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Prospective Associations From Family-of-Origin Interactions to Adult Marital Interactions and Relationship Adjustment

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To test the social learning–based hypothesis that marital conflict resolution patterns are learned in the family of origin, longitudinal, observational data were used to assess prospective associations between family conflict interaction patterns during adolescence and offspring's later marital conflict interaction patterns. At age 14 years, 47 participants completed an observed family conflict resolution task with their parents. In a subsequent assessment 17 years later, the participants completed measures of marital adjustment and an observed marital conflict interaction task with their spouse. As predicted, levels of hostility and positive engagement expressed by parents and adolescents during family interactions were prospectively linked with levels of hostility and positive engagement expressed by offspring and their spouses during marital interactions. Family-of-origin hostility was a particularly robust predictor of marital interaction behaviors; it predicted later marital hostility and negatively predicted positive engagement, controlling for psychopathology and family-of-origin positive engagement. For men, family-of-origin hostility also predicted poorer marital adjustment, an effect that was mediated through hostility in marital interactions. These findings suggest a long-lasting influence of family communication patterns, particularly hostility, on offspring's intimate communication and relationship functioning.

The ability of couples to communicate constructively about disagreements and relationship conflicts is a well-established predictor of marital health and longevity (e.g., Clements, Stanley, & Markman, 2004; Markman, 1981; Rogge & Bradbury, 1999). As couples encounter disagreements, two sets of processes appear to be particularly important to couple functioning: maintaining productive, positive engagement and avoiding hostile expression of negative affect (Markman & Hahlweg, 1993). *Positive engagement* involves partners actively and constructively attempting to resolve conflicts, listening, being attuned to each other's feelings, and expressing acknowledgment and validation of each other's perspective. These behavior patterns are central to successful conflict resolution (e.g., Clements et al., 2004; Stanley, Markman, & Whitton, 2002). In fact, developing active listening and partner validation skills is a key component of most behavioral couples therapies and divorce prevention programs (Gottman, Notarius, Gonso, & Markman, 1993; Jacobson & Margolin, 1979; Stanley, Blumberg, & Markman, 1999). In contrast, hostility in couple interactions, which includes the expression of belligerent or contemptuous affect, emotional invalidation, and hurtful or devaluing remarks, has repeatedly been linked with poor relationship health and higher divorce rates (Clements et al., 2004; Gottman, Coan, Carrere, & Swanson, 1998).

Although positive engagement and hostility are negatively associated, they are not simply opposite ends of the same continuum. Absence of hostility does not necessarily indicate the presence of positive engagement, as evidenced by couples who avoid being hostile by not addressing areas

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of disagreement. Some research has found that hostility is the more powerful predictor of relationship deterioration (e.g., Gottman et al., 1998); however, other findings suggest that negative and positive communication behaviors are equally powerful in predicting trajectories of marital satisfaction (M. D. Johnson et al., 2005) and that each contributes uniquely to long-term marital outcomes (e.g., Clements et al., 2004; Rogge & Bradbury, 1999). There is also evidence that positive behaviors may buffer the effects of hostility (M. D. Johnson et al., 2005). Regardless of the exact relationship between positive engagement and hostility, it is clear that both interaction patterns are important to consider in models of marital functioning.

Despite the clear importance of these couple conflict interaction patterns, relatively little is known about their developmental origins. According to social learning theory, the conflict management skills individuals bring to marriage are learned in the family of origin. By observing and participating in family interactions aimed at resolving tensions between family members, the developing individual acquires conflict resolution strategies that generalize to other relationships (O'Leary, 1988). Consequently, hostile parent–child interactions are believed to produce in the child stable patterns of hostile responses to peers and later romantic partners (Patterson, Reid, & Dishion, 1992), and relationship-promoting behaviors during family interactions may be repeated in offspring's later romantic unions, promoting couple relationship success (Bryant & Conger, 2002).

