Validation of a behavioral coding system for measuring mutually responsive orientation in intimate relationships

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Public Significance Statement:

The present study provides evidence of the reliability and validity of scores from an adapted behavioral coding system for assessing mutually responsive orientation (MRO)—a construct that captures a system of reciprocity, cooperation, and synchronicity—in intimate relationships. Results indicate that MRO is related to other dimensions of relationship quality but is also distinct. By observing MRO, researchers might reveal important relationship dynamics intersecting with enduring vulnerabilities and stressors that ultimately contribute to the long-term satisfaction and stability of intimate relationships and the health of individual partners.

Abstract

Mutually responsive orientation (MRO) reflects a system of reciprocity between members of a dyad (Kochanska, 2002), and MRO observed in parent-child relationships is a robust predictor of child development (Kim, Boldt, & Kochanska, 2015; Kim & Kochanska, 2012; Kochanska, Aksan, & Joy, 2007; Kochanska, Forman, Aksan, & Dunbar, 2005). The goal of the present study was to adapt an observational coding system previously validated in parent-child dyads to assess MRO in intimate relationships and test the reliability and validity of scores from this adapted coding system. 159 couples were observed engaging in a series of standardized, naturalistic, interactive contexts. A team of trained behavioral coders rated MRO across several paradigms. Participants also completed semi-structured interviews and self-report questionnaires assessing numerous dimensions of intimate relationship quality to assess convergent and divergent validity and individual and relationship health outcomes to assess criterion and incremental validity. Interrater reliability estimates established that multiple coders could reliably rate MRO across multiple contexts. As anticipated, MRO had small to moderate correlations with other relationship processes (e.g., conflict management, support), demonstrating that MRO is a unique but related dimension of intimate relationship quality. MRO scores were also associated with numerous outcomes including global relationship satisfaction, relationship security, partner mental health, and parent-infant bonding, even when controlling for neuroticism. The assessment of MRO in intimate relationships holds promise for tapping into a unique dimension of intimate relationship quality with implications for explaining a range of outcomes of interest to couples researchers.

Keywords: couples, relationship, assessment, observational, reciprocity, responsiveness

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Mutually responsive orientation (MRO) is defined as a "positive, close, mutually binding, and cooperative relationship (p. 192)" and reflects a system of reciprocity between two members of a dyad (Kochanska, 2002). To date, the construct of MRO has been exclusively studied in parent-child dyads and has been linked to a range of child socioemotional outcomes (Kim et al., 2015; Kim & Kochanska, 2012; Kochanska et al., 2007, 2005). Yet, the qualities encompassed by MRO are fundamental to any close, interpersonal relationship. As such, the measurement of MRO in intimate partner dyads holds promise for revealing powerful relationship dynamics essential for understanding healthy functioning in couples. The primary goal of the present study was to adapt an observational coding system previously validated in parent-child relationships to assess MRO in intimate relationships and test the reliability and validity of scores from this adapted coding system across multiple, ecologically-valid contexts.

Mutually Responsive Orientation: A System of Reciprocity in Relationships

In a broad sense, MRO represents the degree to which two members of a dyad have established a system of reciprocity, cooperation, and synchronicity (i.e., being in tune with one another) that helps the dyad to skillfully navigate interactions. As such, MRO is not reducible to the behaviors or emotions of individual partners but, rather, is a representation of how the couple operates at a dyadic level. MRO is embedded in research on communal relationships, suggesting that investment, connection, and engagement between two individuals in a dyadic relationship is a hallmark of healthy interpersonal dynamics (Clark, 1984). MRO also has ties to attachment theory. A secure attachment within close relationships is formed if individuals perceive their partners as consistently sensitive and responsive to their needs (Collins & Ford, 2010). When a

relationship partner expresses hostility or a lack of responsiveness and sensitivity during interactions, this signals to the individual that the partner is unavailable, untrustworthy, and cannot be relied on as a secure base which, in turn, can lead to further withdrawal and decreased closeness (Collins & Ford, 2010). Thus, experiences in a mutually responsive dyad foster a bond based in empathy and reciprocity (Kochanska, Aksan, Prisco, & Adams, 2008), which contributes to a shared working model of the relationship as a mutually responsive enterprise (Kochanska, 2002), ultimately influencing the development of secure attachment.

MRO is conceptualized and measured as a unidimensional construct (Askan, Kochanska, & Ortmann, 2006); however, several features of MRO can be observed during interactions. For example, *shared cooperation and responsiveness* are hallmarks of a mutually responsive dyad. In a healthy relationship, characterized by high levels of MRO, the dyad has mutually agreed upon expectations and routines, and each person in the dyad is responsive to the other person's needs. There is a degree of reciprocity and balance that flows naturally such that the members of the dyad work together coordinating their efforts. Further, dyads demonstrating high MRO are able to read each other's signals and engage in easy "back and forth" communication, which ultimately promotes increased connectedness between partners. Mutually responsive dyads are also high in *shared positive affect*. Relationships that are high in MRO have an affectively positive ambiance. Members of the dyad seem to genuinely enjoy being together, and interactions are harmonious and infused with positive emotions. In contrast, dyads with low MRO demonstrate clear bouts of negative affect that permeate their interactions, such as frustration, irritation, and annoyance with one another.

Conceptualizing MRO as a Distinct Dimension of Intimate Relationship Quality

A clear conceptualization of MRO, and careful consideration of how MRO converges

with closely related constructs, is essential for establishing construct validity (Clark & Watson, 2019). In the previous section, we defined MRO as key quality of interpersonal relationships, more generally; however, we must now consider how MRO relates to other dimensions of *intimate* relationships, specifically.

Increasingly, *intimate relationship quality* is conceptualized as a multidimensional construct comprised of multiple related, yet distinct facets such as conflict management, supportive responses to adversity, and shared intimacy (Lawrence, Brock, Barry, Langer, & Bunde, 2009). One of the most widely studied dimensions of relationship quality is conflict management and resolution (Bradbury, Rogge, & Lawrence, 2001; Brock, Kroska, & Lawrence, 2016). Researchers have consistently demonstrated that maladaptive strategies for resolving disagreements (e.g., displays of criticism and contempt, poor problem-solving, psychologically and physically aggressive tactics) significantly undermine the relationship and the health of each partner and, if present, their children (Karney & Bradbury, 1995; Knutson, Lawrence, Taber, Bank, & DeGarmo, 2009; Lawrence, Orengo-Aguayo, Langer, & Brock, 2012). However, researchers are also interested in how intimate relationships help partners navigate stress and adversity outside of the relationship. Thus, another widely examined dimension of intimate relationship quality is *partner support* which comprises the supportive responses of one partner (e.g., listening, providing advice or guidance, boosting one's confidence) in response to the other partner's distress. A growing body of research demonstrates the vital role of partner support in both relationship and individual health and well-being (Brock & Lawrence, 2013; Sullivan, Pasch, Johnson, & Bradbury, 2010). Other dimensions of intimate relationship quality include the overall sense of closeness, warmth, and affection in the relationship (i.e., emotional intimacy), the quality of the sexual relationship, and respect for autonomy of each partner as

individuals (Brock et al., 2016; Lawrence et al., 2011).

