.88 (37.39)

Note. Correlations are session-level, within-person. Women appear below the diagonal and men above the diagonal. Values on the diagonal represent cross-gender correlations. Means and standard deviations of person-level means are reported to account for differences in completed sessions across participants. *** $p < .0001$; ** $p < .01$; * $p < .05$

Table 2

Session-to-session depressive symptoms (BDI) and relationship distress (DAS) predicted by couples' affiliation and autonomy ratings

	Other-Focused Affiliation			Other-Focused Autonomy			Self-Focused Affiliation			Self-Focused Autonomy		
	B	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
BDI												
Concurrent												
Actor session-level rating	-0.014	0.004	0.001	-0.012	0.006	0.041	-0.016	0.004	<.0001	0.013	0.006	0.017
Partner session-level rating	-0.015	0.004	0.0004	-0.005	0.006	0.411	-0.014	0.004	0.001	0.007	0.006	0.234
Lagged												
Actor session-level rating	-0.008	0.005	0.115	-0.007	0.007	0.309	-0.009	0.005	0.077	0.007	0.006	0.248
Partner session-level rating	-0.011	0.005	0.031	0.004	0.007	0.569	-0.013	0.005	0.008	0.011	0.006	0.083
DAS												
Concurrent												
Actor session-level rating	0.074	0.010	<.0001	0.042	0.015	0.006	0.080	0.010	<.0001	-0.041	0.015	0.005
Partner session-level rating	0.028	0.010	0.008	0.023	0.015	0.119	0.034	0.010	0.0004	-0.035	0.015	0.017
Lagged												
Actor session-level rating	0.062	0.013	<.0001	0.045	0.017	0.010	0.051	0.012	<.0001	-0.042	0.017	0.013
Partner session-level rating	0.030	0.013	0.021	-0.003	0.017	0.855	0.038	0.012	0.002	-0.044	0.017	0.009

Note. Concurrent BDI and DAS were modeled simultaneously using a multivariate-outcome approach for each of the four SASB dimensions: other-focused affiliation, other-focused autonomy, self-focused affiliation, and self-focused autonomy. The same approach was used for lagged BDI and DAS outcomes. All models included the same covariates: gender, the linear effect of session, and the effects of actor and partner person-level means. Covariate effects are described in the Results.