Consistent with these theories, family-of-origin interactions do appear to influence offspring's interactions with others during childhood and adolescence. The conflict resolution styles (attacking, avoidant, or discussing with positive engagement) that children exhibit in interactions with siblings and peers tend to mirror their parents' marital conflict styles (Dadds, Atkinson, Turner, Blums, & Lendich, 1999). Further, hostile parent–adolescent interactions have been linked with peer-rated adolescent hostility (Allen, Hauser, O'Connor, & Bell, 2002) and less positive interactions between adolescents and their best friends (Baril, Julien, Chartrand, & Dubé, 2007). However, these studies did not test whether offspring's conflict styles persist into adulthood. Other research has shown that general indicators of family-of-origin functioning predict broad measures of offspring's marital outcomes. Parental divorce is linked with higher divorce rates, especially for women (e.g., Amato, 1996), and parents' marital discord has predicted greater distress in their children's marriages in adulthood (Amato & Booth, 2001). Similarly, general quality of family relationships has prospectively predicted offspring's self-reported marital quality (Burns & Dunlop, 1998; Flouri & Buchanan, 2002). However, none of these studies explored continuity in specific relationship behaviors, such as conflict resolution patterns.

In fact, only a handful of studies have assessed whether conflict interaction patterns learned in the family of origin are replicated in offspring's romantic relationships. The bulk of these studies have relied on retrospective reports of family-of-origin problem solving or conflict, which have shown moderate correlations with marital conflict patterns (e.g., Levy, Wamboldt, & Fiese, 1997; Story, Karney, Lawrence, & Bradbury, 2004). Retrospective reports, however, tend to be influenced by current experience (Brewin, Andrews, & Gotlib, 1993), possibly artifactually inflating associations between current and past relationship communication. Unfortunately, research addressing these questions with prospective, observational data is sparse. Two studies have demonstrated that hostile family-of-origin communication, assessed with observational measures during adolescence, predicted hostile communication in offspring romantic relationships, observed during late adolescence (mean age = 18.7 years; Kim, Conger, Lorenz, & Elder, 2001) and emerging adulthood (age 23 years; Andrews, Foster, Capaldi, & Hops, 2000). In addition, a latent construct representing both high observed warmth and low observed hostility showed continuity from family interactions in early adolescence to interactions with a romantic partner at age 20 years (Bryant & Conger, 2002; Conger, Cui, Bryant, & Elder, 2000). Together, these findings provide the best empirical evidence to date that family-of-origin interaction patterns are replicated in offspring's later romantic relationships. However, in these studies, relationship interactions were only assessed until late adolescence or early adulthood, primarily in dating rather than married couples, leaving questions regarding the impact of family-of-origin interactions on marital interactions in adulthood unaddressed.

The Current Study

In the current study, we used prospective, longitudinal data to examine associations between family-of-origin conflict interaction patterns and offspring's marital conflict interaction patterns well into adulthood (mean age = 31 years). We addressed a primary limitation of much of the current literature by using observational rather than self-report measures to assess interaction patterns during problem-solving discussions both in the family of origin (when offspring were 14 years of age) and in marriages or cohabiting partnerships 17 years later. To our knowledge, this study provides the first direct test—with observational, prospective data—of the hypothesis that adult marital conflict interaction patterns are learned in the family of origin. Although previous observational data suggest continuity in interaction patterns from the family of origin to late adolescent and early adult dating relationships, adolescence remains a time of development and identity formation, during which the nature of romantic relationships shifts dramatically (Furman & Wehner, 1994). Given that parent relationships appear to influence adolescent and adult romantic relationships differently (Seiffge-Krenke, Shulman, & Klessinger, 2001), we cannot assume that this continuity will persist into adulthood. Assessing whether conflict patterns from the family of origin are replicated in adult relationships, where behavior is modeled for the next generation of children, is important for our understanding of the po-

tential transmission of conflict patterns across multiple generations.