Taken together, past research has demonstrated that intimate relationship quality is a multidimensional construct comprised of numerous relationship dimensions that can be assessed through multiple methodologies (e.g., self-report questionnaires capturing attributions and affective experiences in response to interactions, partner reports of relational events, observable behaviors unfolding during interactions). We propose that MRO represents a unique dimension of intimate relationship quality not previously measured. Specifically, a mutually responsive orientation reflects the degree to which a couple can flexibly adjust to ongoing demands unfolding in an interaction and maintain a degree of synchronicity and connection despite those demands. It reflects whether partners have developed a natural rapport with one another that serves them as they navigate life together. We conceptualize MRO as intricately tied to metacommunication, or "messages about messages" (Bateson, Jackson, Haley, & Weakland, 1956), in which communication is qualified by secondary signals, such as gestures, facial expressions, and intensity and inflection of the voice. In this way, couples with high MRO are characterized by congruency of verbal and non-verbal messages, which are exchanged with ease, whereas couples with low MRO might communicate using double binds (incongruent messages).

Although we conceptualize MRO as reflecting a unique dimension of intimate relationships, we also view MRO as having some degree of overlap with other key relationship dimensions. In particular, in order to be mutually responsive, we would expect partners to draw from a strong emotional bond and high degree of trust. If couples feel disengaged, we expect responsiveness on a moment-to-moment basis to be impaired. Further, if couples are relatively disengaged and out of sync with one another, this might also undermine the quality of their sexual relationship. If couples exhibit poor conflict management skills, we anticipate that this

will also weaken MRO by disrupting coordinated routines and infusing interactions with negativity. We also expect that couples will be more skilled at supporting one another during stressful times and adversity to the extent that they are in tune with one another's needs. In sum, we conceptualize MRO as a related, but also distinct, dimension of intimate relationship quality.

How MRO Can Inform Theory and Research on Couple Relationships

MRO has been exclusively studied in the context of parent-child dyads despite MRO representing an important dimension of any close, interpersonal relationship. As such, the investigation of a mutually responsive orientation between intimate partners holds promise for understanding the course of couple relationships. There are several unique features of the measurement of MRO that underscore how investigations of this relational construct might enhance our understanding of couple relationships. First, because the measurement of MRO is focused on capturing a general, underlying quality of the relationship--as opposed to isolating specific behaviors unfolding during interactions--patterns of behaviors displayed by members of the dyad in response to one another are observed, but so is the overall "essence" of the relationship. MRO reflects a degree of synchronicity (i.e., partners are in tune with one another) as an interaction unfolds. Dyads demonstrating high levels of MRO display a relaxed and easy way of engaging that reflects coordinated routines that have developed over time. Interactions are also infused with warmth and positivity, and both members of the dyad appear to be genuinely appreciating one another's company. As such, relative to other behavioral coding systems designed to isolate specific instances of certain behaviors (e.g., the frequency at which an individual engages in an aggressive act during conflict, the number of attempts made to solicit support), the assessment of MRO involves observing the overall pattern and nature of the interaction as it unfolds at the macro level, reflecting an underlying quality of the relationship.

Second, another unique feature of MRO is that it is expected to transcend and permeate a wide range of interactions. This is in contrast to other qualities of relationships that might be more context-specific. For example, social support involves helping behaviors provided by one person in response to stress or adversity experienced by the other member of the dyad. Thus, observations of partner support require specific contexts during which one person discusses a problem or stressor and the other person is instructed to respond. Further, one of the most widely studied intimate relationship processes is conflict management yet, this dimension of the relationship is specific to circumstances under which members of the dyad disagree and engage in an argument. In contrast, MRO should, in theory, be observable across almost any context involving interaction between intimate partners, although we do expect MRO levels to fluctuate to some degree across different types of interactions. In sum, MRO holds promise as a construct that can be flexibly integrated into conceptual models and a vast array of research designs.

Third, another advantage of measuring MRO is that it is quantified on a continuous scale with high scores reflecting a greater degree of cooperation and positivity. Low scores of MRO do not simply reflect the absence of these positive qualities but, rather, also capture the presence of negative, adversarial qualities that undermine the system of reciprocity (e.g., frequent annoyance with one another, tendency to work separately rather than as a team, and difficulty adopting the perspective of the other). By capturing the wide spectrum of relational quality ranging from negative to positive, researchers might be better suited to test hypotheses pertaining to how the broad spectrum of relational functioning ultimately impacts outcomes.

Finally, it is worth acknowledging that multiple methods (e.g., observational, self-report surveys, semi-structured interviews) could be employed to assess relationship quality; yet, there are disadvantages to exclusively relying on self-reports. First, participants may feel pressured to

respond to questions about their relationship in a socially desirable manner or have limited insight into areas of conflict and discord (Heyman, Feldbau-Kohn, Ehrensaft, Langhinrichsen-Rohling, & O'Leary, 2001; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Second, self-reports are subject to retrospective recall biases (Coughlin, 1990; Podsakoff et al., 2003). Third, when other variables (e.g., depression) are measured using the same method, shared method variance may overestimate effects (Podsakoff, MacKenzie, & Podsakoff, 2012). Taken together, it is evident why behavioral observation has been considered a "cornerstone of basic and applied relationship science" (Baucom, Leo, Adamo, Georgiou, & Baucom, 2017, p.972; Gottman & Notarius, 2000; Heyman, 2001) and has the potential to enrich data collected through other methods. Yet, it is notable that observational coding requires more time and personnel investment than other methods. One of the advantages of measuring MRO is that it involves watching an interaction as it unfolds (e.g., 10 minutes of planning a vacation) and assigning a macro-level code quantifying the overall quality of that interaction. As such, coding is less time-intensive than other behavioral coding systems focused on micro-level coding during discrete epochs (e.g., tallying behaviors or facial expressions occurring every 10 seconds throughout the course of an interaction).

The Present Study

The primary goal of the present study was to adapt an observational coding system previously validated with parents and children to assess MRO in intimate relationships, and test the reliability and validity of scores from this adapted coding system across multiple, ecologically-valid contexts. Initially, we applied this coding system to a well-established paradigm for observing MRO that involves planning a vacation. This is a task used in past research assessing MRO between parents and older children (e.g., 10 and 12-years-old; Boldt,

Kochanska, & Jonas, 2017; Kochanska, Boldt, Kim, Yoon, & Philibert, 2014). This task is ideally suited for observing MRO given it provides ample opportunities for dyads to communicate their opinions, navigate potential disagreements and make decisions, and work together to achieve a goal. Further, the task has a high degree of ecological validity and provides an ideal opportunity to observe the dyad as they engage in what is intended to be an enjoyable task that also has the potential to elicit problem-solving and negotiation.

Additionally, we observed MRO in a research paradigm widely implemented in couples research to assess behaviors spouses display during supportive interactions (Pasch & Bradbury, 1998). Although this particular task has not been used in past research examining MRO in parent-child dyads, we believe it is ideally suited for assessing MRO in intimate relationships for several reasons. First, intimate partners are often primary sources of support and, accordingly, this represents a context with high ecological validity (Brock & Lawrence, 2010). Second, the nature of the interaction involves one partner relying on the other partner to be responsive to personal disclosures, and responsiveness is a key element of MRO (Kochanska, 2002). Third, personal and potentially vulnerable disclosures have the potential to contribute to discomfort and, relative to more positively valenced tasks (e.g., planning a vacation) are more likely to elicit forced and disjointed interactions that signal deficits in MRO. As such, this task provides an opportunity to observe how well couples are able to maintain warmth and synchronicity when navigating more serious and potentially uncomfortable issues. Finally, given the prescribed roles of this task (i.e., one partner disclosing and the other supporting), it provides an opportunity to observe how well the couple can still work as a team and balance those roles.

