Evidence that an individual’s behavior influences and is influenced by the behavior of others is found throughout social, personality, clinical, and developmental psychology (Casp, 2000; Horowitz, 2004; Mischel & Shoda, 1995; M. Snyder, 1983); the individual’s momentary responses and more enduring dispositions shape and are shaped by social interactions. Such reciprocal associations between the behavior of partners in romantic couples is a central feature of behavioral and cognitive-behavioral models of marital adjustment. Compared with higher quality relationships, distressed couples are characterized by higher levels of reciprocity in negative behaviors (e.g., criticism, blame), leading to overall higher rates of hostile behavior, escalating conflicts, greater negative affect, further deterioration of relationship quality, and greater risk of relationship disruption (i.e., separation, divorce; D. K. Snyder, Heyman, & Haynes, 2005).

In interpersonal theory (Horowitz & Strack, 2011; Pincus & Ansell, 2013), the reciprocal influence of interaction partners’ behavior is described in the complementarity principle. There are several specific models of complementarity (Benjamin, 1974; Gurtman, 2001; Kiesler, 1983), but the most widely researched form describes behavior as varying along the dimensions of affiliation (i.e., warm, friendly vs. cold, hostile) and control (i.e., dominant, directive vs. submissive, deferent), which define the interpersonal circumplex (IPC), depicted in Figure 1 (Panel A; Kiesler, 1983). In this model of complementarity, an actor’s behavior tends to “pull, elicit, invite, or evoke ‘restricted classes’ of responses” from interaction partners (Pincus & Ansell, 2013, p. 149) who are similar in affiliation and opposite in control (see Figure 1, Panel B). In correspondence along the IPC affiliation axis, warmth invites
warmth, and hostility invites hostility. In reciprocity along the control axis, dominance invites submission, and submission invites dominance (Sadler, Ethier, & Woody, 2011). Hence, in interpersonal theory, complementarity is not fully consistent with either the idea that “opposites attract” or the idea that “birds of a feather flock together.” Instead, behaviors along the affiliation dimension pull for similarity or “match,” and behaviors along the control dimension pull for opposite or “mismatch.”

The complementarity principle describes expected patterns of behavior across multiple levels of analysis, including act-by-act interactional sequences, aggregate responses in a specific interaction, general interaction patterns in a relationship, and dispositional styles of relationship partners (Sadler et al., 2011; Tracey, 2004). In traditional interpersonal theory, complementarity also predicts the likely outcomes of those interactions and relationships. Specifically, greater complementarity is hypothesized to reduce negative affect (e.g., anger, frustration, anxiety), and increase relationship satisfaction and the likelihood of continuance, in both specific interactions and ongoing relationships (Kiesler, 1983; Sadler et al., 2011). Markey and Markey (2007) summarized this prediction as, “individuals will enjoy satisfying and lasting relationships when they interact with partners who complement their own interpersonal style” (p. 519).

Figure 1. The interpersonal circumplex (IPC) (Panel A), and predictions from the traditional model of the principle of complementarity (Panel B).
However, predictions from the well-researched behavioral and cognitive-behavioral models of marital behavior (e.g., Gottman, 1979) described above differ from those of complementarity. For example, complementarity theory and behavioral models (Fincham & Beach, 1999; Gottman, 1979; D. K. Snyder et al., 2005) both predict positive outcomes when both partners are warm, but predictions diverge for interactions and relationships in which both partners are hostile (i.e., correspondent low levels of affiliation). Here, behavioral models predict marital distress, dissatisfaction, and disruption, whereas models of complementarity predict positive outcomes, due to partners' similar (if low) levels of affiliation. Similarly, in behavioral and cognitive-behavioral models, high levels of control or coercion from a spouse are often experienced as unwelcome and can contribute to marital distress (Ehrensaft, Langhinrichsen-Rohling, Heyman, O’Leary, & Lawrence, 1999; Gray-Little & Burks, 1983; Sanford, 2010; D. K. Snyder et al., 2005), suggesting that partners' levels of control—rather than the extent to which partners are matched or mismatched on control—would predict marital outcomes. Both perspectives predict negative outcomes when both partners are controlling, but only complementarity models suggest that high levels of control displayed by one spouse will predict positive outcomes when partners reciprocate with deference or submission.

Comparing these two general models of marital behavior is difficult, given the limited literature on complementarity in married or intimate couples. Although theorists have suggested that complementarity is especially applicable to interactions with significant others (see Kiesler, 1983), interpersonal complementarity is much more commonly studied in interactions between unacquainted individuals or in nonromantic dyads (e.g., roommates). To date, only four studies have examined complementarity in romantic dyads, and these studies have assessed affiliation and control as personality traits (i.e., interpersonal styles) as opposed to contextualized behaviors, with somewhat inconsistent results. Tracey, Ryan, and Jaschik-Herman (2001) asked undergraduates to rate their parents’ personalities and found that although overall complementarity was present across the sample, greater complementarity was seen in divorced couples than in those who remained married. Markay and Markay (2007) measured interpersonal styles in couples, some of whom were married. Although there was no evidence of complementarity in the full sample, there was evidence of complementarity in couples who reported high relationship quality. Smith, Traupman, Uchino, and Berg (2010) found the expected correspondent association in spouse ratings of trait affiliation and the expected reciprocal association in trait control. Last, in a sample of same-sex female couples, Markey and Markay (2013) found no evidence of complementarity in affiliation and found that control complementarity was associated with lower relationship quality.

Although these prior inconsistent results could challenge models of complementarity as applied to intimate relationships (see Tracey, 1993), they could also be the result of four methodological issues. First, complementarity and its association with relationship outcomes may be weakest when measured as interpersonal styles (Tracey, 2004), which was the assessment approach taken in past studies of complementarity in marriage and other intimate relationships. Hence, complementarity may be more evident when examining patterns of behavior in specific interactions. Second, a review of complementarity outside the context of marriage at the level of behavior, not personality styles, found that the tone of interactions matters (Orford, 1986). In warm interactions, dominance generally evokes submission, cooperation, or deference, but in unfriendly interactions, it tends to evoke contested dominance. This finding suggests that complementarity along the control axis may be weaker and more varied across contexts than affiliative complementarity. Third, this pattern of differing degrees of complementarity for the two dimensions of affiliation and control also suggests that statistical approaches that test complementarity along both dimensions simultaneously, used in some studies of marriage and complementarity in interpersonal styles, may obscure important information. Finally, additional research outside the context of marriage suggests that the focus and structure of interactions also moderates complementarity. Relative to unstructured and personal interactions, structured and task-focused situations attenuate complementarity in affiliation, but increase complementarity in control (Markay, Funder, & Ozer, 2003; Moskowitz, Ho, & Turcotte-Tremblay, 2007; Tiedens & Jimenez, 2003), again, a finding that may be obscured if both dimensions are analyzed simultaneously.