On the basis of social learning theory, we hypothesized that family conflict interaction patterns experienced during adolescence would be associated with parallel marital conflict interaction patterns during adulthood. In addition, although we expected hostility and positive engagement to be negatively correlated in both families of origin and marriages, we predicted homotypic continuity (i.e., behaviors and traits appearing in the same form across time and across development; Rutter, 1989). That is, we expected family-of-origin positive engagement to uniquely predict positive marital engagement and family-of-origin hostility to uniquely predict marital hostility. According to social learning principles, individuals learn specific behaviors through modeling of and participation in those behaviors in the family of origin; therefore, it is those specific behaviors that should be replicated later in life. In contrast, exposure to hostile family interactions would not necessarily predict low positive engagement in later marital problem discussions nor would exposure to positive engagement in family interactions necessarily predict low hostility in marital interactions.

A secondary goal was to examine whether communication patterns may serve as a mechanism through which family-of-origin relationship quality influences later marital quality. Toward this aim, we explored whether continuity in interaction patterns from the family of origin to offspring's marriages may account for associations between quality of family-of-origin interactions and later marital quality (i.e., do marital interactions mediate the effect of family interactions on marital adjustment?). First, building on evidence that family-of-origin communication predicts romantic relationship quality in late adolescence and early adulthood (Bryant & Conger, 2002; Kim et al., 2001), we hypothesized that positive engagement and low hostility in family-of-origin interactions would predict better marital adjustment during adulthood. Second, on the basis of well-established links between couple communication patterns and relationship quality (e.g., Clements et al., 2004), we predicted that high positive engagement and low hostility in Time 2 marital interactions would be associated with better marital adjustment. Finally, we proposed that marital interactions would mediate the effect of family-of-origin communication patterns on marital adjustment.

We also explored the possibility that psychopathology may account for links between adolescent family interactions and later marital variables. Adolescent psychopathology has been associated with indicators of poor family functioning, including hostile conflict and low positivity between family members (e.g., Allen, Hauser, Eickholt, Bell, & O'Connor, 1994; Dadds et al., 1999), and with later marital difficulties (e.g., Gotlib, Lewinsohn, & Seeley, 1998). To address this possibility, we tested our hypotheses in a sample of participants with distinct differences in levels of psychopathology during adolescence. At Time 1, the sample consisted of two groups: a clinical group of adolescent psychiatric inpatients and a demographically matched nonclinical group. This allowed us to assess continuity in conflict interactions from the family of origin to adult marital relationships while accounting for the presence or absence of severe adolescent psychopathology, by including psychiatric hospitalization as a control variable in analyses. We also explored whether relations between family interactions and marital interactions differed in the psychiatric and nonclinical groups.

In addition, because psychopathology is somewhat stable from adolescence to adulthood, and given that adult psychopathology shows concurrent links with poor couple problem solving (e.g., S. L. Johnson & Jacob, 1997), we recognized that continuity in psychopathology from adolescence to adulthood may account for any observed continuity in communication behaviors. To address this issue, we assessed for the presence of psychopathology during adulthood (close to the time of the marital interactions) using structured diagnostic interviews. This allowed us to assess whether the hypothesized continuity in conflict interactions from the family of origin to adult marital relationships would persist while controlling for psychopathology during adulthood.

Finally, family-of-origin influences on marriage may differ for men and women. Maladaptive premarital communication has been linked with interparental conflict in husbands', but not wives', families of origin (Halford, Sanders, & Behrens, 2000) and with wives', but not husbands', parental divorce (Sanders, Halford, & Behrens, 1999). The few existing prospective observational studies of continuity in interaction patterns from families of origin to early adult romantic relationships generally have not demonstrated sex differences (Conger et al., 2000; Kim et al., 2001). Given the inconclusive nature of the existing evidence, we tested whether the prospective links from family-of-origin interactions to marital interactions and adjustment differed between men and women.