There were three specific aims to the study. The first aim was to demonstrate that we could reliably code MRO in intimate relationships across the observed interactions. Further,

based on past research suggesting that MRO is a relatively stable, underlying quality of close relationships (Askan et al., 2006), we examined consistency of MRO scores across observed contexts. We predicted large correlations among MRO scores derived from different tasks.

The second aim was to demonstrate the convergent and divergent validity of MRO scores by examining correlations with other intimate relationship dimensions measured via self-report given that most research on couples has relied on this methodological approach (Lawrence et al., 2011). Additionally, we used a semi-structured interview to complement self-report questionnaires given (a) interviews provide greater context for responses and facilitate relatively objective ratings of relationship processes, and (b) the *Relationship Quality Interview* (RQI; Lawrence et al., 2011; Lawrence, Brock, Barry, Langer, & Bunde, 2009) is a multidimensional measure of intimate relationship quality that taps into each of the key dimensions identified for convergent/divergent validity analyses. We predicted that correlations would be significant, demonstrating that MRO converges with other indicators of intimate relationship quality (i.e., conflict management, partner support, emotional intimacy, respect toward partner, and quality of the sexual relationship). Further, consistent with our conceptualization of MRO as a related *but also distinct* dimension of intimate relationship quality, we predicted that correlations with related constructs would be of small to moderate magnitude.[1]

The third aim was to examine the criterion and incremental validity of MRO scores to ascertain the implications of using the MRO coding system for informing research and theory. We examined correlations between MRO and global measures of (dis)satisfaction with the intimate relationship. Further, we examined correlations between MRO and several specific outcomes including relationship security, partner mental health, and bonding between parent and

[1] Because there are no other validated measures of MRO in intimate relationships, we were unable to test monotrait correlations as evidence of convergent validity.

infant. We largely focused on affective features of mental health given research has demonstrated a robust link between intimate relationship discord and depression (Beach, 2014); however, we included additional mental health indicators given that relationship discord has also been linked to alcohol abuse (Powers, Vedel, & Emmelkamp, 2008) and eating disorders (Morrison, Doss, & Perez, 2009). Significant correlations were interpreted as evidence of criterion validity. We also examined whether MRO scores predicted each of the outcome measures controlling for one of the most robust predictors of both individual and relational health – the personality trait neuroticism (Karney & Bradbury, 1995; Lahey, 2009). Finally, we examined whether MRO scores uniquely predicted individual and parenting outcomes when controlling for self-reports of global relationship satisfaction.

Method

Participants and Procedures

Flyers and brochures were broadly distributed to businesses and clinics frequented by pregnant women (e.g., obstetric clinics). We established cooperative arrangements with multiple agencies in the community. If an establishment permitted, members of the research team approached potential participants and provided a short, five-minute overview of the study along with a brochure. Eligibility criteria included: (a) 19 years of age or older, (b) English speaking, (c) pregnant at the time of the initial appointment, (d) biological parents of the child, (e) singleton pregnancy, and (f) in a committed intimate relationship and cohabiting. Certain eligability criteria (e.g., singleton pregnancy, biological parents) were selected as part of a larger study of early child socioemotional development.

One hundred sixty-two cohabitating couples enrolled. Three couples were excluded from the final sample, due to either invalid data or ineligibility, for a final sample of 159 couples (159 women and 159 men). Couples had dated an average of 81.90 months (range = 5.06 to 210.12;

SD = 49.59), cohabited an average of 61.00 months (range = 0.32 to 202.76; *SD* = 41.80) and the majority of couples were married (84.9%). Over half (57.8%) reported that they had no children (i.e., first-time parents). Most women were in the second (38.4%) or third (58.5%) trimester of pregnancy. Participants were primarily White (89.3% of females; 87.4% of males); 9.4% of females and 6.4% of males identified as Hispanic or Latino. On average, women were 28.67 years of age (range = 19 to 40; *SD* = 4.27) and men were 30.56 years of age (range = 19 to 49; *SD* = 4.52). Annual joint income ranged from less than $9,999 to more than $90,000 with a reported median income of $60,000 to $69,999, and most participants were employed at least 16 hours per week (74.2% of females; 91.8% of males). Further, the modal education was a bachelor's degree (46.5% of females; 34.6% of males).

All procedures were approved by the university's Institutional Review Board. Both partners attended a three-hour laboratory appointment during which they completed behavioral observation tasks, semi-structured clinical interviews about the quality of their intimate relationships, and self-report questionnaires. Partners were escorted to separate rooms to complete the clinical interviews and self-report questionnaires and did not interact with one another until the procedures were complete. Participants were compensated with $50 (for a total of $100 per couple) for attending the appointment. At approximately 1 month postpartum (*M* = 1.12 months, *SD* = 0.29), each parent completed a survey from home, including self-reports of bonding impairments with infant, and received $25 (for a total of up to $50 per couple). They were instructed to complete the surveys separately and privately.

Mutually Responsive Orientation Coding System for Couples

Observational paradigm: Vacation planning. Couples were observed for approximately 30 minutes, in two types of standardized, naturalistic, interactive contexts during

a laboratory session. The first context involved planning a vacation together (10 minutes). Couples were instructed to imagine that they won a free, 5-day trip for two to either New York City or Estes Park, Colorado, and to decide, as a couple, which destination they would like to visit. Once they had decided on the destination, they had to plan the trip, including choosing lodging, activities, and restaurants to visit each day. Further, the dyads were informed that they had a set budget and would need to choose activities within that budget. To facilitate this process, couples were given a binder for each destination containing detailed information regarding lodging, activities, and restaurants (including the cost of each) and a calculator and budget sheet to aid in planning. Couples were instructed to "get as much accomplished as you can in that time" and "to both contribute to the planning."

Observational paradigm: Support seeking. The second context involved one partner discussing, with the other partner, something s/he would like to change about herself or himself. This task was adopted from a standardized protocol often used in couples research to assess behaviors spouses display during supportive interactions (Pasch & Bradbury, 1998). Participants were instructed to pick a topic that was personal (i.e., habits, career, friendships) and to refrain from discussing a topic pertaining to the relationship. If someone found it difficult to choose a topic, a research assistant provided a standardized list of personal issues that people often want to change about themselves. Once one partner (e.g., the female partner) had chosen a topic, and it was determined that it did not pertain to the couple's relationship, the couple was instructed to spend 10 minutes talking about that topic. The other partner (e.g., the male partner) was told he could respond however he wanted to during this time, but that he was expected to be involved in some way during the discussion. Partners took turns discussing an identified issue for 10 minutes each (e.g., the female partner discussed with the male partner something she would like to

change about herself for 10 minutes, and then the male discussed an issue for 10 minutes).

