The Interpersonal Process Model of Demand/Withdraw Behavior

Brian R. Baucom and Janna A. Dickenson
University of Utah

Donald H. Baucom and Melanie S. Fischer
University of North Carolina, Chapel Hill

The demand/withdraw interaction pattern is a dysfunctional cycle of behavior that is highly prevalent during relationship conflict in distressed romantic relationships (see Eldridge & Baucom, 2012, for a review). It occurs when one partner, the demander, nags, criticizes, or complains while seeking a change in the relationship and the other partner, the withdrawer, avoids discussion of change, changes the subject of conversation, or refuses to respond at all together (Christensen, 1987). A large body of theory and research is devoted to uncovering factors associated with demand/withdraw behavior, and one line of research focuses specifically on associations between conflict-related emotional arousal and demand/withdraw behavior. Work on demand/withdraw behavior and emotional arousal has been guided primarily by the escape-conditioning model (Gottman & Levenson, 1988), which proposes that the key driver of demand/withdraw behavior is the emotional arousal of the withdrawing individual. However, this model largely ignores the demander’s arousal, as well as the within and between partner associations common in couple conflict. The current study proposes an interpersonal process model that includes pathways between emotional arousal, withdrawing behavior, and demanding behavior and tests the model during the problem-solving interactions of 55 German couples.

Demand/Withdraw Behavior

Demand/withdraw behavior is associated with a wide range of negative individual and relational sequelae. More specifically, higher levels of demand/withdraw behavior co-occur with highly destructive and damaging relationship behaviors, such as intimate
partner violence (Holtzworth-Munroe, Smutzler, & Stuart, 1998) and infidelity (Balderrama-Durbin, Allen, & Rhodes, 2012). In addition, demand/withdraw patterns are associated with longitudinal declines in relationship satisfaction (e.g., Heavey, Christensen, & Malamuth, 1995), as well as being associated with a range of negative physical and mental health outcomes (e.g., alcoholism, decreased well-being, and increased depressive symptoms; Kelly, Halford, & Young, 2002; Rehman, Ginting, Karimih, & Goodnight, 2010; Siffert & Schwartz, 2011). Moreover, this is a common pattern of relationship interaction within couples seeking therapy and often a focus of therapy (e.g., Eldridge, Sevier, Jones, Atkins, & Christensen, 2007; Wile, 2013). Finally, a growing body of research finds demand/withdraw behavior to be prevalent in distressed couples in numerous countries and cultures including Argentina (Falconier & Epstein, 2011), Australia (Noller, Feeen, Bonnell, & Callan, 1994), Belgium (Verhofstadt, Buysee, de Clercq, & Goodwin, 2005), Brazil, Italy, and Taiwan (Christensen, Eldridge, Catta-Preta, Lim, & Santagata, 2006), Germany and Switzerland (Bodenmann, Kaiser, Hahlweg, & Fehm-Wolsdorf, 1998), the Netherlands (Kluver, Heesink, & Van de Vliert, 1997), Pakistan (Rehman & Holtzworth-Munroe, 2006), and the United States (e.g., Christensen & Heavey, 1990), demonstrating the widespread nature of the behavioral cycle.

One enduring aim of research on demand/withdraw behavior is to understand why some partners take on a demanding role and others take on a withdrawing role. In heterosexual relationships, women demand more than men, and men withdraw more than women, particularly when discussing an area of relationship change identified by a female partner (e.g., Baucom, McFarland, & Christensen, 2010; Christensen & Heavey, 2010). One explanation for this gender difference comes from the escape conditioning model. The escape-conditioning model suggests that men withdraw because they are more sensitive to relationship conflict than women, experience high levels of aversive emotional arousal during relationship conflict, and withdraw to reduce their aversive arousal (Gottman & Levenson, 1988). Initial support for this model came from evidence that men show stronger physiological reactivity to naturally occurring and experimentally manipulated stressors than women (Gottman & Levenson, 1988).

However, subsequent empirical support for the escape conditioning model has been mixed. Some studies find women, rather than men, to be more physiologically reactive to relationship conflict (e.g., Kiecolt-Glaser, Newton, Cacioppo, MacCallum, Glaser, & Malarkey, 1996). In addition, most studies that directly examine emotional arousal and demand/withdraw behavior fail to find the hypothesized association between higher levels of an individual’s own emotional arousal and higher levels of his or her own withdrawing behavior (Baucom et al., 2011; Denton et al., 2001; Kiecolt-Glaser, Bane, Glaser, & Malarkey, 2003; Kiecolt-Glaser et al., 1996; Loving, Heffner, Kiecolt-Glaser, Glaser, & Malarkey, 2004; Vogel et al., 2008). An exception to this pattern of findings comes from the work of Verhofstadt and colleagues (Verhofstadt et al., 2005), who find higher levels of self-reported arousal to be associated with higher levels of withdrawing behavior for women. However, this study also finds higher levels of self-reported emotional arousal to be associated with lower levels of withdrawing behavior for men.