Method

Participants

Participants were involved in a longitudinal study of psychosocial development (Hauser, 1991). In order to obtain a sample with a wide range of psychosocial functioning, we originally recruited 146 adolescents (mean age = 14 years) from among two groups: a clinical group and a demographically matched nonclinical group. The clinical group consisted of consecutive adolescent admissions to a psychiatric hospital, excluding those with psychosis, chronic medical illness, or mental retardation. All hospitalized youths carried a psychiatric diagnosis, predominantly of mood or behavior disorders. The nonclinical group was recruited from a local high school, selected to match the clinical sample in terms of age, sex, and birth order. Both groups were primarily Caucasian and from upper middle–class families. For a complete description of initial sampling procedures and demographics, see Hauser (1991).

In 1978–1979, during the initial assessment (Time 1), 126 adolescents and their parents participated in an audiotaped family interaction task. In 1994–1997, an average of 17 years after the Time 1 assessment, participants were reassessed (referred to as Time 2 in this article). Those who were married or in a committed and exclusive relationship of at least 6 months were invited to participate in a videotaped couple interaction task with their partner; 70% agreed to complete the task. The primary reasons for nonparticipation were time constraints and partner refusal or unavailability. The 47 participants (29 women, 18 men; of whom 15 were from the clinical group and 32 were from the nonclinical group) with data from both the Time 1 family interaction task and the Time 2 couple interaction task comprised the sample for the current analyses. Figure 1 summarizes the selection of the final sample and differences between groups. In comparison with all other participants who completed the Time 2 assessment, the current sample did not differ by age, sex, education, or Time 1 family hostility but were more likely to be from the nonclinical group (68% vs. 49%), $\chi^2(1, N = 134) = 4.31$, $p < .05$, and had higher Time 1 family positive engagement, $t(113) = 2.02$, $p < .05$, $d = .37$. In comparison with participants in relationships who did not complete the couple interaction, this sample had better average marital adjustment, $t(65) = 2.99$, $p < .05$, $d = .71$. This suggests differential selection for participants without severe adolescent psychopathology, with more engaged families of origin, and with higher current relationship quality.

For the final sample at Time 2, average age of participants was 31.3 years ($SD = 3.1$ years). Median income was in the \$40,000–\$60,000 range. Most participants were Caucasian (92%). The median level of education attained was an associate's degree. Forty couples (85%) were married and seven were in a cohabiting committed romantic relationship. Average relationship length was 4.6 years ($SD = 3.2$ years). Married couples had been married an average of 3.9 years ($SD = 2.6$ years). Cohabiting couples had been living together an average of 1.5 years ($SD = 1.7$ years).

Assessment Procedures

Participants provided informed consent and were paid for their participation at each assessment. The study was approved and monitored by a university institutional review board. At Time 1, participants (age 14 years) and their