Coding Team. A team of four coders, comprised of undergraduate and graduate students, viewed video interactions of dyads during the aforementioned contexts and coded MRO. The established MRO coding system, developed for parent-child dyads, was adapted and applied to the couple dyad. There were multiple phases of training. First, the coding team read numerous articles to strengthen their understanding of the conceptual underpinnings of MRO and consulted with Dr. Kochanska, who developed and validated the original MRO coding system in parent-child dyads. Second, each coder independently watched and coded interactions (~17%), meeting to discuss codes intermittently and gain consensus, until a consistent pattern of agreement was observed among the coders and training was deemed to be complete. Third, the coding team proceeded with coding the remaining cases and reliability was established. Notably, 8 cases could not be coded due to either technological issues that resulted in inadequate audiovisual recordings of the interactions or due to invalidating circumstances (e.g., one couple insisted that their child be present during the interaction which disrupted the task).

Coding System. We adapted the coding system for MRO that has been widely implemented in the study of parent-child dyads (Askan et al., 2006; Kochanska et al., 2008). Throughout the initial stages of training and consensus discussions, we determined that the system was compatible with the coding of intimate relationships (i.e., the dynamics described in the system were observed during the couple interactions). As such, we determined that we did not need to alter the coding anchors. Consistent with the original parent-child coding system, interactions were coded on a 5-point scale, for each of the observed contexts, ranging from 1 = *very low MRO, poor relationship* to 5 = *very high MRO, excellent relationship*.

Several elements of the couple relationship were considered when making ratings;

however, it is important to note that MRO is a unitary construct and these features of MRO are not reliably distinguished from one another (Askan et al., 2006). As such, ultimately, coders assign a single macro-level code for an interaction while considering multiple elements of MRO. Behaviors and dynamics observed during interactions to assess MRO include: *Coordinated routines:* (*High*) dyad settles comfortably into a routine and partners demonstrate good teamwork; (*Low*) dyad has no routines and is unsure how to proceed or, if routines are present, they are choppy; *Harmonious communication*: (*High*) dyad communicates smoothly and partners welcome the other's opinions; (*Low*) dyad communicates very little or engages in hostile communication; *Mutual cooperation:* (*High*) partners adopt a willing, receptive stance toward each other, with subtle influences sufficient for cooperation; (*Low*) partners are unresponsive to one another and struggle to cooperate and resolve potential sources of conflict; *Emotional ambience:* (*High*) emotionally positive atmosphere, whereby the dyad appears to enjoy being together (e.g., expressions of positive affect); (*Low*) dyad is not emotionally engaged, negative ambience permeates the interaction.

Measures of Relationship Quality for Testing Convergent and Divergent Validity

Semi-structured interview. The *Relationship Quality Interview* (RQI; Lawrence et al., 2011; Lawrence, Brock, Barry, Langer, & Bunde, 2009) is a 60- to 90-minute interview enabling functional analyses of relationships over the past 6 months across multiple domains including **Emotional Intimacy:** mutual sense of closeness, warmth, interdependence and affection in the relationship; comfort with disclosing emotionally vulnerable information; quality of self-disclosures; friendship; demonstrations of love and affection ($M = 6.92$, $SD = 0.85$); **Conflict Management***:* frequency and length of arguments; levels and severity of negative affect and behaviors; aggression or withdrawal during arguments; recovery strategies after arguments ($M =$

6.49, *SD* = 1.15); **Sexual Quality:** satisfaction with the sexual relationship; presence/absence of negative emotions during sex; sexual difficulties; sensual behaviors (*M* = 6.12, *SD* = 1.36); **Received Support***:* quality of support received when the interviewed partner is feeling down or has a problem; match between desired and received levels of support (support received by female partner, *M* = 6.56, *SD* = 1.34; support received by male partner, *M* = 6.82, *SD* = 1.08); **Received Respect**: the extent to which the interviewed partner feels respected (i.e., degree to which the partner is treated like an equal in the relationship) and accepted (i.e., degree to which the partner is allowed to be his or her own person); degree to which the partner has decision-making power in the relationship (respect toward female partner, *M* = 6.81, *SD* = 1.04; respect toward male partner, *M* = 6.50, *SD* = 1.14). Concrete behavioral indicators facilitated relatively objective ratings. Interviewers rated each domain on scales ranging from 1 (*poor functioning*) to 9 (*high functioning*). Notably, partners were interviewed separately and simultaneously to prevent response contamination. The RQI has demonstrated strong reliability and validity (Lawrence et al., 2011). Interviewers completed training in reliable coding and participated in consensus and recalibration meetings.[2] Approximately 20% of the interviews were randomly assigned and double-coded to assess interrater reliability (average ICC = 0.91).

Self-report questionnaires. The following self-report questionnaires were used to assess various dimensions of intimate relationship quality. The *Marital Satisfaction Inventory-Revised* (MSI-R; Snyder, 1997) assesses distress in couples across 11 key relationship domains. We included the Affective Communication subscale (13 items, McDonald's ω = 0.78; female partner *M* = 2.38, *SD* = 2.49; male partner *M* = 1.53, *SD* = 1.94) to assess poor communication patterns,

[2] Note that the RQI was validated with dyadic scores (aggregated scores from interviews with each partner); however, in this sample, inter-partner correlations were relatively small for respect ($r = .18$, $p = .021$) and support ($r = .11$, $p = .161$) and, consequently, separate partner scores of respect and support were retained.

the Problem-Solving Communication subscale (19 items, McDonald's ω = 0.88; female partner *M* = 4.01, *SD* = 4.11; male partner *M* = 4.82, *SD* = 4.48) to measure ineffectiveness in resolving problems, and the Sexual Dissatisfaction subscale (13 items, McDonald's ω = 0.81; female partner *M* = 3.16, *SD* = 2.89; male partner *M* = 4.14, *SD* = 3.19) to assess discontent in the sexual relationship. Participants answered *true* or *false* to each item, and sum scores were computed. The *Support in Intimate Relationship Scale-Revised* (SIRRS-R; Barry, Bunde, Brock, & Lawrence, 2009; Dehle, Larsen, & Landers, 2001) is a 25-item measure of support. Participants were asked to report the frequencies of specific support behaviors from partners over the past month and indicate a preferred frequency for each behavior (more, less, or the same). We examined the adequacy of each of the 25 supportive behaviors which were coded 0 = inadequate (would like more or less of that support) and 1 = adequate (would like the same amount of that support). Items were summed. Internal consistency was excellent (McDonald's ω = 0.92; female partner *M* = 18.02, *SD* = 6.90; male partner *M* = 19.34, *SD* = 5.85). Physical and psychological aggression were assessed using the Short Form *Revised Conflict Tactics Scales* (CTS-Short Form; Straus & Douglas, 2004) which is a 20-item questionnaire assessing five different kinds of conflict resolution strategies. The two-item physical aggression subscale (e.g., "My partner pushed, shoved, or slapped me") and the two-item psychological aggression subscale (e.g., "My partner insulted or swore or shouted or yelled at me") were used for the purposes of this study. Each partner was asked to report how often an experience had occurred over the past year. Given that data were collected from both partners, the final score for a particular behavior is based on the highest frequency reported across victim and perpetrator reports. We calculated binary scores representing whether each partner had been the victim of psychological and physical aggression over the past year (1=any incident in the past year, 0=no

incidents). The Intimacy subscale (McDonald's ω = 0.92; female partner *M* = 125.04, *SD* = 9.82; male partner *M* = 123.93, *SD* = 10.31) of the *Sternberg Triangular Love Scale* (Sternberg, 1997) was used to measure emotional intimacy which consists of 15 items. Participants rated their agreement with each item on a scale from 1 (*not at all*) to 9 (*extremely*), and items were summed.