The Present Studies

In the two studies reported here, we examine whether complementarity is present in the behavior of married couples. Given previous research with nonromantic dyads, we also examine factors that might influence the presence of complementarity, including the tone and focus of marital interactions. Finally, we tested the competing predictions from the complementarity and behavioral models in the associations of marital behavior with affective responses and relationship outcomes.

The competing predictions based on behavioral models and models of complementarity can be translated into specific statistical hypotheses. Behavioral models indicate that higher levels of affiliation (i.e., greater warmth, lower hostility) should predict positive outcomes. That is, the main effects of partners’ levels of affiliation will be related positively to beneficial marital interaction outcomes (e.g., less negative affect during specific interactions) and marital quality. In contrast, the traditional view of complementarity suggests a specific “cross-over” statistical interaction pattern in which positive outcomes are expected when both spouses display similar levels of affiliation, regardless of whether this behavioral “match” or correspondence is relatively warm or hostile. For control, interpersonal theory predicts a
different “cross-over” pattern, in which reciprocity (i.e., opposite levels) of spouses’ control predicts positive outcomes. However, behavioral and cognitive-behavioral models suggest that lower levels of control generally predict positive outcomes (Ehrensaft et al., 1999; Gray-Little & Burks, 1983; Sanford, 2010; D. K. Snyder et al., 2005).

As described above, the distinction between complementarity and the main effects of affiliation or control involved in the statistical interaction reflecting complementarity may be obscured in prior research on complementarity. For example, to test hypotheses regarding outcomes associated with complementarity, some studies have quantified the degree of overall complementarity for individual dyads in a single index (e.g., Ansell, Kurtz, and Markey, 2008). In others, indexes for complementarity in affiliation and control are calculated separately (e.g., Ansell et al., 2008). However, these dyadic indexes are possibly correlated with their components, specifically each partner’s levels of affiliation or control. Hence, testing the association of these dyadic indexes with relationship outcomes may be akin to testing a statistical interaction without appropriate statistical control of the main effects (c.f. Kenny & Cook, 1999; Laird & Weems, 2011). If so, correlates of overall complementarity or complementarity of affiliation or control considered separately could reflect—at least in part—levels of these behaviors rather than the specific matches and mismatches specified in complementarity theory.

Study I: Marital Interaction Valence as an Influence on Complementarity in Affiliation and Control, and Associations of Complementarity With Relationship Outcomes

In this study, we conduct additional analyses of a previously reported study of young married couples (Nealey-Moore, Smith, Uchino, Hawkins, & Olson-Cerny, 2007). Couples were randomly assigned to an initial discussion task that was positive, neutral, or negative. Couples took three 1-min turns describing characteristics they appreciated about their partner; in the negative condition, they similarly described the spouses’ traits that they disliked; and in the neutral condition, they described their partner’s daily schedule. After a 10-min rest period, all participants took three 1-min turns speaking about a topic of contention in the relationship and then continued to discuss this disagreement topic in an unstructured format for an additional 4 min. The interaction was structured in this manner due to the primary aims of the study, which involved monitoring physiology in married couples.

Procedure. Couples participated in two tasks. Couples were randomly assigned to a positive, neutral, or negative initial interaction, and then took part in a disagreement discussion. In the positive condition, each spouse took three 1-min turns describing characteristics they appreciated about their partner; in the neutral condition, they similarly described the spouses’ traits that they disliked; and in the neutral condition, they described their partner’s daily schedule. After a 10-min rest period, all participants took three 1-min turns speaking about a topic of contention in the relationship and then continued to discuss this disagreement topic in an unstructured format for an additional 4 min. The interaction was structured in this manner due to the primary aims of the study, which involved monitoring physiology in married couples.

Measures

Spouse ratings of behavior. Participants rated their spouse’s affiliation and control during each interaction using the Impact Message Inventory–Circumplex (IMI-C; Kiesler, Schmidt, & Wagner, 1997). The 32-item IMI-C includes eight 4-item subscales corresponding to IPC octants (Figure 1). Scores for affiliation and control are created through weighted combination of the subscales. The IMI-C has a circumplex structure, internally consistent dimension scores, and considerable evidence of validity (Nealey-Moore et al., 2007; Schmidt, Wagner, & Kiesler, 1999; Smith, Berg, et al., 2009).

Affect. State anxiety and anger were assessed immediately after pre-task baseline periods and the interaction tasks, using a 12-item inventory (Nealey-Moore et al., 2007). Both scales include four positively worded items (e.g., “I feel irritated”) and two negatively worded items (e.g., “I feel friendly”), and are reliable (Cronbach’s alpha > .80) and sensitive to experimental manipulations (Nealey-Moore et al., 2007; Smith, Berg, et al., 2009). Given the positively and negatively worded items, positive change scores (i.e., task minus baseline) reflect increases in anxiety or anger, whereas negative change scores reflect increases in calmness or warmth, respectively.