Despite this inconsistent empirical evidence, the notion that demand/withdraw behavior and emotional arousal are tightly linked for withdrawing partners continues to figure prominently in empirical investigations, clinical case studies, and couple therapy manuals (e.g., Wile, 2013). A number of explanations could be offered for the inconsistency in anecdotal and empirical evidence, such as reduced ecological validity of laboratory-based observational research (e.g., Heyman, 2001) or misinterpretation of processes observed during psychotherapy sessions (e.g., Nickerson, 1998). The escape-conditioning model fundamentally focuses on the within-person association of an individual’s arousal and that same person’s behavior (i.e., increased arousal leads to increased withdrawing). However, this ignores the dynamic interplay of partners within a conflictual interaction. How might partners’ arousal and mutual demand/withdraw behaviors influence one another within the broad network of interpersonal and intrapersonal associations?

Intra- and Interpersonal Linkages in Emotional Arousal and Demand/Withdraw Behavior

The defining feature of the escape-conditioning model is that withdrawing partners withdraw because they experience relationship conflict as intensely aversive. This idea was originally proposed as an intrapersonal process with little regard given to the role of a demander’s behavior or accompanying emotional arousal. Polarization theory and existing findings suggest that emotional arousal and demand/withdraw behavior may influence one another through a combination of intrapersonal and interpersonal pathways.

Polarization theory (e.g., Baucom et al., 2010; Jacobson & Christensen, 1996) describes demand/withdraw behavior as a cyclical pattern of interaction in which each partner’s behavior occurs as a result of, and serves as a precipitant for, the other partner’s behavior. Demanders demand both because they want some kind of change and because their partner is withdrawing, and withdrawing partners withdraw both because they want to preserve the status quo and because their partner is demanding. Polarization occurs when both partners’ behavior becomes more extreme over time as they intensify their behavior in response to previously unsuccessful attempts to resolve conflict. For example, if a demanding partner is unsuccessful in obtaining a desired change, s/he often makes an even stronger demand for that same change in the future. The withdrawing partner may respond in kind with stronger resistance to the intensified demand, and the cycle is set on a path of continued escalation.

The polarization process is also thought to extend to both partner’s emotional reactions during demand/withdraw interaction. Although both partners are likely to experience the demand/withdraw cycle as frustrating and aversive, the polarization process is likely to contribute to increased emotional reactivity for demanding spouses more so than for withdrawing spouses. One reason that this effect is likely to occur is that demanding spouses likely need higher levels of motivation to continue to pursue change when they have been repeatedly rebuffed and previous conversations about the desired change have been highly aversive. Higher levels of a demander’s demanding behavior are therefore likely to coincide with higher levels of that partner’s own emotional arousal. Higher levels of a demander’s emotional arousal are also likely to be related to higher levels of a withdrawing partner’s withdrawing behavior, because the withdrawing partner likely experiences the
demanding partner’s increased level of emotional arousal as increased emotional pressure for change and increases the intensity of his or her resistance in kind. When this resistance takes the form of withdrawing behavior, it is likely to co-occur with emotional withdrawal as indicated by decreased levels of emotional arousal. Demanders likely experience decreases in withdrawers’ emotional arousal as indications that withdrawers are not willing to actively engage in the discussion and intensify their demanding behaviors accordingly. Thus, the polarization process involves increasing emotional arousal from the demander in conjunction with decreased emotional arousal from the withdrawer.

Existing empirical evidence provides initial support for intrapersonal and interpersonal pathways linking both partners’ demand/withdraw behavior to their own and their partner’s emotional arousal. For example, several studies link higher levels of an individual’s own emotional arousal to higher levels of his or her own demanding behavior (e.g., Baucom et al., 2011; Verhofstadt et al., 2005). Additionally, two studies find that higher levels of an individual’s withdrawing behavior are linked to higher levels of the other partner’s emotional arousal (Heffner et al., 2006; Kiecolt-Glaser et al., 1996). Finally, there is some evidence that emotional arousal is linked to both partners’ behaviors rather than to either in isolation. For example, Denton et al., (2001) found that demanding husbands are significantly more physiologically aroused when interacting with withdrawing wives than when interacting with demanding wives.

Implications of Different Modalities of Emotional Arousal for Demand/Withdraw Behavior

Links between demand/withdraw behavior and emotional arousal have been examined using physiological indices (e.g., Kiecolt-Glaser, Bane, Glaser, & Malarkey, 2003), subjective reports (e.g., Verhofstadt et al., 2005), and vocally encoded emotional arousal (e.g., Baucom et al., 2011). These different approaches to assessing emotional arousal have differential utility for evaluating a model that includes intrapersonal and interpersonal pathways between emotional arousal and demand/withdraw behavior. Of these methods, measures of vocally encoded emotional arousal have particular appeal because they are related to partners’ unobservable, internal emotional states (physiological activation [e.g., Weusthoff, Baucom, & Hahlweg, 2013a] and subjective experience [e.g., Baucom et al., 2012]), and they communicate information about those internal emotional states to the other partner. These qualities make vocally encoded emotional arousal an advantageous candidate for examining both intrapersonal and interpersonal pathways linking demand/withdraw behavior and emotional arousal.