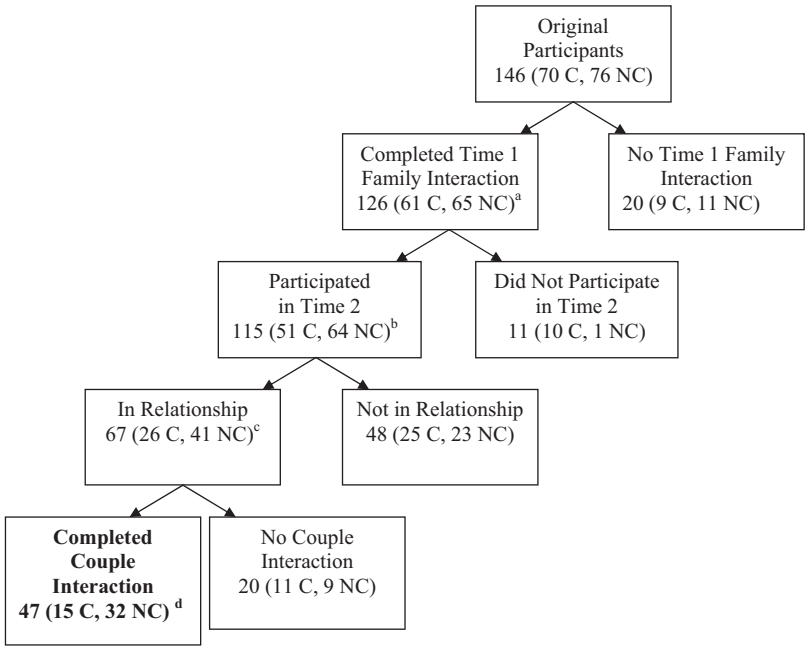

Figure 1. Selection of participants for inclusion in present analyses. C = clinical sample; NC = nonclinical sample. [a] The 126 families who participated in the Time 1 interaction task did not differ on any Time 1 demographic variable from the 20 who did not participate. [b] According to Fisher's exact test, the clinical group was less likely (84%) than the nonclinical group to participate in Time 2 (99%; $p < .01$). [c] Percentage in a committed relationship did not differ by recruitment group (51% of clinical group, 64% of nonclinical group); $\chi^2(1, N = 115) = 1.99$, $p > .10$. However, of those not in relationships (who were primarily never married), participants in the clinical group were more likely to be divorced or separated ($n = 12$) than were those in the nonclinical group ($n = 2$). [d] The percentage of participants completing the couple interaction task was marginally greater in the nonclinical (78%) than in the clinical group (58%); $\chi^2(1, N = 67) = 3.15$, $p = .08$.

parents completed multiple questionnaires and interviews. Together with their parents, participants completed a family interaction task[1]: After individually completing a Kohlberg Moral Judgment Interview (Colby, Kohlberg, & Candee, 1986), family members were asked to discuss differences that emerged in their responses to the moral dilemmas. For each difference identified by researchers, families were instructed to spend 10 min defending their individual positions and then to attempt to reach a family consensus.[2] Family discussions, lasting 40 to 45 min, were audiotaped and transcribed for coding.

At Time 2, participants (then age 31 years) and their partners completed a variety of questionnaires and interviews individually. Together, they completed a videotaped interaction task. After independently identifying areas of relationship disagreement, partners were asked to discuss the disagreement judged most important by each partner for 10 min with the goal of coming to some resolution. To start each discussion, an audiotape of the partner summarizing the problem was played for the couple. Order of the discussion (i.e., man's versus woman's topic first) was counterbalanced. This interaction task has been widely used in marital research (e.g., Gottman, 1994; Markman & Hahlweg, 1993).

Measures

Demographic variables. Basic demographic information, including age, ethnicity, family composition, socioeconomic status, and income, was collected by questionnaire at one or both assessments. We created dummy codes for psychiatric hospitalization at Time 1 (0 = nonclinical sample; 1 = psychiatrically hospitalized sample) and sex (0 = female; 1 = male).

Hostility and positive engagement in family interactions. Family-of-origin interaction patterns were coded from audiotapes and transcripts of the Time 1 family interaction task with the Autonomy and Relatedness Coding System (ARCS; Allen, Hauser, Bell, & O'Connor, 1994). This system yields codes for 10 types of behavior (e.g., hostility, queries, ignoring or interrupting, positive engagement). Coders rated each family member's expression of each behavior category over the course of the entire discussion on a 5-point scale representing the frequency and intensity of the behavior. Because family members' codes were strongly correlated with one another (*r*s ranged from .45 to .88, *p*s $<.05$), and we were primarily interested in how family-wide interaction patterns predict later marital interactions, individual scores were standardized and averaged within families to yield a family-wide measure of each interaction behavior.