Relationship quality. Participants completed the Locke–Wallace Marital Adjustment Test (MAT; Locke & Wallace, 1959), the Quality of Relationships Index (QRI; Pierce, 1994) support and conflict subscales, and the Social Relationships Inventory (SRI; Campo et al., 2009), which measures positive and negative qualities of the relationship. Scores on these scales were factor analyzed (i.e., principal components analysis), producing a one-factor solution (i.e., one eigenvalue > 1.0) for both husbands and wives. Loadings for all variables on the factor that we will call Relationship Quality had an absolute value of .80 or greater for both men and women. Scores were created through unit weighting.
**Overview of analyses.** We first examine the presence of complementarity and then test associations of affiliation and control with affective responses to disagreement and relationship quality. Using the model comparison approach (Bollen, 1989), we first tested a constrained model that included only the first-order effects (i.e., levels) of actor and partner affiliation or control, and then tested a full model that included the interaction term (i.e., Wife affiliation × Husband affiliation, or Wife control × Husband control), examining affiliation and control separately (see Figure 2). When the full model shows better fit, it is imperative to determine if interactions take the form specified by the complementarity principle, as opposed to other patterns, such as a synergistic effect in which high levels of hostility or control by both partners are detrimental beyond their additive effects. Significant interactions could occur even when the full model does not result in significantly better fit, and post hoc analyses suggest that the study was underpowered to find significant differences in model fit (Preacher & Coffman, 2006). To provide the most sensitive tests of associations between complementarity and the outcomes, all significant interaction paths are reported. Missing data were estimated using Full Information Maximum Likelihood (FIML), as we had less than 5% missing data (Graham, 2009).

**Results**

The manipulation of interaction tone had expected effects on affect, spouse ratings, and physiological responses, as did the disagreement task (Nealey-Moore et al., 2007). Hence, the procedures produced appropriate analogues of the marital interaction contexts we intended to model.

**Is there evidence of complementarity during marital interactions?** In the positive task condition, the correlation for control was significant, $r(38) = -.44, p < .01$, but not for affiliation. In the neutral condition, the correlation was significant for affiliation, $r(38) = .44, p < .01$, but not control. In the negative condition, ratings of affiliation were again positively correlated, $r(38) = .58, p < .001$, but ratings of control were also positively correlated, $r(38) = .46, p < .01$. For the subsequent disagreement task, the correlation for affiliation was significant, $r(114) = .55, p < .001$, but ratings of control were also positively correlated, $r(114) = .19, p < .05$. Thus, as expected, complementarity was more evident for affiliation than for control. Control complementarity was evident in the positive interaction, but anticomplementarity was evident in the negative initial interaction and the disagreement task, perhaps reflecting contested control (see Figure 3).

**Are affiliation and control during disagreement associated with interaction and relationship outcomes?** Model comparison results, effect sizes for each partner’s outcome, and significant first-order (e.g., actor and partner) effects are presented in table format (Table 1). Significant interactions are described in text below and simple slopes were tested at one standard deviation above and below the mean for both components of the interaction (e.g., for each interaction, we subsequently tested both husbands’ and wives’ predictors as the moderator). All model results reported here had at least adequate fit (root mean square error of approximation [RMSEA] < .08, comparative fit index [CFI] > .95).

**Affiliation.** As can be seen in Table 1, higher levels of affiliation were generally associated with smaller increases in anxiety and anger during the disagreement task and higher Relationship Quality.

**Interactions.** The interaction between husbands’ and wives’ affiliation was significantly associated with wives’ anxiety ($B = .18, p < .05$). This interaction was not consistent with predictions based on the complementarity principle. Instead, the partner effect of husbands’ affiliation on wives’ anxiety was only significant among wives who were low in affiliation (simple slope = 0.74, $t = -5.2, p < .001$; not among wives who were high in affiliation (see Figure 4, Panel A). Hence, a non-complementary couple pairing in which wives were low in affiliation and husbands were high was associated with the lowest level of wives’ anxiety.
The interaction between husbands’ and wives’ affiliation was significantly associated with both husbands’ and wives’ anger ($B = .18, p < .05$ and $B = .21, p < .01$, respectively). Neither of these interactions was consistent with predictions based on complementarity theory. For wives, the pattern closely resembled the pattern for anxiety (Figure 4, Panel A) and was inconsistent with complementarity theory, such that the partner effect of husbands’ affiliation on wives’ anxiety
was stronger among wives who were low in affiliation (simple slope = −1.31, \( t = −7.4, p < .001 \)) than among wives high in affiliation (simple slope = −0.65, \( t = −3.3, p = .001 \)). For husbands, the interaction represented synergistic effects of low affiliation, such that the actor effect of husbands’ affiliation on husbands’ anger was only significant among husbands who rated their wives low on affiliation (simple slope = −0.48, \( t = −2.5, p = .01 \)), and the partner effect of wives’ affiliation on husbands’ anger was only significant if wives also rated their husbands’ low on affiliation (simple slope = −0.45, \( t = −2.6, p < .01 \)). Husbands reported becoming particularly angry when both husbands and wives rated their spouse low in affiliation (see Figure 4, Panel B), a pattern directly inconsistent with complementarity theory.

Finally, the interaction between husbands’ and wives’ affiliation was significantly associated with husbands’ Relationship Quality (\( B = −.19, p < .05 \)). This interaction reflected the synergistic adverse effects of low affiliation, such that the actor effect of husbands’ affiliation on husbands’ Relationship Quality was only significant among husbands who rated their wives low on affiliation (simple slope = 0.15, \( t = 2.9, p < .01 \)), and the partner effect of wives’ affiliation on husbands’ Relationship Quality was only significant if wives also rated their husbands low on affiliation (simple slope = 0.27, \( t = 4.9, p < .001 \)). Specifically, husbands reported particularly low Relationship Quality when both husbands and wives were rated as low on affiliation (see Figure 4, Panel C), a pattern of findings directly inconsistent with complementarity theory.

In general, affiliation during the disagreement task was positively associated with Relationship Quality and inversely associated with anger and anxiety (i.e., main effects), and we found no support for predictions based on the complementarity model.

Control. As can be seen in Table 1, higher levels of control were generally associated with larger increases in anxiety and anger during the disagreement task and lower Relationship Quality. Consistent adverse actor and partner effects associated with control underscore the importance of this IPC dimension for marital functioning.

Interactions. The interaction between husbands’ and wives’ control was significantly associated with wives’ Relationship Quality (\( B = −.19, p < .05 \)). This interaction represented the synergistic, positive effects of low control, such that the actor effect of wives’ control on wives’ Relationship Quality was only significant among wives who rated their
husbands low on control (simple slope = −0.37, t = −4.3, p < .001), and the partner effect of husbands’ control on wives’ Relationship Quality was only significant if husbands also rated their wives low on control (simple slope = −0.41, t = 4.9, p < .001). Specifically, wives reported particularly high relationship quality when both spouses displayed little control (see Figure 4, Panel D), a pattern directly inconsistent with complementarity theory.2

In general, control during the disagreement task was positively associated with anger and anxiety and inversely associated with Relationship Quality (i.e., main effects), and we found no support for predictions based on the complementarity model.