Measures of Criterion Validity

Global measures of relationship (dis)satisfaction. The *Quality of Marriage Index* (QMI; Norton, 1983) is a 6-item, self-report questionnaire designed to assess the essential goodness of a relationship. Items on the QMI were modified for the present study, which was comprised of couples who were not necessarily married, to refer to the "relationship with my partner." In the present sample, the internal consistency was excellent (McDonald's ω = 0.95; female partner *M* = 41.97, *SD* = 4.77; male partner *M* = 41.81, *SD* = 4.36). From the *Marital Satisfaction Inventory-Revised* (MSI-R; Snyder, 1997), we also included the Time Together (TTO) subscale to assess couples' dissatisfaction with time spent together. The TTO subscale consists of 10 items and participants answered true or false for each item, and item responses were summed. Internal consistency was adequate (McDonald's ω = 0.78; female partner *M* = 1.73, *SD* = 2.04; male partner *M* = 2.13, *SD* = 2.31).

Relationship security. The *Relationship Scales Questionnaire* (RSQ; Griffin & Bartholomew, 1994) assesses how respondents feel about close relationships (e.g., "I find it difficult to depend on other people"), on a scale of 1 (*not at all like me*) to 5 (*very much like me).* We conducted a principal components analysis of the RSQ items with Promax rotation. Items were retained if they had a loading of .30 or higher. Items were dropped if they were identified as a complex indicator (loading to both factors) or failed to load to either dimension. Consistent

with Kurdek (2002), we identified two scales indicative of avoidant attachment (16 items; McDonald's ω = 0.86; female partner *M* = 38.48, *SD* = 9.91; male partner *M* = 40.53, *SD* = 9.98) and anxious attachment (10 items; McDonald's ω = 0.87; female partner *M* = 20.49, *SD* = 7.16; male partner *M* = 18.99, *SD* = 6.95).

Partner mental health and well-being. Depressive symptoms were assessed with the 99-item Expanded Form of the *Inventory of Depression and Anxiety Symptoms* (IDAS-II; Watson, Clark, & Tellegen, 1988). Respondents rated their feelings and experiences during the past two weeks on a scale from 1 (*not at all*) to 5 (*extremely*). We used the general depression subscale (20 items, McDonald's ω = 0.86; female partner *M* = 38.00, *SD* = 8.66; male partner *M* = 35.31, *SD* = 9.44) which assesses severity of depressive symptoms and the well-being subscale (8 items, McDonald's ω = 0.76; female partner *M* = 27.36, *SD* = 4.75; male partner *M* = 26.36, *SD* = 5.37) which consists of items such as "I was proud of myself" and "I felt hopeful about the future." Positive and Negative affect were assessed with the *Positive and Negative Affect Schedule* (PANAS; Watson et al., 1988). Respondents rated the extent to which they had felt positive (e.g., "excited," "strong") and negative (e.g., "upset," "scared") emotions over the past two weeks, on a Likert-type scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely)*. Scores on each scale were summed with higher scores indicative of high (positive or negative) affect. In the present sample, the internal consistency was adequate for both scales: positive affect, (10 items, McDonald's ω = 0.93; female partner *M* = 34.62, *SD* = 7.53; male partner *M* = 35.40, *SD* = 7.37) and negative affect (10 items, McDonald's ω = 0.85; female partner *M* = 16.63, *SD* = 4.79; male partner *M* = 15.72, *SD* = 5.15). Severity of alcohol abuse for each participant was measured with the *Short Michigan Alcoholism Screening Test* (SMAST; Selzer, Vinokur, & Rooijen, 1975) comprised of 24 questions, including "Do you feel you are a

normal drinker?" and "Do you ever feel guilty about your drinking?" Participants answered *yes* or *no* for each question, and scores were summed such that higher scores reflect more severe alcohol abuse. Internal consistency for the present sample was adequate (McDonald's ω = 0.83; female partner *M* = 0.38, *SD* = 0.79; male partner *M* = 1.05, *SD* = 1.92). We used the Body Dissatisfaction scale (7 items, McDonald's ω = 0.88; female partner *M* = 9.36, *SD* = 6.00; male partner *M* = 4.54, *SD* = 4.65) of the *Eating Pathology Symptoms Inventory* (EPSI; Forbush et al., 2013) to assess severity of eating disorder symptoms. This scale reflects the higher-order shared dimension common among eating disorders, and has demonstrated strong convergence with established measures of eating disorder symptoms.

Parent-infant bonding impairments. The *Postpartum Bonding Questionnaire* (PBQ; Brockington et al., 2001) is a 25-item, factor-analytically derived measure of a parent's feelings or attitudes toward their baby. Parents rated their agreement with statements (e.g., "I feel close to my baby") on a scale, ranging from 5 (*always*) to 0 (*never*). Positively valenced items are reverse coded, and items were summed for an overall score of parent-infant impaired bonding (range from 0-125). The internal consistency was excellent (McDonald's ω = 0.92; female partner *M* = 9.97, *SD* = 8.34; male partner *M* = 12.63, *SD* = 12.38).

Neuroticism. The *General Temperament Survey* (*GTS;* Clark & Watson, 1990) is a self-report inventory designed to assess the three core temperament dimensions. The GTS is based on the *Schedule for Nonadaptive and Adaptive Personality - 2nd Edition* (SNAP-2; Clark, Simms, Wu, & Casillas, 2014), and each scale has demonstrated good internal consistency, discriminant validity, and test–retest reliability across multiple samples. The measure has a true/false response format. The Negative Temperament (i.e., neuroticism) scale comprises 28 items and had excellent internal consistency in this sample (McDonald's ω = 0.91; female partner *M* = 9.52, *SD*

= 6.73; male partner M = 7.25, SD = 6.16). Individuals scoring high on this scale are prone to frequent and intense negative emotions, often worry, feel discomfort in a wide range of situations, and portray the world in a negative light.

Data Analysis

To test *Aim 1* (reliability), we computed intraclass correlations (ICC; one-way random effects model) with scores from double-coded interactions. For the *vacation interaction task*, which had been previously implemented in parent-child dyads for observing MRO, 20% of the cases (n = 32 dyads) were double-coded to ascertain interrater reliability (single measures ICC). Single codes were retained for subsequent analyses. Given that the *support interaction tasks* were based on a paradigm that has yet to be implemented for observing MRO, all cases were double-coded to ensure reliable codes and, accordingly, we computed average measures ICC and created an average score of those codes (across coders) for subsequent analyses. We computed Pearson correlations among scores obtained from separate tasks to evaluate consistency of scores across contexts.

To test *Aim 2* (convergent/divergent validity), we computed correlations between MRO scores and scores of multiple dimensions of intimate relationship quality. Pearson correlations were used for continuous validity measures and Point-biserial correlations were used for binary measures (e.g., CTS, any psychological aggression in the past year). We used Cohen's conventions for determining effect sizes of correlations ($\geq$ .10, small; $\geq$ .30, medium; $\geq$ .50, large; Cohen, 1992). To demonstrate that MRO scores were sufficiently distinct from scores of other relationship dimensions, we used the criterion of r < .80 (Brown, 2015). To test *Aim 3* (criterion and incremental validity), we first computed bivariate correlations between MRO and each criterion measure. Next, we conducted a series of multiple regressions with MRO

predicting each outcome, controlling for neuroticism. This was followed by a set of multiple regressions with MRO predicting individual and parenting outcomes, controlling for self-reported relationship satisfaction.