Hostility was measured with coder ratings of overt expressions of hostility toward another family member, as evidenced by rude, devaluing, critical, sarcastic, insulting, or angry remarks. Positive engagement was assessed with coder ratings of the degree to which a participant was engaging with, showing interest in, and attempting to understand family members. Coders were supervised in coding transcripts until they reached reliability; once raters were coding independently, reliabilities were assessed randomly and found to be acceptable (intraclass correlation coefficients were all above .80; Allen, Hauser, Bell, & O'Connor, 1994). Prior research has demonstrated the construct validity of these scales (Allen, Hauser, Bell, & O'Connor, 1994). As expected, the family hostility and positive engagement scales were negatively correlated ($r = -.35$, $p < .02$).

Marital interaction patterns. The marital interactions at Time 2 were coded with the Marital Interaction Emotion Coding System (MIEC; Waldinger, Schulz, Hauser, Allen, & Crowell, 2004). The MIEC system involves pooling judgments of multiple lay observers, in the tradition of Ambady and Rosenthal's (1993) strategies for coding nonverbal behaviors. Coders received no training in identifying specific emotions and did not use a manual to guide their ratings but were encouraged to rely on their intuitive abilities to identify emotion. This strategy capitalizes on human beings' highly developed natural capacities for recognition of social behaviors (Schulz & Waldinger, 2005). Individual idiosyncratic biases are removed by aggregating judgments across coders, yielding a more reliable composite judgment. When judgments are pooled, naïve raters' judgments of personality and affective phenomena predict important aspects of interpersonal functioning (Albright, Kenny, & Malloy, 1988; Ambady & Rosenthal, 1993; Waldinger et al., 2004). Aggregate ratings obtained with the MIEC correlate highly with codes from a traditional manualized coding system (Gottman, McCoy, Coan, & Collier, 1996) and are highly predictive of marital satisfaction and break-up (Waldinger et al., 2004).

Six undergraduate-level or bachelor of arts–level coders watched each 30-s segment of the marital interaction twice, rating first one spouse's interaction behaviors and then the other's in counterbalanced order. For each interaction, segment coders rated the intensity of the participant's display of 23 behaviors and emotions (e.g., "acknowledges partner's perspective," "withdrawn," and "critical") using Likert-type scales ranging from 0 (*not at all*) to 9 (*extremely*). Each variable was rated separately so that closely

[1] For these 47 participants, parent participation in the Time 1 family interaction task varied. In 25 families, both parents participated; only the father participated in one family, and only the mother participated in 21 families. Because neither mean levels of interaction patterns nor hypothesized associations differed between those with one versus two parents in the task, this variable is not described further in the article.

[2] In contrast to interactions based on a parent–adolescent disagreement (which typically involve parent criticism of teen behavior and teen defense of the behavior), the discussion of different opinions about a hypothetical dilemma tends to put parents and teens on more equal footing and, in this sense, is more comparable to a marital interaction between equals. Behaviors during this task have predicted outcomes ranging from attachment security, depression, and self-esteem to externalizing behavior (e.g., Allen, Hauser, Bell, & O'Connor, 1994; Allen et al., 2002).

occurring expressions of multiple emotions and behaviors could be captured. To remove individual differences in how the rating anchors were used by individual raters, we standardized all ratings within coder before aggregating across coders. In this sample, the average composite interrater reliability for the 23 individual emotions was .72. Pooling these individual emotion variables into scales enhanced the reliability of these data.

The MIEC yields four scales, derived originally from principal-components analysis: Hostility, Empathy, Affection, and Distress (Waldinger et al., 2004). In the current study, positive engagement was measured with the Empathy subscale, consisting of three items that closely matched the ARCS positive engagement measure used to code Time 1 family interactions: tuned into partner's feelings, interested in understanding partner, and acknowledging partner's perspective ($\alpha = .92$). The Hostility subscale includes ratings of six items: critical, contemptuous, angry, irritable, domineering, and defensive ($\alpha = .94$). To reduce positive skew, we transformed the Hostility subscale using the formula $2x^{2/3}$ (Box & Cox, 1964). Partners' scores were highly correlated on both scales (for positive engagement, $r = .74$; for hostility, $r = .46$, $ps < .001$); therefore, partners' scores were averaged to create couple-level scores. As expected, couple hostility was negatively correlated with couple positive engagement ($r = -.66$; $p < .001$).