Discussion

Consistent with Orford’s (1986) review of nonromantic dyads, complementarity was notably stronger and more consistent for affiliation than control. Also consistent with Orford’s conclusions, control complementarity occurred only in the positive initial interaction, whereas anticomplementarity in control occurred in both the negative initial task and in the subsequent disagreement task, perhaps reflecting unwelcome and contested control during negative couple interactions. Instead of complementarity, statistical interactions between spouses’ levels of affiliation or control reflected synergistic adverse effects of low affiliation on husbands’ anger and Relationship Quality, synergistic beneficial effects of low control on wives’ relationship quality, or a potentiated effect of husbands’ affiliation on wives’ negative affect for wives also low in affiliation. These interaction effects were generally smaller than the more consistent first-order effects of affiliation and control described above. Due to limitations of the current study, questions remain about whether or not complementarity is evident in more naturalistic marital interactions, longer-term marriages, and independent ratings of behavior. In addition, all couples were engaged in relationship-focused interactions, and past research has shown that complementarity in control may be greater in task-focused interactions (Tiedens, Unzueta, & Young, 2007).

Study 2: Focus of Task as a Moderator of Complementarity, and Associations With Interaction and Relationship Outcomes in Middle-Aged and Older Adults

As described previously, variations across interaction contexts that are common in marriage, such as a focus on relationship issues versus everyday tasks, may influence levels of complementarity. Additional analyses of a previously reported study of middle-aged and older married couples (Smith, Berg, et al., 2009) provided the opportunity to test this hypothesis and to address other limitations of Study 1. Here we examine couples in longer-term marriages and during more naturalistic interactions. All couples participated in a less structured and more personal marital disagreement task, and a task that simulated everyday collaboration in mundane activities (i.e., planning a day’s errands), a context that is less personal and more task-focused and structured than marital disagreement. In both tasks, couples completed partner ratings of affiliation and control, and trained observers rated spouses’ behavior.

Method

Participants. This sample consisted of 300 older and middle-aged couples recruited from the Salt Lake City, Utah, area (see Smith, Berg, et al., 2009). Mean age was 55.3 years for husbands and 53 years for wives. The mean length of marriage was 27.6 years. All couples were married for a minimum of 5 years. Again, the majority of the sample was Caucasian (Wives, 96.6%; Husbands, 95.8%).

Procedure. Each couple participated in a disagreement and a collaborative task, in counterbalanced order. The first 6 min of both tasks were unstructured (e.g., couples were not required to take turns speaking), and only this segment was coded. Couples were aware that their interactions were being video-recorded. The disagreement task was otherwise the same as in Study 1 (Smith, Berg, et al., 2009). In the collaboration task, couples were given a list of errands and a map of a hypothetical town, and asked to work together in planning the most efficient route and schedule for completing the errands.

Measures

Behavior. Participants rated their partner’s behavior during both interactions using the IMI-C (see Study 1), and trained raters coded participants’ behavior using Structural Analysis of Social Behavior (SASB; Benjamin, Rothweiler, & Critchfield, 2006). SASB is a refinement of the IPC, and predictions concerning complementarity differ between these two models. However, dominance, submissiveness, friendliness, and hostility are assessed in SASB. Affiliation and control dimension scores that map onto the IPC were calculated and used here for consistency with Study 1. The SASB–Composite Observational Coding Scheme (SASB-COMP; Florsheim & Benjamin, 2001) was used, in which code frequencies for husbands and wives were recorded separately for each minute. Scores were aggregated across minutes for each partner during each task. Videotaped tasks were rated by two teams of coders who received a minimum of 75 hr of training. Twenty percent of tapes for each task were randomly selected for reliability coding, and average interrater reliability for wives and husbands was greater than .94 for the cooperative task and greater than .88 for the disagreement task. Additional details on the training and reliability can be found elsewhere (Smith, Berg, et al., 2009).
Measures of state anxiety and anger were completed immediately before and after each interaction, using the same 12-item measure described in Study 1.

Relationship quality. Relationship quality was measured before participants arrived for the laboratory tasks, using the QRI support and conflict subscales and the MAT, described in Study 1. In a principal components analysis using these scales, we again obtained a one-factor solution (one eigenvalue > 1.0) for both women and men. Loadings for all three variables on the factor that we again label Relationship Quality had an absolute value of .80 or greater for both men and women, and we again created Relationship Quality scores through unit weighting.

Results

The disagreement and collaboration tasks produced expected differences in behavior, affect, and physiological response, as reported elsewhere (Smith, Berg, et al., 2009; Smith, Uchino, et al., 2009).

Is there evidence of complementarity during marital interactions?

Spouse ratings of behavior. Examination of spouse ratings for the disagreement task indicated significant anti-complementarity in control, \( r(298) = .30, p < .001 \), and strong complementarity in affiliation, \( r(298) = .60, p < .001 \), consistent with the results of Study 1. During collaboration, partner ratings indicated significant complementarity in both control, \( r(298) = -.11, p < .05 \), and affiliation, \( r(298) = .33, p < .001 \).

Independent observer ratings of behavior. Behavior ratings during the disagreement task indicated no association for control, \( r(298) = -.04, p > .05 \), but strong affiliative complementarity, \( r(298) = .54, p < .001 \). During collaboration observer ratings showed significant complementarity for both control, \( r(298) = -.20, p < .001 \), and affiliation, \( r(298) = .42, p < .001 \) (see Figure 5).

Results again demonstrate the presence of complementarity during marital interactions, and again more consistently for affiliation than for control. Both objective and subjective ratings of behavior revealed complementarity in affiliation independent of task context. However, complementarity in control (i.e., one partner leading and the other following) was only present during collaboration. During disagreement, spouse ratings again revealed anticomplementarity.

Do affiliation and control predict interaction and relationship outcomes?

Results are presented first for spouse ratings and then for observer ratings. Within these methods, results are presented first for the disagreement and then for the collaboration task. All model results reported here had at least adequate model fit (RMSEA < .08, CFI > .95).
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Table 2. First-Order Effects, Results of Model Comparisons, and Effect Sizes for Each Outcome of Interest in Study 2 Based on Spouse Ratings.