Results

Aim1: Reliability. Interrater reliability was adequate for each of the observational paradigms (Aim 1) including the *vacation interaction task*, single measures ICC(1, 1) = 0.71, 95% CI [.48, .84], and the *support interaction tasks*, average measures ICC(1, k=2) = 0.77, 95% CI [.68, .84], for female led task and ICC = 0.82, 95% CI [.74, .87], for the male led task. MRO scores obtained from the two supportive contexts (i.e., female partner takes lead discussing something she would like to change about herself for 10 minutes, male partner takes lead discussing something he would like to change for 10 minutes) were highly correlated ($r = 0.77$, $p < 0.001$) demonstrating that scores were relatively consistent across the two support tasks (regardless of each partner's role) and, consequently, scores were aggregated to obtain an overall MRO score for supportive interactions.

Scores of MRO from the vacation task and support were significantly correlated at large magnitude ($r = 0.50$, $p < 0.001$), demonstrating some degree of consistency in MRO across different types of interactions. We computed a total score ($M = 3.47$, $SD = 0.85$) which was the average MRO scores from vacation and support tasks. However, we also retained separate scores from the vacation task ($M = 3.77$, $SD = 0.91$) and the support tasks ($M = 3.16$, $SD = 1.04$) to determine whether they demonstrated unique criterion validity. The mean MRO score from the vacation task was significantly higher than the mean MRO score from the support tasks, $t(149) = 7.54$, $p < 0.001$, Cohen's $d = 0.61$, which is consistent with the nature of the tasks. Specifically, the vacation tasks provides greater opportunity to observe fun and positivity whereas the support

task provides greater opportunity for observing negativity and tension.

Aim 2: Convergent/Divergent Validity. Results demonstrated excellent convergent and divergent validity of MRO scores with related constructs. Correlations are reported in **Table 1**. As predicted, and consistent with our conceptualization of MRO as a related, yet distinct, dimension of intimate relationship quality, scores of MRO were significantly correlated with multiple dimensions of intimate relationship quality (i.e., conflict management, partner support, emotional intimacy, respect and acceptance toward partner, sexual satisfaction) measured with multiple methods (i.e., semi-structured interview and self-report questionnaires), and correlations were of small to moderate magnitude. Further, correlations did not exceed .80, demonstrating adequate discrimination (Brown, 2015).

Aim 3: Criterion/Incremental Validity. We demonstrated criterion validity of scores from the MRO coding system across multiple categories of outcomes. Correlations are reported in **Table 2**. MRO scores had small to moderate bivariate correlations with multiple indicators of (a) global relationship satisfaction, (b) relationship security, (c) partner mental health and well-being[3], and (d) bonding with infant. The pattern of significance varied across vacation and support tasks. In the case of discrepant correlations (e.g., male relationship dissatisfaction was significantly correlated with vacation MRO but not support MRO) a series of Fisher *z* tests were conducted to statistically compare the corresponding correlations. Results demonstrated that correlations did not differ significantly across tasks (*z*s ranged from 0.26 to 1.51, *p*s > .05) with one exception: mother-infant bonding was more strongly associated with MRO support ($r = .23$) than MRO vacation ($r = -.04$), $z = 2.35$, $p = .009$. As such, there appears to be limited utility in distinguishing between MRO across different contexts. A closer examination of the total MRO

[3] It is notable that higher levels of MRO were actually associated with higher levels of body dissatisfaction reported by women and more impairments in bonding between mother and infant, findings that warrant closer attention in future research.

scores also revealed relatively similar criterion validity for male and female partners (*z*s ranged from 0.09 to 1.64, *p*s > .05) with one exception: total MRO was more strongly associated with partner well-being for men ($r = .28$) than women ($r = .08$), $z = 1.78$, $p = .038$.

Results of multiple regression analyses (also reported in **Table 2**), demonstrated incremental predictive validity across the four categories of criterion measures. Over half (55%) of the associations remained significant when controlling for the personality trait neuroticism. Further, in two cases, non-significant bivariate correlations reached significance when controlling for neuroticism (i.e., suppression effects emerged): Total MRO predicted male anxious attachment, $\beta = -0.18$, $p < .05$, and infant bonding with mother, $\beta = 0.18$, $p < .05$. Finally, when controlling for global relationship satisfaction measured with the QMI, total MRO was associated with anxious attachment, $\beta = -0.22$, $p < .05$, and well-being, $\beta = 0.26$, $p < .05$, for men, and the body dissatisfaction scale, $\beta = 0.18$, $p < .05$ for women. There was also a trend toward significance when modeling maternal bonding with infant at 1 month postpartum as the outcome, $\beta = 0.15$, $p = .09$.

Discussion

The present study provides evidence for the reliability and validity of scores obtained from an adapted behavioral coding system for assessing mutually responsive orientation in intimate relationships. First, we established that multiple coders could reliably rate MRO – a construct previously measured exclusively in parent-child dyads – in intimate relationships across multiple paradigms. We also demonstrated that MRO scores derived from unique contexts had some degree of consistency, although levels of MRO were higher, on average, in the vacation task relative to the support task. Second, consistent with our conceptualization of MRO as an indicator of general relationship quality, we found that the majority of the correlations

between MRO and other measures of intimate relationship quality were significant. Yet, it was notable that correlations were also small to moderate in magnitude suggesting that we are capturing a unique dimension of intimate relationship quality when measuring MRO.

Third, we demonstrated criterion validity for MRO scores such that several key outcomes central to theoretical frameworks of couple relationships were significantly correlated with MRO. In general, criterion validity was similar regardless of the observed context (vacation or support) and partner gender. However, it is notable that MRO observed during the supportive interaction was more strongly associated with mother-infant bonding than MRO observed during the vacation task. As such, there could be some utility in examining separate MRO scores across contexts when investigating certain outcomes. For example, perhaps MRO during a supportive interaction – a key element of coparenting (Feinberg, Brown, Kan, & Kan, 2012) – is particularly important for parenting outcomes. Additionally, MRO was more strongly associated with the well-being of men than women. Consequently, future research should routinely examine potential gender differences in effects of MRO on individual health.

MRO scores also explained a significant amount of the variance in key outcomes after partialling out shared variance with the personality trait neuroticism, a robust predictor of both individual and relational health (Karney & Bradbury, 1995; Lahey, 2009). Indeed, over half of the significant associations between MRO and criterion measures remained significant when controlling for neuroticism. Additionally, two suppression effects emerged such that the correlation between total MRO and both male anxious attachment and mother-infant bonding reached significance when controlling for neuroticism. These results provide strong evidence of the incremental predictive utility of MRO scores for explaining a range of individual and relational health outcomes including global relationship satisfaction and security, individual

well-being, body satisfaction, and parent-infant bonding. Finally, when controlling for a brief self-report measure of relationship satisfaction that is often used to measure the overall health of an intimate relationship, MRO scores uniquely predicted several individual outcomes.