Marital adjustment. The Marital Adjustment subscale of the Social Adjustment Scale (Weissman & Paykel, 1974) is an interviewer-rated measure of couple functioning based on a semistructured interview about adjustment in all major life domains. Considering participant responses to five questions about level of conflict, conflict resolution, and partner consideration of the participant's opinions and priorities in the past 2 months, interviewers rate relationship adjustment on a 7-point scale ranging from 1 (*excellent*) to 7 (*severe impairment*). Scores were reversed so that higher scores reflected better marital adjustment. Interviewers were extensively trained with standard procedures (Weissman & Paykel, 1974). Ratings of global marital adjustment showed good interrater reliability (mean correlation =.86). Because husband and wife marital adjustment scores were highly correlated ($r = .78$, $p < .001$), partners' scores were averaged into a couple-level score.

Adult psychopathology. The Structured Clinical Interview for DSM-III-R (SCID; Spitzer, Williams, Gibbon, & First, 1990) was used to assess common psychiatric diagnoses at Time 2. The SCID has demonstrated good validity and interrater reliability, with kappa coefficients ranging from .54 to .85 for current diagnoses. Interviewers, who had clinical experience in psychology, completed supervised training until reliable with an expert diagnostician before conducting study interviews. A clinical psychologist or psychiatrist reviewed all interviews in research diagnostic conferences and made changes, if necessary, in the final diagnoses. A dichotomous variable was created to indicate the presence of an Axis I psychiatric disorder (0 = no current diagnosis; 1 = any current diagnosis).

Data Analyses

Primary analyses were conducted with family-wide measures of hostility and positive engagement at Time 1 and couple-wide measures of hostility and positive engagement at Time 2. We chose this level of measurement because our primary focus was on relationship conflict interaction patterns, which are interactive and reciprocal between partners (for a parallel strategy and reasoning, see Andrews et al., 2000). Although there is also theory to predict continuity in an individual's behavior toward others (e.g., hostility toward parents and, later, toward spouse), individual behavior is difficult to assess in the context of family and marital conflict interactions (as evidenced by the high correlations between family members and between spouses on hostility and engagement scores). Nevertheless, we repeated analyses using individual-level data. Results were highly similar across strategies; therefore, these data are not presented.[3]

Results

Associations of Demographic Factors and Psychopathology With Family and Marital Variables

We first examined associations of demographic variables, including sex, age, income, ethnicity, and adolescent psychopathology with the family and marital variables. Only adolescent psychiatric hospitalization was significantly related to any family or marital variable. At Time 1, families of hospitalized adolescents showed higher levels of hostility, $t(45) = 2.16$, $p < .05$, $d = .69$, and lower levels of family positive engagement, $t(45) = -3.93$, $p < .001$, $d = 1.26$ than did the nonclinical group. At Time 2, the marital interactions of participants from the psychiatric group showed higher levels of marital hostility, $t(45) = 3.21$, $p < .01$, $d = 1.03$; lower levels of positive marital engagement, $t(45) = -4.58$, $p < .001$, $d = 1.47$; and poorer marital adjustment, $t(44) = -2.11$, $p < .05$, $d = .67$, than did the nonclinical group. Given the medium to large effect sizes, Time 1 psychiatric hospitalization was entered as a control variable in all hypothesis-testing models. Male and female participants did not differ on any Time 1 family or Time 2 marital variable.

[3] We also repeated all analyses using family-wide interaction patterns to predict offspring's behavior toward spouse, to parallel the strategy of Conger et al. (2000). In addition, to address the potential confound of differences between participants who completed the family interaction task at Time 1 with both parents versus just one parent (the mother in all but one case), we repeated the analyses using only mother and adolescent data. Finally, to assess whether associations between family interactions and offspring marital interactions differed by parent gender, we performed analyses with mothers' interaction patterns only and fathers' interaction patterns only as predictor variables. Results from all strategies were highly similar to those conducted with family- and couple-level data. Therefore, these results are not presented.