<table>
<thead>
<tr>
<th>IPC dimension and reported statistic</th>
<th>Anxiety</th>
<th>Anger</th>
<th>Relationship quality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Husband</td>
<td>Wife</td>
<td>Husband</td>
</tr>
<tr>
<td>Disagreement task</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Affiliation dimension</td>
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<tr>
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<td>-.45***</td>
<td>-.19**</td>
</tr>
<tr>
<td>Wife affiliation</td>
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<td>.03</td>
<td>-.36***</td>
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<tr>
<td>R² first-order effects only model</td>
<td>.15</td>
<td>.19</td>
<td>.25</td>
</tr>
<tr>
<td>Model comparison (χ² difference)</td>
<td>3.5 (ns)</td>
<td>5.9 (ns)</td>
<td>5.6 (ns)</td>
</tr>
<tr>
<td>ΔR² after freeing interaction paths</td>
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<td>.01</td>
<td>0</td>
</tr>
<tr>
<td>Significant interaction path</td>
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<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Control dimension</td>
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<td></td>
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<tr>
<td>Husband control</td>
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<td>.34***</td>
<td>.21***</td>
</tr>
<tr>
<td>Wife control</td>
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<td>.07</td>
<td>.34***</td>
</tr>
<tr>
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<td>.20</td>
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<td>1.5 (ns)</td>
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<td>Affiliation dimension</td>
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<td>-.02</td>
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<td>.01</td>
<td>-.19**</td>
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<tr>
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<td>.07</td>
<td>.04</td>
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<tr>
<td>Model comparison (χ² difference)</td>
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<tr>
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<td>10.7**</td>
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<td>.01</td>
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</tr>
<tr>
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</tbody>
</table>

Note. Where the full model fit the data significantly better, we have bolded the χ² difference to draw attention to this finding. Significant interaction paths are described in text and shown in figures. IPC = interpersonal circumplex; ns = not significant.
*p ≤ .05. **p ≤ .01. ***p ≤ .001.

Spouse ratings of behavior during disagreement. Model comparison results, effect sizes for each partner’s outcome, and significant first-order effects can be found in Table 2. Similar to Study 1, higher levels of affiliation during marital disagreement were generally associated with less negative affect and greater Relationship Quality, whereas higher levels of control were associated with greater negative affect and lower Relationship Quality.

Interactions for affiliation during disagreement. There were two significant interactions in these models: on wives’ anger (B = .11, p < .05) and on wives’ Relationship Quality (B = .11, p < .05). For wives’ anger, the interaction represented the synergistic negative effects of low affiliation (Figure 6, Panel A). The actor effect of wives’ affiliation on wives’ anger was only significant among wives who rated their husbands low on affiliation (simple slope = −1.1, t = −10.9, p < .001), and the partner effect of husbands’ affiliation on wives’ anger was only significant if husbands also rated their wives low on affiliation (simple slope = −0.86, t = −6.3, p < .001). Hence, wives reported becoming particularly angry when both husbands and wives rated their spouse low in affiliation, a pattern directly inconsistent with the complementarity principle.

For Relationship Quality, wives reported particularly high relationship quality when both partners displayed high levels of warmth (Figure 6, Panel B). The actor effect of wives’ affiliation was only significant among wives who rated their husbands high on affiliation (simple slope = 0.14, t = 3.0, p < .01). The partner effect of husbands’ affiliation was significant at all levels of wives’ affiliation. This pattern of effects is consistent with predictions from behavioral models, not
complementarity theory, in that both partners matching high on affiliation is associated with a positive relationship outcome, but both partners matching low on affiliation is not.

Interactions for control during disagreement. The only significant interaction in these models was on wives’ anger ($B = .15, p = .01$). The actor effect of wives’ control was only significant at high levels of husbands’ control (simple slope = 0.86, $t = 3.5, p < .001$), and the partner effect of husbands’ control was larger in magnitude at high levels of wives’ control than low levels (simple slope = 1.6 and 0.93, respectively, both $p < .001$). Specifically, high control in both husbands and wives was associated with particularly high levels of wives’ anger (see Figure 6, Panel C). Although these results partially support complementarity theory (e.g., matching on control is associated with negative outcomes at high levels of control), they appear to more accurately represent the synergistic negative effects of high control, rather than the pattern predicted by the complementarity model.
In sum, consistent with Study 1, we found little evidence that complementarity during disagreement is related to affective responses to marital disagreement or to relationship outcomes in expected patterns. Instead, we found evidence of synergistic adverse effects of low affiliation (e.g., Figure 6, Panel A), synergistic beneficial effects of high affiliation (e.g., Figure 6, Panel B), and synergistic adverse effects of high control (e.g., Figure 6, Panel C).

**Spouse ratings of behavior during collaboration.** Model comparison results, effect sizes for each partner’s outcome, and significant first-order effects can be found in Table 2. Similar to results during marital disagreement, higher levels of affiliation during the collaboration task were generally associated with less negative affect and greater Relationship Quality, whereas higher levels of control were associated with greater negative affect and lower Relationship Quality. There were no significant interaction effects for spouse ratings of affiliation during the collaboration task.

**Interactions for control during collaboration.** There were three significant interactions in these models. The first two were the interaction of husbands’ and wives’ control on both husbands’ and wives’ anger ($B = -.13$ and .14, respectively, both $p < .05$). For wives, the partner effect of husbands’ control on wives’ anger was only significant at high levels of wives’ control (simple slope = 0.70, $t = 3.8, p < .001$), and the actor effect of wives’ control was not moderated by husbands’ control. Specifically, high control in both husbands and wives was associated with particularly high levels of wives’ anger (Figure 6, Panel D). Although these results partially support complementarity theory (e.g., matching on control is associated with negative outcomes at high levels of control), they appear to more accurately represent an increased sensitivity to husbands’ control for wives who are also high on control during the interaction.

For husbands’ anger, the partner effect of wives’ control was only significant at low levels of husbands’ control (simple slope = 0.70, $t = 3.9, p < .001$), and the actor effect of husbands’ control was not moderated by wives’ control. More specifically, high control displayed by wives paired with low control displayed by husbands (i.e., the combination associated with the least anger for wives) was associated with the highest levels of anger for husbands, a result inconsistent with complementarity theory (see Figure 6, Panel E).