Taken together, results provide preliminary evidence of the utility of a behavioral coding system for assessing MRO in intimate relationships. Nonetheless, several imitations of the present study should be considered when interpreting the results. First, although the racial composition of the sample is consistent with the demographic characteristics of the state where the research was conducted, the generalizability of the results is limited. Further, our sample was relatively well-educated, with a high rate of employment, and was comprised of heterosexual couples who were expecting the birth of a child. Study aims should be replicated in a more diverse sample at unique of relationship stages (e.g., dating, newly married couples).

Second, reliability and validity were examined during pregnancy. This is an important time for couples, and a transition experienced by millions of couples each year (Lawrence, Rothman, Cobb, Rothman, & Bradbury, 2008), and by focusing on couples during pregnancy, we enhanced the internal validity of the study by examining MRO in a sample of couples at a similar relationship stage. This approach also enabled us to examine the criterion validity of MRO scores for explaining early bonding between parent and infant after childbirth which has important implications for parent-child interaction patterns (e.g., Cox, Owen, Henderson, & Margand, 1992; Feeney & Woodhouse, 2016) and child developmental outcomes (de Cock et al., 2017) ; *author citation*). Nonetheless, research implementing MRO with couples at other stages (e.g., newlywed, “empty nest”) should reevaluate reliability and validity to account for the possibility that MRO presents in different ways during different stages of intimate relationships.

Third, the data were largely cross-sectional with the exception of parent-infant bonding

scores collected >1 month after MRO was observed. The next step in this research is to examine the predictive validity of MRO scores over longer periods of time to determine whether MRO drives changes in family and individual health and if reciprocal associations are present such that those variables (e.g., depression, alcohol abuse) also undermine MRO. If higher MRO does indeed yield positive changes in family and individual health outcomes over time, this suggests that the development of interventions aimed at improving MRO may prove beneficial for increasing both individual wellbeing and relationship functioning among distressed couples.

Fourth, we did not examine convergent validity for MRO scores with other behavioral measures of intimate relationship quality derived from observational methods; however, we did implement semi-structured interviews with both partners of a dyad and used relatively objective interview ratings of dyadic interactions reported by partners to assess each of the key dimensions of intimate relationship quality. These interview ratings were supplemented with widely used self-report questionnaires which arguably provided a more stringent test of convergent validity due to the absence of shared method variance. Nonetheless, future research would benefit from examining how MRO relates to observational measures of other relationship constructs.

Fifth, we only assessed MRO in two contexts. There was a large correlation between MRO scores derived from the observed vacation and support interactions (r = .50), and few differences were detected with regard to criterion validity of scores from different paradigms; however, only 25% of the variance was shared between the vacation and support tasks, suggesting that MRO might vary to some degree across different situations. As such, future research should continue to examine MRO using different types of interaction paradigms and investigate the differential effects of MRO scores obtained from unique contexts.

Sixth, although MRO is conceptualized as a unidimensional construct, and has been

modeled as such in past research on parent-child dyads (Askan et al., 2006; Kim et al., 2015; Kochanska et al., 2014), the design of our current study did not allow us to assess its unidimensionality in intimate relationships. Future research might expand upon the current coding system to differentiate between different elements of MRO and potentially capture unique manifestations of MRO in intimate relationships.

Finally, it was notable that the 95% confidence interval for the single measures ICC in the vacation task had a lower bound of .48. Although we followed well-established conventions for demonstrating reliability for behavioral coding, and point estimates of ICCs exceeded .70, in the future, researchers using the MRO coding system might benefit from coding more than 20% of the cases to obtain more precise reliability estimates.

Implications for Theory, Research, and Clinical Practice

Results of the present study suggest that observing MRO in intimate relationships holds promise for tapping into a unique dimension of relationship quality with implications for explaining a range of outcomes of interest to couples researchers, including relationship satisfaction and security, individual health and well-being of each partner, and even elements of parenting relationships. By observing MRO, researchers might reveal important relationship dynamics intersecting with enduring vulnerabilities and stressors that ultimately contribute to the long-term satisfaction and stability of intimate relationships (e.g., research embedded in a *vulnerability-stress-adaptation framework*; Bradbury & Karney, 2004). Further, with a growing body of research linking intimate relationship discord to elevated risk for mental and physical health problems (Beach, 2014; Kiecolt-Glaser et al., 1996; Kiecolt-Glaser & Newton, 2001; Whisman & Baucom, 2012), investigations of MRO in couples might reveal a salient interpersonal factor impacting the health of individual partners. Lastly, consistent with

spillover and compensatory hypotheses (Erel & Burman, 1995), MRO might emerge as a key dimension of interparental relationships driving subsequent parenting dynamics.

In addition to strong convergent, divergent, criterion, and incremental validity of MRO scores, there are other conceptual and methodological advantages to measuring MRO that are worth consideration. First, MRO captures a degree of synchronicity between partners that is observed as an interaction unfolds. Rather than observing specific instances of behaviors or relying on partner reports of interactions, a relatively objective, macro level rating is made that reflects an overall pattern of interaction. To the extent that MRO is high, this pattern of interaction is characterized by flexible responding, coordinated routines, and warmth and positivity. Relative to most other measures of intimate relationship processes, the measurement of MRO taps into a largely dyadic construct reflecting ingrained relational dynamics that have developed over the historical context of the relationship. Cutting-edge research on adaptive coregulation highlights the importance of measuring dyadic relational dynamics (Schreiber et al., 2019). For example, grounded in *Social Baseline Theory* (Beckes & Coan, 2011; Butler & Randall, 2013), adaptive coregulation posits that supportive interactions reduce emotional load for both partners, boosting self-regulation. Future research could examine the extent to which high MRO promotes affective, behavioral, and perhaps even physiological coregulation between partners, to enhance individual self-regulation and foster positive health outcomes.

Second, two of the most widely examined intimate relationship processes – conflict and support – are contingent on specific types of interactions. In contrast, MRO transcends and permeates a wide range of interactions. Indeed, in the present study, we found large correlations among MRO scores obtained across various tasks. Nonetheless, we also found that MRO scores were generally higher in the vacation task relative to the support task, and MRO observed in the

supportive context appears to be especially important for explaining mother-infant bonding. As such, researchers should think critically about the empirical question they wish to pursue and the most relevant contexts for testing their hypotheses.

Third, MRO is quantified on a continuous scale and captures both positive and negative qualities of the relationship. High scores reflect a greater degree of cooperation and positivity; however, low scores reflect the presence of negative, adversarial qualities that undermine the system of reciprocity. By capturing the wide spectrum of relational quality ranging from negative to positive, researchers might be better suited to test certain hypotheses. For example, MRO is ideally suited for determining whether interactions between relationship quality and innate vulnerabilities predicting psychopathology are more indicative of a diathesis stress or differential susceptibility framework. Specifically, consistent with a differential susceptibility hypothesis (Belsky, 1997), the measurement of MRO will allow researchers to detect positive outcomes for susceptible individuals (e.g., individual high on trait neuroticism) in the context of highly adaptive and positive relationships, and negative outcomes for individuals with similar susceptibility in the presence of adversarial and unresponsive relationships. In contrast, measures of relationship processes that only capture the positive *or* the negative measure a restricted range of the environment which can lead researchers to incorrectly reject differential susceptibility.