An additional benefit of vocally encoded emotional arousal is that it changes rapidly and can be measured at a high level of precision without the need for invasive equipment. This quality is beneficial because it permits examination of linkages between demand/withdraw behavior and emotional arousal on both a short-term and a long-term basis. Existing work has focused on examining associations on a long-term basis in testing whether the total amount of demand/withdraw behavior during conflict is related to the total amount of arousal during conflict. In addition to this overall association, it is also possible that demand/withdraw behavior and emotional arousal could fluctuate with one another as conflict unfolds (e.g., Wile, 2013). It may be that periods of particularly intense demand/withdraw behavior are associated with particularly intense emotional arousal independent of how much overall demand/withdraw behavior a couple engages in and how aroused spouses are over the whole of the discussion.

Hypotheses

The current study proposes the interpersonal process model of demand/withdraw behavior as a framework for integrating existing findings with polarization theory. The model (depicted in Figure 1) includes intrapersonal and interpersonal linkages between partners’ behavior and emotional arousal. This proposed model is tested by examining intrapersonal and interpersonal pathways between vocally encoded emotional arousal and demand/withdraw behavior on both a short-term and a long-term basis during relationship conflict. Paths between emotional arousal and demand/withdraw behavior and covariances among emotional arousal and among demand/withdraw behavior are hypothesized to be consistent with those depicted in Figure 1. With regard to associations between emotional arousal and demand/withdraw behavior, higher levels of each partner’s own emotional arousal are hypothesized to be associated with higher levels of the partner’s own demanding, lower levels of the partner’s own withdrawing, higher levels of the other partner’s withdrawing, and lower levels of the other partner’s

**Figure 1.** Conceptual representation of the interpersonal model of demand/withdraw behavior. Hypothesized positive associations are represented by the + symbol, and hypothesized negative associations are represented by the — symbol. Demanding and withdrawing variables are grouped to illustrate demand/withdraw interaction patterns involving both partners.
demanding. With regard to associations between partners’ demanding and withdrawing behaviors, higher levels of a partner’s demanding are hypothesized to covary with lower levels of that partner’s own withdrawing, higher levels of the other partner’s withdrawing, and lower levels of the other partner’s demanding. Finally, partners’ levels of emotional arousal are hypothesized to covary negatively. These associations are hypothesized to emerge within 5-min segments as well as over the entirety of a problem solving discussion.

**Methods**

**Participants**

Participants (N = 55 couples) are a subsample of 65 couples recruited for participation in an efficacy trial of a cognitive–behavioral, relationship distress prevention seminar, Ein partnerschaftliches Lernprogramm (EPL; Hahlweg, Markman, Thurmaier, Engl, & Eckert, 1998). Couples were randomly assigned either to EPL or a waitlist control condition. See Kaiser, Hahlweg, Fehm-Wolfsdorf, and Groth (1998) for additional details about recruitment and EPL.

All couples in this study had been dating at least 1 year. Approximately 77.5% of couples were married for an average of 11.2 years (SD = 10.7 years, range = 1–40 years). Couples’ relationship quality, as assessed by the Partnerschaftsfragebogen (Hahlweg, 1996), ranged from nondistressed to severely distressed with the majority of couples indicating current relationship distress (M = 46.7, SD = 12.9). All couples were opposite sex couples. Women were between the ages of 24 and 63 years (M = 39.5, SD = 8.4), and men were between the ages of 25 and 67 (M = 42.1, SD = 9.0). All participants identified as White, and 60% of participants had at least high school equivalent education.

**Procedures**

Interested couples responded to a newspaper announcement for a communication seminar for couples who wanted to learn more effective ways to communicate and to solve problems in their relationships. The advertisement made clear that the seminar was intended to assist couples prior to the development of significant relationship problems and was not intended to be marital therapy. All couples completed an identical laboratory assessment that included a battery of self-report measures and was not intended to be marital therapy. All couples completed an additional 5-min segment that was an identical laboratory assessment. Each couple was instructed to share their thoughts and feelings about the relationship and to independently complete a problem list questionnaire. Spouses then selected a topic for discussion that was highly relevant to their relationship and agreed on by both spouses. First, both spouses identified areas of actual concern by independently completing a problem list questionnaire, and these areas were rated on a 5-point Likert scale by both partners (i.e., facial expression), physiology, and subjective emotion to moderate associations between other forms of emotional expression (i.e., facial expression), physiology, and subjective emotion (e.g., Bradley & Lang, 2000), higher f0 is moderately associated with higher levels of physiological activation (heart rate, systolic blood pressure, skin conductance, and cortisol output) and greater self-reported negative emotion during couple and family conflict (Baucom et al., 2012; Weusthoff et al., 2013a). This operationalization of emotional arousal draws on component process (e.g., Scherer, 1982) and circumplex (e.g., Bradley & Lang, 1994) models of emotion. In these models, emotion is understood to vary along the continuous dimensions of valence, which refers to how positive versus negative an emotion is, arousal, and dominance, which refers to how dominant versus submissive an emotion is. These models suggest that particular combinations of the three dimensions correspond to different specific emotions. For example, anger would be reflected by high negative valence, high arousal, and high dominance. In contrast, sadness would be reflected by high negative valence, low arousal, and low dominance.