In the third significant interaction, the interaction between husbands’ and wives’ control significantly predicted husbands’ Relationship Quality ($B = .12, p < .05$). The actor effect of husbands’ control was only significant at low levels of wives’ control (simple slope = −0.21, $t = −4.4, p < .001$), and the partner effect of wives’ control was larger in magnitude at low levels of husbands’ control than high levels (simple slope = −0.40 and −0.22, respectively, both $p < .001$). This pattern reflected the synergistic positive effects of low control, such that husbands reported particularly high Relationship Quality when both spouses displayed low control (see Figure 6, Panel F), a result inconsistent with complementarity theory.

In sum, similar to results during disagreement, we found little evidence that complementarity during collaboration is related to affective or relationship outcomes in expected patterns. Instead, we found evidence of synergistic adverse effects of high control (Figure 6, Panel D), synergistic beneficial effects of low control (e.g., Figure 6, Panel F), and one result directly opposite to the complementarity pattern (Figure 6, Panel E).

**Independent observer ratings of behavior during disagreement.** Model comparison results, effect sizes for each partner’s outcome, and significant first-order effects can be found in Table 3. Similar to previous results, higher levels of affiliation during disagreement were generally associated with less negative affect and greater Relationship Quality, whereas higher levels of control were associated with greater negative affect and lower Relationship Quality. There were no significant interaction effects for observer ratings of either affiliation or control during the disagreement task.

**Independent observer ratings of behavior during collaboration.** Model comparison results, effect sizes for each partner’s outcome, and significant first-order effects can be found in Table 3. Similar to results for spouse ratings during collaboration, higher affiliation during collaboration was generally associated with less negative affect and greater Relationship Quality, whereas higher levels of control were associated with greater negative affect and lower Relationship Quality. There were no significant interaction effects for observer ratings of control during the collaboration task.

**Interactions for affiliation during collaboration.** There were two significant interactions for these models. First, for wives’ anxiety ($B = .18, p < .01$), the partner effect of husbands’ affiliation was only significant at low levels of wives’ affiliation (simple slope = −0.08, $t = −1.9, p = .05$). Specifically, wives’ anxiety was particularly high when both spouses were rated low on affiliation (similar to Figure 6, Panel A), a result inconsistent with complementarity theory. Second, for wives’ anger ($B = .18, p < .01$), the partner effect of husbands’ affiliation was only significant at low levels of wives’ affiliation (simple slope = −0.05, $t = −2.9, p < .01$), and the actor effect of wives’ affiliation was only significant at low levels of husbands’ affiliation (simple slope = −0.07, $t = −3.4, p < .001$). More specifically, wives’ anger was particularly high when both spouses were rated low on affiliation, a result inconsistent with complementarity theory. Hence, we found no evidence that complementarity is related to affective responses to marital interaction or to relationship outcomes in expected patterns.
Discussion

These results generally replicate the findings of Study 1 and extend them to middle-aged and older couples, independent behavioral observations, a less structured disagreement interaction, and to a more structured, less personal collaborative marital task. Regarding the presence of complementarity, results again demonstrated complementarity more consistently for affiliation than for control. Complementarity in affiliation was evident in both objective and subjective rat-
gings of behavior and in both tasks. However, the expected pattern for complementarity in control, in which one partner leads and the other follows, was present only during collaboration. During disagreement, spouse ratings again revealed anticomplementarity (i.e., simultaneous or contested control), although independent behavioral ratings did not. As in Study 1, affective responses and relationship outcomes appear more directly attributable to spouses’ levels (and sometimes synergism) of affiliation and control, as opposed to complementarity, per se. Higher levels of affiliation during marital interaction were associated with less negative affect and greater Relationship Quality, whereas higher levels of control were associated with greater negative affect and lower Relationship Quality. Comparison within and between Table 2 and Table 3 also indicates that spouses’ behavior during dis-
agreement appears to be more predictive of relationship qual-
ity than behavior during collaboration, and that partner ratings generally explain more outcome variance than observer rat-
ings. Although we found little evidence that complementarity is related to outcomes as expected, synergistic benefits of high affiliation are at least partially consistent with the tradi-
tional complementarity model, as are synergistic adverse

Table 3. First-Order Effects, Results of Model Comparisons, and Effect Sizes for Each Outcome of Interest in Study 2 Based on Observer Ratings.

<table>
<thead>
<tr>
<th>IPC dimension and reported statistic</th>
<th>Anxiety</th>
<th></th>
<th>Anger</th>
<th></th>
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<tr>
<td></td>
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<td>Wife</td>
<td>Husband</td>
<td>Wife</td>
<td>Husband</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
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<td>−.12</td>
<td>−.03</td>
<td>−.06</td>
<td>.14*</td>
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<td>−.19**</td>
<td>−.26***</td>
<td>.14*</td>
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<td>.04</td>
<td>.05</td>
<td>.10</td>
<td>.06</td>
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<tr>
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<td>1.5 (ns)</td>
<td>2.9 (ns)</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>.01</td>
<td>.01</td>
<td>0</td>
<td>.01</td>
</tr>
<tr>
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<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Control dimension</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>.16**</td>
<td>.22***</td>
<td>.22***</td>
<td>−.25***</td>
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<tr>
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<td>.10</td>
<td>.15**</td>
<td>.03</td>
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<td>.06</td>
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<td>Model comparison ($\chi^2$ difference)</td>
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<td>1.8 (ns)</td>
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<td>no</td>
<td>no</td>
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<td>−.09</td>
<td>−.27***</td>
<td>−.14*</td>
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<td>2.3 (ns)</td>
<td></td>
<td></td>
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<td>0</td>
<td>.02</td>
<td>.01</td>
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<td>no</td>
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<td>Control dimension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husband control</td>
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<td>.07</td>
<td>.14*</td>
<td>.12</td>
<td>−.14*</td>
</tr>
<tr>
<td>Wife control</td>
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<td>.08</td>
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<td>$R^2$ first-order effects only model</td>
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<td>.02</td>
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<td>.03</td>
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<td>Model comparison ($\chi^2$ difference)</td>
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<td>2.9 (ns)</td>
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<td>$\Delta R^2$ after freeing interaction paths</td>
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<td>.01</td>
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<tr>
<td>Significant interaction path</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>no</td>
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</tr>
</tbody>
</table>

Note. Where the full model fit the data significantly better, we have bolded the $\chi^2$ difference to draw attention to this finding. Significant interaction paths are described in text and shown in figures. IPC = interpersonal circumplex; ns = not significant.