Finally, although MRO is measured using observational methods, which can be prohibitive in certain research designs, it is notable that we were able to reliably rate MRO in a relatively short time frame (i.e., a sequence of three 10-minute interactions), and scores obtained from these paradigms demonstrated excellent validity. Further, relative to behavioral coding systems that are focused on micro-level coding, coding MRO is considerably less time-intensive because it involves assigning a macro-level code quantifying the overall quality of an observed

interaction. This holds particular promise for implementation in clinical settings. Clinicians can be trained to observe MRO during treatment sessions to identify dysfunctional dynamics that warrant closer attention in treatment.

In sum, results of the present study provide evidence for the reliability and validity of scores from a behavioral observation coding system adapted from research with parent-child dyads to study a mutually responsive orientation in intimate relationships. The implementation of MRO measurement in couples research has the potential to enhance theoretical frameworks explaining adaptation in and longevity of intimate relationships and reveal novel treatment targets for promoting the health of relationships and individual partners.

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Table 1

Convergent and Divergent Validity: Correlations between MRO and Dimensions of Intimate Relationship Quality

Relationship Domain	Measurement	Total MRO	Vacation MRO	Support MRO
Conflict Management				
RQI Conflict Management	interviewer-rated	**0.43****	**0.29****	**0.43****
MSI Poor Affective Communication	reported by male partner	**-0.27****	**-0.29****	**-0.19***
MSI Poor Affective Communication	reported by female partner	**-0.21****	-0.09	**-0.21****
MSI Poor Problem Solving Communication	reported by male partner	**-0.26****	**-0.25****	**-0.21***
MSI Poor Problem Solving Communication	reported by female partner	**-0.32****	**-0.19***	**-0.35****
CTS Psychological Aggression toward Men	any incident in last year	**-0.27****	**-0.22****	**-0.26****
CTS Psychological Aggression toward Women	any incident in last year	**-0.24****	**-0.21***	**-0.20***
CTS Physical Aggression toward Men	any incident in last year	**-0.34****	**-0.24****	**-0.33****
CTS Physical Aggression toward Women	any incident in last year	**-0.19***	**-0.18***	**-0.17***
Partner Support				
RQI Quality of Support Received by Men	interviewer-rated	**0.25****	**0.22****	**0.21****
RQI Quality of Support Received by Women	interviewer-rated	0.09	-0.06	**0.18***
SIRRS Adequacy of Support	reported by male partner	**0.27****	**0.30****	**0.18***
SIRRS Adequacy of Support	reported by female partner	**0.22****	0.15	**0.23****
Emotional Intimacy				
RQI Trust and Closeness	interviewer-rated	**0.30****	**0.16***	**0.34****
Sternberg Intimacy Subscale	reported by male partner	0.08	0.12	0.02
Sternberg Intimacy Subscale	reported by female partner	**0.17***	0.06	**0.21****
Respect toward Partner				
RQI Respect toward Women	interviewer-rated	**0.30****	**0.28****	**0.25****
RQI Respect toward Men	interviewer-rated	**0.26****	0.10	**0.33****
Sexual Quality				
RQI Sexual Quality	interviewer-rated	0.07	-0.01	0.11
MSI Sexual Dissatisfaction	reported by male partner	**-0.19***	**-0.24****	-0.09
MSI Sexual Dissatisfaction	reported by female partner	**-0.17***	-0.08	**-0.20***

Note. $^{*}p < .05$; $^{**}p < .01$. *N* ranged from 150-151. MRO = Mutually Responsive Orientation. RQI = Relationship Quality Interview; MSI = Marital Satisfaction Inventory; SIRRS = Support in Intimate Relationships Scale – Revised; Sternberg = Sternberg Triangular Love Scale.

Table 2

Criterion and Incremental Validity: Correlations between MRO and Indicators of Individual and Family Health and Incremental Prediction Controlling for Partner Neuroticism

Criterion Measure	**Total MRO**		**Vacation MRO**		**Support MRO**	
	r	β	*r*	β	*r*	β
Global Measures of Relationship (Dis)satisfaction						
Male Partner						
QMI Global Satisfaction	0.09	-0.03	0.09	-0.08	0.06	0.02
MSI Dissatisfaction-Time Together	**-0.17***	-0.07	**-0.16***	-0.06	-0.13	-0.06
Female Partner						
QMI Global Satisfaction	**0.21****	**0.23****	0.09	0.14	**0.26****	**0.24****
MSI Dissatisfaction-Time Together	**-0.20***	**-0.22***	**-0.17***	**-0.22***	**-0.16***	-0.15
Relationship Security						
Male Partner						
RSQ Anxious Attachment	-0.15	**-0.18***	**-0.19***	**-0.22***	-0.08	-0.11
RSQ Avoidant Attachment	-0.07	-0.09	-0.05	-0.05	-0.07	-0.09
Female Partner						
RSQ Anxious Attachment	-0.14	-0.04	**-0.17***	-0.07	-0.08	-0.1
RSQ Avoidant Attachment	**-0.23****	-0.16	**-0.24****	**-0.21***	-0.16	-0.08
Partner Mental Health and Well-Being						
Male Partner						
IDAS Partner Well-Being	**0.28****	**0.24****	**0.26****	**0.24****	**0.21****	0.18
PANAS Positive Affect	-0.02	0.04	0.01	0.08	-0.05	-0.00
IDAS General Depression	-0.02	0.00	-0.07	-0.04	0.03	0.03
PANAS Negative Affect	0.04	0.04	-0.00	0.04	0.07	0.03
SMAST Alcohol Abuse Severity	**-0.18***	-0.13	**-0.17***	-0.08	-0.14	-0.13
EPSI Body Dissatisfaction	0.05	0.04	0.03	0.04	0.07	0.03
Female Partner						
IDAS Partner Well-Being	0.08	0.02	0.11	0.10	0.03	-0.05
PANAS Positive Affect	**0.17***	0.06	0.16	0.08	0.13	0.03
IDAS General Depression	-0.05	0.08	-0.05	0.04	-0.03	0.09
PANAS Negative Affect	-0.07	0.06	-0.07	0.03	-0.05	0.07
SMAST Alcohol Abuse Severity	**-0.19***	-0.16	-0.09	-0.03	**-0.23****	**-0.21***
EPSI Body Dissatisfaction	**0.16***	**0.21****	0.11	0.12	**0.17***	**0.23****
Bonding with Infant						
PBQ Bonding with Father	0.04	0.04	-0.04	-0.03	0.09	0.08
PBQ Bonding with Mother	0.13	**0.18***	-0.04	0.01	**0.23****	**0.27****

$^{*}p < .05$; $^{**}p < .01$. *Note.* *r* = bivariate correlation between MRO score and criterion measure. β = standardized coefficient representing the association between MRO score and criterion measure controlling for neuroticism. MRO = Mutually Responsive Orientation. IDAS = Inventory of Depression and Anxiety Symptoms; PANAS = Positive and Negative Affect Schedule; SMAST = Michigan Alcohol Screening Test; EPSI = Eating Pathology Inventory Scale; QMI = Quality of Marriage Index; MSI = Marital Satisfaction Inventory; RSQ = Relationship Style Questionnaire; PBQ = Postnatal Bonding Questionnaire.