Mean f0 was measured continuously for each member of the couple during the problem solving discussions by bandpass filtering the audio recordings to restrict f0 values to the normal range of adult speech (between 75 and 300 Hz; Juslin & Scherer, 2005). Mean f0 values outside of this range were assumed to be the result of nonverbal vocalizations (e.g., coughing) or background noise of various kinds. The recordings of 10 couples contained a large amount of background noise, were of poor quality (i.e., sound-to-noise ratio of less than 5 dB), or both. Reliable estimates of mean f0 could not be obtained from these recordings and these recordings were therefore excluded from analyses. Mean f0 values were calculated for each partner by averaging mean f0 over each 5-min segment of the problem solving discussion. Mean f0 values were divided by 30 prior to analysis to prevent ill-scaling (Kline, 2011). Higher mean f0 values indicated higher levels of emotionally encoded arousal.

**Observed communication.** Demand and withdraw behaviors during the problem-solving discussions were coded using an adapted version of the Couples Interaction Rating System, 2nd edition (CIRS-2; Heavey, Gill, & Christensen, 2002). The CIRS-2 contains two codes for demanding behavior (blames and pressures for change) and three codes for withdrawing behavior (withdraws, avoidance, and reverse scored discussion); the current study used both demanding behavior codes and the two withdrawing behavior codes that directly assess withdrawing behavior (withdraws and avoidance). Separate demanding and withdrawing scores were obtained for each partner for each 5-min segment by averaging each partner’s codes for each 5-min segment. Behaviors were coded in 5-min segments to allow for maximum time within each segment while also breaking discussions into enough segments to generate estimates of within-couple behavior. There were a small number of outliers (n = 5 scores) for husband withdraw (1 score), wife withdraw (3 scores), and husband demand (1 score) that were more than 3 standard deviations above the mean of each respective
scale; these scores were winsorized to be equal to the next largest score. Twenty-two percent (n = 12 couples) of problem solving discussions were double-coded to establish interrater reliability. Cronbach’s alpha was 0.96 for demanding behaviors and 0.72 for withdraw behavior at the between-couple level and 0.91 for demanding behaviors and 0.69 for withdraw behavior at the within-couple level. Higher scores indicate higher levels of the behavior.

**Analysis Plan**

The research questions in the current investigation focus on how emotional arousal measured by f₀ is associated with demand/withdraw behaviors, including both partners’ data and allowing for cross-partner associations. In addition, each partner has three repeated measures corresponding to consecutive 5-min portions of the problem solving discussion. To incorporate these aspects of the data, hypotheses were tested using repeated measures actor-partner interdependence models (APIM; Kenny et al., 2006) fit via multilevel structural equation modeling in MPLUS version 6 (Muthén & Muthén, 1998–2011). Four dependent variables (husband’s withdrawing behavior, husband’s demanding behavior, wife’s withdrawing behavior, and wife’s demanding behavior) were modeled as a function of his or her own f₀ (actor effect) and his or her partner’s f₀ (partner effect; see Figure 2). In addition, between- and within-couple models were specified, corresponding to couple-average associations and within-couple associations. An initial baseline model was run to examine covariances between partners’ behavior and between partners’ vocally encoded emotional arousal in isolation (i.e., without paths from vocally encoded emotional arousal to demand/withdraw behavior). This model allows for examination of the hypothesized interpersonal processes within vocally encoded emotional arousal and demand/withdraw behavior, separately. A full model (the final model) was then run that included the covariances from the baseline model plus the addition of all actor and partner paths from vocally encoded emotional arousal to demand/withdraw behavior. Sensitivity analyses were run to ensure that within-couple associations were not influenced by growth over time in husband and wife f₀. Procedures recommended in Curran and Bauer (2011) were used to linearly detrend husband and wife f₀, and the baseline and final models were rerun using detrended values of f₀. Results were highly consistent with those obtained using nondetrended values of f₀ and are available from the Brian R. Baucom.

**Results**

Table 1 presents means, standard deviations, and correlations between study variables. Between-partner correlations are below

![Figure 2](https://example.com/figure2.png)

*Figure 2.* Final repeated-measures actor-partner interdependence model. Unstandardized path coefficients are reported, and parameter estimates are included only for significant paths to ease visual presentation. *p < .05, **p < .01.
the diagonal and within-partner correlations are above the diagonal. As expected from biological differences in anatomy, mean f₀ is higher for women than men. Consistent with prior research on demand/withdraw behavior, positive correlations emerged between one partner’s demanding and the other partner’s withdrawing at both between- and within-couple levels. In addition, higher wife mean f₀ was correlated with wife demanding and husband withdrawing behaviors in hypothesized directions, and higher wife mean f₀ was correlated with higher husband mean f₀ at the within-partner level.

Baseline Model

Figure 2 displays the full repeated-measures APIM that estimates actor and partner paths at the within- and between-couple levels. To arrive at this model, a baseline model was run that included covariance terms between demanding and withdrawing behaviors and between mean f₀; however, paths from f₀ to demanding and withdrawing behaviors were excluded at both within- and between-couple levels in the baseline model. This model estimates associations within each domain (emotion and behavior) and replicates prior research examining polarization of demand/withdraw behavior (Baum et al., 2011). Consistent with expectations, higher levels of wife demand were significantly associated with higher levels of husband withdraw (B = 0.10, p = .045) at the within-couple level. Contrary to hypotheses, higher levels of wife mean f₀ were associated with higher levels of husband mean f₀ (B = 0.012, p = .022) at the within-couple level. Similar findings emerged for demand/withdraw behavior at the between-couple level with significant associations between higher levels of wife demand and higher levels of husband withdraw (B = 0.28, p = .035) and between higher levels of husband demand and higher levels of wife withdraw (B = 0.17, p = .025). All other associations were nonsignificant.