$p \leq .05$. **$p \leq .01$. ***$p \leq .001$. 

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effects of high control, but these patterns did not take the specific crossover form specified by interpersonal theory. Furthermore, synergistic benefits of low control are clearly inconsistent with the model. However, we found one crossover interaction at least partially consistent with complementarity; the combination of high control by husbands and low control by husbands was associated with lower wives’ anger during the collaboration task (Figure 6, Panel D).

**General Discussion**

Despite the central role of marriage and similar close relationships in the lives of most adults, few studies to date have examined complementarity—a central tenet of interpersonal theory—in this relationship context. The few relevant studies have examined the presence and correlates of complementarity in couple partners’ interpersonal styles or traits, rather than actual interactional behavior where complementarity might be more evident. By examining specific couple interactions, the two studies reported here provide an important extension of prior research, and the results support several important conclusions. First, the results provide strong evidence for the presence of affiliative complementarity in marital interactions, across a wide age range and marriages of differing lengths, methods of assessment (i.e., spouse vs. observer ratings), and interaction contexts. Consistent with prior reviews of complementarity in other dyad types (Orford, 1986), complementarity along the control axis was generally weaker and less consistent, and may be limited to structured, task-focused, or warm marital interactions. Also, across the wide age range reflected in the two studies, partner reports of control behavior indicate anticomplementarity during negative marital interactions, perhaps reflecting the experience of contested control. That is, marital conflict may evoke struggles for control, rather than complementarity. Hence, complementarity provides an accurate account of affiliative behavior in married couples, but much less so for behavior related to control.

The concept of complementarity in interpersonal theory not only describes likely patterns of interpersonal behavior (e.g., the presence of complementarity) but also their consequences (positive interaction and relationship outcomes). In the present studies, although we found strong evidence of affiliative complementarity and some evidence for control complementarity at least in some situations, complementarity was generally unrelated to anxiety or anger during those interactions and was unrelated to relationship quality. That is, although complementarity was often present and even pronounced, it did not predict how spouses felt about their interactions or their relationship in general, beyond the first-order or main effects of affiliation and control. Overall levels of affiliation and control clearly mattered more than the specific patterns and combinations of partners’ behavior described in the complementarity model.

Although warm and hostile behaviors are often reciprocated, the present results suggest that reduction of negative affect does not appear to be the mechanism reinforcing this pattern, as proposed by some interpersonal theorists. Furthermore, the extent of complementarity appears to have little if anything to do with the quality of marital relationships, beyond the couple’s level of warmth versus hostility. Instead, lack of warmth, presence of hostility, and presence of control are associated with greater negative affect and lower relationship quality, for the most part independently of the “match” or “mismatch” of spouses’ levels of these interpersonal behaviors. In the few instances of significant interactions, results indicated synergistic benefits of reciprocated warmth and deference, or synergistic costs of reciprocated hostility and control. In this way, the complementarity principle as traditionally described provides a useful account of patterns of affiliative behavior in couples, but is less useful in explaining affective responses to marital interaction or variations in marital quality. Instead, behavioral models and related theory provide a better explanation of the relationship between marital behavior and outcomes. Specifically, the results support prior models and evidence suggesting that couples’ levels of warmth versus hostility are reciprocally determined, and that couples’ levels of warmth and hostility are important influences on momentary affective experience and overall relationship quality (Gottman, Swanson, & Swanson, 2002; D. K. Snyder et al., 2005). Furthermore, although the affiliation dimension typically receives more emphasis in behavioral and cognitive-behavioral models, the present findings support prior suggestions that exerting control and being controlled are important adverse influences on relationship quality, and on anxiety and anger during marital interaction (Ehrensaft et al., 1999; Gray-Little & Burks, 1983; Sanford, 2010).

**Limitations**

There are notable limitations to the studies reported here. First, participants were mostly White and middle or upper socioeconomic status (SES) heterosexual couples; findings may not generalize to other populations. Second, no causal conclusions can be drawn, given the cross-sectional designs. For example, levels of affiliation and control may be effects—rather than causes—of relationship quality and negative affect during marital interaction. Third, behavioral interactions of couples in the laboratory may not resemble closely their interactions outside of the laboratory (but, see Heyman, 2001; Lorenz, Melby, Conger, & Surjadi, 2012). Fourth, we did not analyze complementarity in act-by-act sequences of behavior, which is arguably the most stringent and sensitive test of interpersonal complementarity (Tracey, 2004), as this was not possible with our data. However, observer ratings in Study 2 were collected in a minute-to-minute fashion and then aggregated, and hence, represent discrete behavioral “snapshots” and not simply a report of observers’ overall impressions of the interactions. Fifth, complementarity might be more closely related to the stability and continuation of relationships than their quality (Tracey, 1993). In marriage, relationship quality, stability, and continuation can be highly related, but appear to be distinct constructs (Karney & Bradbury, 1995). We did not measure
relationship stability or continuation in these samples, and hence cannot test this hypothesis. Finally, in Study 1 and in one subset of analyses in Study 2, behavioral complementarity was measured using partner reports of behavior, not objectively coded behavior. The correlations between partner reports and observer ratings for the same behavioral dimension and task in Study 2 ranged from $r = .10$ to $.60$, perhaps suggesting lack of objective accuracy in partner reports or perhaps the ability of partner reports to index more subtle behavioral information than is apparent to independent raters.