Final Model: Within-Couple Level

All paths and covariances from the full multilevel structural equation modeling are found in Table 2, and significant paths are displayed in Figure 2. Addition of paths from mean f₀ to demanding and withdrawing behaviors resulted in strong evidence of improved model fit relative to the baseline model. Sample-sized adjusted Bayesian Information Criteria (BIC_{SSA}) for the final model (BIC_{SSA} = 1295.07) was 18.2 points lower than that for the baseline model (BIC_{SSA} = 1313.20). Lower BIC values indicate better model fit, and differences of 10 points or more are considered to indicate strong evidence of better model fit in the model with the lower BIC relative to the model with the higher BIC (Raftery, 1995). In addition, significant actor and partner associations emerged between mean f₀, and demand/withdraw behavior and covariance terms between demanding and withdrawing behaviors that were significant in the baseline model were no longer significant. First examining paths from mean f₀ to demand/withdraw behavior, wives’ demanding behavior was significantly related to their own and their partners’ mean f₀. Specifically, higher

<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimate</th>
<th>SE</th>
<th>Within-partner</th>
<th>Estimate</th>
<th>SE</th>
<th>Between-partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husband demand</td>
<td>-0.56*</td>
<td>0.25</td>
<td>-0.19</td>
<td>0.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife f₀</td>
<td>1.12***</td>
<td>0.29</td>
<td>0.41</td>
<td>0.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husband withdrawal behavior</td>
<td>-0.14</td>
<td>0.14</td>
<td>0.09</td>
<td>0.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife f₀</td>
<td>0.53*</td>
<td>0.24</td>
<td>0.10</td>
<td>0.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husband demanding behavior</td>
<td>0.34</td>
<td>0.19</td>
<td>-0.01</td>
<td>0.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife f₀</td>
<td>0.29</td>
<td>0.18</td>
<td>0.36</td>
<td>0.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husband withdraw behavior</td>
<td>0.19*</td>
<td>0.09</td>
<td>0.07</td>
<td>0.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife f₀</td>
<td>-0.25*</td>
<td>0.11</td>
<td>0.08</td>
<td>0.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Covariance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife demand–husband withdraw</td>
<td>0.07</td>
<td>0.03</td>
<td>0.28*</td>
<td>0.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife withdraw–husband demand</td>
<td>0.03</td>
<td>0.02</td>
<td>0.16*</td>
<td>0.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife demand–husband demand</td>
<td>0.07</td>
<td>0.05</td>
<td>-0.15**</td>
<td>0.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husband demand–husband withdraw</td>
<td>0.02*</td>
<td>0.01</td>
<td>0.01</td>
<td>0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husband withdraw–husband withdraw</td>
<td>-0.01</td>
<td>0.02</td>
<td>-0.05</td>
<td>0.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife demand–wife withdraw</td>
<td>0.01</td>
<td>0.02</td>
<td>-0.05</td>
<td>0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife f₀–husband f₀</td>
<td>0.01*</td>
<td>0.01</td>
<td>0.06</td>
<td>0.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Robust standard errors are reported. f₀ = fundamental frequency.
* p < .05. ** p < .01.
values of wives’ demanding behavior were associated with higher values of own mean $f_0$ and lower values of husbands’ mean $f_0$. This suggests that during segments when wives’ vocally encoded emotional arousal was higher and husbands’ vocally encoded emotional arousal was lower, wives engaged in more demanding behavior. In addition, higher values of husbands’ withdrawing behavior were significantly associated with higher values of wives’ mean $f_0$, suggesting that during segments when wives’ vocally encoded emotional arousal was higher, husbands’ withdrawing behavior also was higher. Finally, higher values of wives’ withdrawing behavior were significantly associated with lower values of her own mean $f_0$ and higher values of husbands’ mean $f_0$.

Examining covariances, the covariance between husbands’ and wives’ mean $f_0$ remained significant, but the covariance between wife demand and husband withdraw was no longer significant. This change in significance suggests that the paths from mean $f_0$ partially account for the covariance between demanding and withdrawing behaviors. In addition, the covariance between husband and wife withdrawing behavior emerged as significant; this covariance was not significant in the baseline model. All other paths and covariances were nonsignificant.

**Final Model: Between-Couple Level**

At the between-couple level, all paths from mean $f_0$ to demand/withdraw behavior were nonsignificant and three covariances emerged as significant. Higher levels of wife demand were significantly associated with higher levels of husband withdraw; higher levels of husband demand were significantly associated with higher levels of wife withdraw; and lower levels of husband demand were significantly associated with higher levels of wife withdraw.

**Post Hoc Exploratory Analyses**

To further interpret the results reported above in light of previous research on gender differences in demand/withdraw behavior, we examined estimated intercepts at the between-couple level to see if the problem-solving discussion was characterized primarily by a wife demand/husband withdraw pattern or a husband demand/wife withdraw pattern. Significant differences between partners’ behaviors were tested by constraining the intercept for each behavior to be equal across partners and examining change in the chi-square value for the model using procedures recommended for MSEM (e.g., Stapleton, 2006). Separate models were run to compare demanding behaviors and withdrawing behaviors. Results revealed wife demanding ($M = 2.56, 95\%$ confidence interval [CI] [2.32, 2.81]) was significantly higher than husband demanding ($M = 1.89, 95\%$ CI [1.72, 2.05]; $\Delta \chi^2(1) = 15.34, p < .001$) and that husband withdraw ($M = 1.45, 95\%$ CI [1.27, 1.62]) was significantly higher than wife withdrawing ($M = 1.26, 95\%$ CI [1.15, 1.38]; $\Delta \chi^2(1) = 5.28, p = .022$). These findings indicate that conversations were, on average, characterized by wives being in a demanding role and husbands being in a withdrawing role.

**Discussion**

This study presents and tests an interpersonal process model of demand/withdraw behavior and vocally expressed emotional arousal. When examined in isolation, partners’ demanding and withdrawing behaviors were related to one another both within the 5-min segments as well as over the whole interaction, and partners’ vocally encoded arousal were linked within the 5-min segments. When examined in combination, linkages emerged between partners’ vocally encoded arousal and demand/withdraw behavior within the 5-min segments. These findings broadly support a model of demand/withdraw behavior wherein partners are responding to one another within a dyadic system, and intrapersonal arousal is both precursor and response to one’s partner. In addition, it strongly suggests that the escape-conditioning model is too restrictive to fully characterize these associations. We situate these findings within the context of existing work and consider their implications for refining conceptual models of emotional arousal and demand/withdraw behavior.

**Dyadic Behavioral and Emotional Processes in Isolation**

The significant associations that emerged between one partner’s demanding behavior and the other partner’s withdrawing behavior are consistent with the proposed interpersonal process model of demand/withdraw behavior as well as with existing empirical work. In both the current study and in Baucom et al. (2011), higher levels of one partner’s demanding were linked to higher levels of the other partner’s withdrawing, and these effects emerged for both husbands and wives. The results of the current study extend those obtained by Baucom et al. (2011) in a sample of U.S. couples by demonstrating that this polarized effect exists both on a segment-by-segment basis as well as over the conversation in a sample of German couples. Taken together, these findings suggest that the intensity of demand/withdraw behavior is a result both of behavior during a given part of a conversation (i.e., in segments when wives were particularly demanding, husbands were particularly withdrawing) as well as a difference between couples in how they handle conflict (i.e., some couples engage in higher overall levels of wife demand/husband withdraw regardless of how those behaviors vary across the course of the conversation). This is the first evidence that we are aware of that characterizes demand/withdraw behavior as both a process that plays out during interaction as well as a general style of interacting across the entire conversation that varies between couples.

The significant positive association between higher husband mean $f_0$ and higher wife mean $f_0$ was opposite of the hypothesized direction of the proposed interpersonal process model of demand/withdraw behavior. One possible explanation for this finding comes from work examining fluctuations in speakers’ mean $f_0$ during the course of a conversation. Several studies find that temporal variability in vocal variables, including mean $f_0$, tends to be associated across speakers during interaction (e.g., Gregory, Webster, & Huang, 1993). During the interactions of strangers, stronger cross-speaker association in prosodic features is associated with positive outcomes like higher perceived ratings of quality of conversation (Gregory et al., 1993). However, the function of cross-speaker associations in emotional expression and experience are thought to vary depending on the interaction context (e.g., Randall, Post, Reed, & Butler, 2013), and it is likely that cross-partner association in mean $f_0$ represents a different phenomenon within the context of conflictual interaction than during the inter-
actions of strangers. One possibility is that both partners may show similar patterns of increases and decreases in arousal because they are responding to the same behavioral context. Segments of intense conflict may provoke similar increases in arousal for both partners whereas periods of relative calm may facilitate decreases in arousal for both partners. Another possibility is that the segment-by-segment linkage between partners’ vocally encoded arousal may reflect a pattern of reciprocal transmission of negative emotional arousal; that is, partners are responding to each other’s arousal and not only to the difficulty of the issue being discussed. This possibility is consistent with evidence documenting cross-partner transmission of negative emotion and emotional arousal based on self-reports and physiological measurements (e.g., Helm, Sbarra, & Ferrer, 2012; Levenson & Gottman, 1983).