**Conclusion and Future Directions**

These findings have implications for interpersonal theory and for the study of marriage and similar relationships. In terms of interpersonal theory, the findings provide novel evidence indicating that complementarity along the affiliation axis of the IPC characterizes marital interactions to a considerable degree. However, complementarity along the control axis is a weaker and more variable phenomenon, suggesting that marital interactions are not usually characterized by one partner leading and the other following. Thus, our results indicate that complementarity theory may provide an accurate description of patterns of affiliation in marital interaction, but not an accurate account of control in such interactions. Furthermore, the results suggest that during disagreements, conflicts, and other negative marital interactions, the “invitation” to submit conveyed by a spouse’s dominant behavior may be unwelcome, resulting in anticomplementarity, resistance to perceived coercion, or struggles for control. Future research and refinements of interpersonal theory should focus on factors that moderate the degree of complementarity in control, or perhaps redefine the nature of complementary responses along this axis (see Benjamin, 1974; Tracey, 1993; Tracey et al., 2001).

The results also indicate that future studies of complementarity in marriage and similar relationships should examine affiliation and control separately, as testing the degree of complementarity across both IPC axes simultaneously could be misleading. For example, control complementarity is not equally likely to occur across contexts and interactions that vary along the affiliation dimension, but rather appears more common during warm interactions. Future research on complementarity must also separate the first-order or main effects of levels of affiliation and control from the specific interaction patterns reflecting complementarity. In this, the largest study of marriage to date, levels of affiliation and control were much better predictors of relationship quality and affect than were their respective combinations or interactions.

The consistent finding that complementarity was not associated with higher levels of relationship quality challenges tenets of interpersonal theory regarding the relationship consequences of complementary interactions. Furthermore, the finding that complementarity did not predict affective responses during marital interaction also challenges tenets of interpersonal theory regarding the mechanisms maintaining complementarity. Perhaps instead of the affect-based reinforcement mechanism described in interpersonal theory, correspondence on the affiliation axis of social behavior may simply be a basic interpersonal “reflex” or response tendency, as suggested by Leary (1957, p. 123), one of the founding figures in the interpersonal perspective. Judgments of others’ behavior on the affiliation dimension represent a fundamental and universal component of social cognition (Fiske, Cuddy, & Glick, 2007), and the tendency to react to others with correspondent levels of affiliation may be a similarly basic response (Rizzolatti & Craighero, 2004). If so, in efforts to promote relationship quality or understand its determinants, the origins of the tendency to reciprocate hostility in marriage may be less important than the motives, self-regulation skills and resources, and other factors that influence the ability to inhibit, defuse, and select alternatives to the perhaps reflexive urge to reciprocate negative affect and behavior during marital interaction (Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991; Salvatore, Kuo, Steele, Simpson, & Collins, 2011; Smith et al., 2011). That is, to prevent or interrupt reciprocating hostility and the resulting heightened and escalating levels of hostile marital behavior typical of distressed couples, facilitating executive cognitive control (Williams, Suchy, & Rau, 2009) over this otherwise automatic response tendency may be a useful focus in future research and in efforts to improve relationship quality.

**Declaration of Conflicting Interests**

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**Notes**

1. We also assessed self-reported affiliation and control during the disagreement task in Study 1 (Wiggins, Trapnell, & Phillips, 1988). Using these scales, we found no evidence of complementarity in control, $r(114) = .05$, $p > .05$, but significant affiliative complementarity, $r(114) = .40$, $p < .001$. Individuals may be motivated to perceive interactions and relationships as complementary (Moskowitz, Ho, & Turcotte-Tremblay, 2007; Sadler, Ethier, & Woody, 2011; Tiedens, Unzueta, & Young, 2007). Therefore, we examined complementarity through husbands’ perceptions (i.e., correlations of husbands’ report of their own behavior with their Impact Message Inventory–Circumplex [IMI-C] rating of wives’ behavior) and wives’ perceptions. Both husbands and wives perceived strong affiliative complementarity, $r(114) = .53$ and $.60$, respectively, both $p < .001$, but neither perceived complementarity on control, $r(114) = .02$ and $-.16$, respectively, both $p > .05$.

2. We also tested whether statistical interactions were significant when using participants’ perceptions of complementarity. Specifically, we analyzed each spouse’s self-report along with his or her rating of the partner’s behavior in predicting affect during the disagreement task and Relationship Quality, to determine...
whether complementarity “in the eye of the beholder” predicted these outcomes. The significant first-order effects were consistent with those found for partner rating models. Specifically, actor and partner affiliation during the disagreement task was positively associated with Relationship Quality and negatively associated with anger and anxiety. Actor and partner control was negatively associated with Relationship Quality and positively associated with anger and anxiety. There were also significant interactions in these models, but like the partner rating results, no interactions were consistent with complementarity theory. Instead, interactions represented synergistic adverse effects of low affiliation and synergistic beneficial effects of high affiliation or low control.

3. In some studies of the correlates of complementarity, complementarity if affiliation and control are tested separately by calculating an index for each dimension (e.g., Ansell et al., 2008). To determine whether these complementarity indexes include significant main effect or first-order variance as well as the specific statistical interaction patterns that can reflect complementarity directly (i.e., Wife affiliation × Husband affiliation; Wife control × Husband control), we conducted 10 multiple regressions, one for affiliation and one for control, using the spouse ratings for Study 1, spouse ratings for the disagreement task in Study 2, observer ratings for the disagreement task in Study 2, spouse ratings during the collaboration task in Study 2, and the observer ratings for the collaboration task in Study 2. In each case, the dependent variable was the overall complementarity index (Ansell et al., 2008), and the simultaneous predictors were the two first-order effects (wives’ and husbands’ affiliation or control) and the product term interaction that—depending on the pattern—would capture complementarity (Wife affiliation × Husband affiliation, or Wife control × Husband control). All 10 regressions were significant, \( R^2 > .38, p < .00 \). The product term interaction potentially reflecting complementarity was significant, \( p < .05 \) or lower, in 9 of 10 instances, with a median \( \beta = .36, p < .001 \). Importantly, of the 20 first-order effects across these 10 regressions, 16 first-order effects were significant at \( p < .05 \) or less, median \( \beta = .26, p < .001 \). Furthermore, across these 10 regressions, at least one first-order effect was significant in each case, and in 5, both first-order effects were significant. Hence, prior tests of the relationship quality correlates of complementarity in studies using these affiliation and control complementarity indexes could reflect the specific conceptual pattern of complementarity, but they also could reflect the first-order or main effects of partners’ levels of affiliation or control. The current study highlights the importance of this statistical issue, because in the present results the levels of affiliation and control were much more consistent predictors of outcomes than the product term of interactions.

References