**Dyadic Behavioral and Emotional Processes in Combination**

When considered jointly, vocally encoded emotional arousal and demand/withdraw behavior were associated with one another on a segment-by-segment basis in ways that were both consistent with hypotheses and that were unanticipated. Consistent with the hypothesis for demanding behavior, higher levels of wife vocally encoded arousal and lower levels of husband vocally encoded arousal were associated with higher levels of wife demanding behavior. This finding adds further evidence to the collection of results linking higher levels of emotional arousal to higher levels of an individual’s own demanding behavior. Higher levels of wife vocally encoded arousal were also linked to lower levels of her own withdrawing behavior and to higher levels of husband withdrawing behavior, whereas higher levels of husband vocally encoded arousal were associated with lower levels of wife demanding behavior. Finally, the association between wife demand and husband withdrawal was no longer significant when paths involving vocally encoded arousal were included. In summary, wives expressed more arousal during periods when they demanded more and withdrew less and their partners withdrew more; wives demanded more during periods when their partners expressed less arousal; wives withdrew more during periods when their partners expressed more arousal; and, segment-to-segment fluctuations in vocally encoded arousal partially accounted for segment-to-segment fluctuations in cross-partner associations in demand/withdraw behavior.

This collection of findings suggests that the periods of most intense wife demand/husband withdrawal were observed during segments when wives expressed particularly high levels of arousal and husbands expressed particularly low levels of arousal. More specifically, husband withdrawing behavior was linked only to his partner’s arousal. Considered within the broader behavioral and emotional context of the interaction, this finding suggests that husbands are sensitive to vocal cues that their wives are highly aroused and that they withdraw in response. In contrast, wife demanding and withdrawing behaviors were linked with both her own and her partner’s arousal. One possible interpretation of these associations is that when one partner is intent trying to engage the other in a discussion of a desired change and the other expresses a low level of emotional arousal and low behavioral engagement, the initiating/demanding partner may increase her emotional intensity and demanding behavior as a means of conveying the importance of the discussion. These increases may lead to even greater emotional pressure on the withdrawing partner who appears to respond by expressing lower arousal and engaging stronger behavioral disengagement.

Importantly, these findings emerged only for wife demand/husband withdrawal behavior and only at the within-couple level. Post hoc examination of mean levels of demanding and withdrawing behaviors across partners revealed that these conversations were characterized as wives demanding more than husbands and husbands withdrawing more than wives. Findings may have emerged with wife demand/husband withdraw because it was the main pattern of behavior in which couples engaged. The emergence of associations only at the within-couple level was contrary to hypotheses and suggests that emotional expression is most strongly linked with demand/withdraw behavior as a dynamic process that unfolds over the course of a discussion rather than as a result of individual differences in emotional expression. Moreover, these findings do not rule out the possibility of associations between individual differences in emotional expression. For example, it is possible that some individuals experienced high levels of subjective arousal when the conversation as a whole is more conflictual regardless of how much variability there is in segment-to-segment demand/withdraw behavior. Such a possibility awaits examination in future research.

This collection of findings provides support for the main tenets of the interpersonal process model of demand/withdraw that distinguish it from the escape-conditioning model. Consistent with the interpersonal process model, these findings suggest that links between demand/withdraw behavior and emotion might be best conceptualized as a cyclical dyadic phenomenon in contrast to the escape-conditioning model’s intrapersonal emphasis on withdrawing. Demanders likely engage in demanding behavior because they want some kind of change in the relationship, become upset and aroused while asking for that change, and see their partners behaviorally and emotionally pull away more when they, the demanders, increase the urgency of their expressions. Withdrawers likely engage in withdrawing behavior because they do not want to engage in a discussion about change, behaviorally and emotionally disengage from their partner when forced to talk about change, and see their partners respond to their disengagement by increasing the intensity of the discussion. Phrased differently, demanders push harder for change not just because they are upset but also because their partners pull away; withdrawns pull away not only because they do not want to consider change but also because their partners are so adamant that they do so.

These results also add specificity to the nature of the associations between emotional arousal and demand/withdraw behavior within the proposed interpersonal process model. First, these findings provide initial evidence that associations between demand/withdraw behavior and expressions of emotional arousal occur on a segment-by-segment basis rather than as a result of stable individual differences in emotional expression. Second, these findings suggest that although withdrawing behavior is linked to emotional arousal, the nature of the association depends on whether a partner is in a demanding or a withdrawing role. Demanders engage in lower levels of withdrawing behavior when they themselves are more aroused, whereas withdrawers engage in higher levels of withdrawing behavior when their partners are more aroused. It is possible that these different paths emerged because of the use of an
expressive measure of emotional arousal that conveys information about each partner’s emotional state to the other. However, it is also possible that they represent a more general phenomenon of both partners being more sensitive to the demanding partner’s level of emotional arousal.

Clinical Implications

The common principles approach to couple therapy (Christensen, 2010) suggests that interrupting and preventing emotionally linked, maladaptive forms of communication behavior is one of the core principles shared among empirically supported couple therapies. The results of the current study add to the body of evidence documenting the demand/withdraw interaction pattern as one such pattern (see Eldridge & Baucom, 2012, for a review) and provide a new conceptualization for how emotional arousal and behavior are linked within this pattern. More specifically, the findings of the current study support a dyadic conceptualization of behavior and emotional arousal in the demand/withdraw interaction pattern. Caution is warranted in extending the findings of the current study to recommending intervention strategies given the correlational nature of the study. However, the findings of the current study suggest that it may be helpful for both partners to develop increased acceptance of and tolerance for the other’s emotional and behavioral reactions. Withdrawing partners would likely benefit from strategies for accepting that the issue their partners are raising is highly important to them and for staying engaged even in the face of heightened levels of arousal. Likewise, demanding partners would likely benefit from strategies that increase their ability to accept that their partners may feel less passionately about an issue that is very important to him/her and may be less invested in change and for continuing to discuss the issue without engaging in pressuring and blaming tactics. A number of couple therapies include intervention strategies for such purposes, such as empathic joining and tolerance building in integrative behavioral couple therapy (Jacobson & Christensen, 1996).

Limitations

There are several limitations to bear in mind when considering the results of the current study. First, only one measure of emotional arousal was examined, and it is therefore not possible to know whether these findings are unique to vocally encoded emotional arousal or are representative of emotional arousal as expressed and experienced across emotion components. The small to moderate associations observed between vocally encoded arousal, physiological measures of emotional activation, and subjective reports of emotional experience make it difficult to extrapolate these findings to other modalities of emotional arousal (e.g., see Weusthoff, Baucom, & Hahlweg, 2013b for a recent review). It is also possible that different modalities of emotional arousal may interact in their association with demand/withdraw behavior. For example, it is well known that attempts to minimize or suppress emotional expression result in increased physiological arousal (Gross & John, 2003). It may be that withdrawers minimize emotional expression during periods of heightened physiological or subjective arousal, and examination of the relative contributions of and interactions between different components of emotional arousal would be a beneficial direction for future research.

Second, the use of 5-min segments for quantifying demand/withdraw behavior and emotional arousal prevented examination of covariation in rapid fluctuations of behavior and emotion. It is not currently known what the optimal time window is for assessing time-varying covariation between demand/withdraw behavior and emotion or whether the selected time window of measurement impacts that covariation. It is possible that demand/withdraw behavior and emotional arousal covary on a smaller time scale than was examined in the current study. For example, blaming behavior from one spouse could evoke a rapid emotional response from the other spouse. The results of the current study cannot be interpreted as providing empirical support for such a process. Rather, the current study provides initial evidence that the relative intensities of behaviors within a 5-min segment are associated with relative intensities of emotional arousal within a 5-min segment. Exploration of different time windows of measurement would be a valuable direction for future research.

Third, the between-couple sample size (n = 55 couples) is smaller than what would be recommended by some published standards for structural equation modeling (SEM; e.g., Bentler & Chou, 1987). It is possible that the between-couple sample size contributed to the nonsignificant paths between f0 and demand/withdraw behavior at the between-couple level. However, numerous authors have noted that smaller samples can be appropriate for SEM when a model has strong covariance terms and is relatively simple (e.g., Anderson & Gerbing, 1984); both of these conditions hold in the current study and mitigate against concerns about sample size at the between-couple level. Finally, all participants in this sample were German, in heterosexual relationships, and White and these characteristics may limit generalizability. Such concerns are lessened by the consistency of findings reported in the current study and those reported in previous work that includes racial and ethnic minority participants from the United States (Baucom et al., 2012).

Summary and Future Directions

The findings of the current study provide support for the interpersonal process model of demand/withdraw behavior. They add to the body of research linking higher levels of demanding behavior to higher levels of an individual’s own emotional arousal and provide initial evidence that associations between withdrawing behavior and emotional arousal depend on a partner’s behavioral role. These findings are based on one component of emotional arousal, vocally encoded arousal. Future work on emotional arousal and demand/withdraw behavior would benefit from simultaneous examination of multiple components of emotional arousal to clarify the specificity of intra- and interpersonal pathways between emotion and behavior. Such work would also benefit from development of specific hypotheses for different components of emotional arousal. For example, it is possible that physiological and subjective components of emotional arousal are associated with demand/withdraw behavior through mainly intrapersonal pathways when considered in the context of expressive components of emotional arousal. Future work would also likely benefit from including an expanded range of communication behaviors and modalities of emotional expression. For example, it would be valuable to examine associations between emotional arousal and demand/withdraw behavior while also considering verbal and fa-
cial emotional expression as well as general conflict behavior. Another valuable direction for future research would be to extend the interpersonal process model to attempt to explain between couple differences in demand/demand and demand/withdraw behavioral cycles. Incorporating additional emotional variables, such as the specific emotions with which emotional arousal is associated, would likely be helpful in such endeavors. For example, it is likely that demand/demand behavior occurs when both spouses experience approach oriented emotions such as anger and demand/withdraw occurs when the demanding spouse experiences an approach-oriented emotion and the withdrawing spouse experiences an avoidance-oriented emotion, such as irritation or anxiety (Baucom et al., 2012). In addition, the findings of the current study provide cross-cultural replication and extension of work on vocally encoded arousal and demand/withdraw behavior (Baucom et al., 2012). Although both samples are from Western cultures, cross-cultural replication of observational findings in intimate relationship research has been rare and adds confidence to the generalizability of the findings in the current study. In sum, the interpersonal process model of demand/withdraw behavior provides a framework that integrates multiple components of emotional arousal, specifies intrapersonal and interpersonal linkages between behavior and emotion, and allows for variability in these linkages depending on partners’ specific behavioral roles. These qualities add both specificity and breadth to the nature of associations between demand/withdraw behavior and emotional arousal, and detail a number of potential directions for future research.

References


INTERPERSONAL PROCESS MODEL