Prospective Links From Family-of-Origin Interactions to Marital Interactions and Adjustment

First, correlations were used to assess simple prospective associations between family-of-origin interaction patterns and offspring's parallel marital interaction patterns 17 years later. Results are shown in Table 1. As hypothesized, higher Time 1 family-of-origin hostility was associated with more marital hostility and less positive engagement at Time 2. Similarly, positive engagement in family-of-origin conflict interactions was positively associated with positive engagement in the observed marital interactions and marginally negatively associated with marital hostility. Also as hypothesized, higher hostility and lower positive engagement in family-of-origin interactions were associated with poorer marital adjustment.

To assess the independent contribution of each adolescent-era variable to the prediction of adult marital variables, we used hierarchical linear regression. In separate regression models predicting positive marital engagement, marital hostility, and marital adjustment, we entered participant sex and adolescent psychiatric hospitalization in the first step, followed by Time 1 family hostility and family positive engagement entered simultaneously in the second step. In the third step, we tested all two-way interactions among family interaction patterns and demographic variables (centered to avoid issues of multicollinearity). Given the lack of power, we did not test three-way interactions. Because the models examined a relatively large number of interactions, we trimmed the models by eliminating nonsignificant interactions (Cohen & Cohen, 1983). Results of the final trimmed models are presented in Table 2.

Consistent with hypotheses, in the model predicting marital hostility, the family interaction patterns together explained an additional 19% of the variance in marital hostility after controlling for adolescent psychiatric hospitalization. However, only hostile family communication, and not family engagement, predicted unique variance in marital hostility. Similarly, in the model predicting marital positive engagement, family-of-origin interaction patterns contributed another 14% of unique variance after controlling for Time 1 psychiatric hospitalization. Again, family-of-origin hostility, but not family engagement, contributed unique variance to marital engagement when all variables were included in the model. No statistical interactions between adolescent-era variables were significant in either model, suggesting that (a) neither sex nor psychiatric status moderated associations between family-of-origin interactions and marital interactions and (b) the influence of family-of-origin positive engagement on later marital interactions was not moderated by family-of-origin hostility levels, nor was the influence of family-of-origin hostility on offspring marital interactions moderated by levels of family positive engagement. However, power to detect interactions was low (Aiken & West, 1991).

To follow up on the finding that family hostility, but not positive engagement, predicted both marital interaction patterns when entered simultaneously, we regressed each marital interaction pattern onto the demographic variables and family-of-origin positive engagement in the first step and onto family-of-origin hostility in the second step. These analyses revealed that, after accounting for family engagement, the addition of family-of-origin hostility added substantial unique variance to the prediction of marital hostility ($\Delta R^2 = .17$, $p < .01$) and positive marital engagement ($\Delta R^2 = .10$, $p < .01$). When the order of entry of these variables was reversed, family engagement did not contribute variance beyond that accounted for by family hostility.

In the model predicting marital adjustment, the family-of-origin interaction patterns did not explain additional variance once sex and adolescent psychiatric status were considered. However, there was a significant Sex × Family-of-Origin Hostility interaction. Analysis of simple slopes (Aiken & West, 1991) indicated a negative association between family-of-origin hostility and marital adjustment for men ($\beta = -.49$, $p < .05$) but not for women ($\beta = .04$, *ns*).

We next explored whether the observed associations could be explained by psychopathology, as a result of links between psychiatric problems and poor interaction patterns at both time points. First, we found evidence of continuity in

Table 1
Simple Correlations Among Adolescent-Era Variables and Marital Variables in Adulthood

	Age 14 variable			
Age 31 variable	Sex (38% male)[a]	Psychiatric hospitalization (32% hospitalized)[b]	Family hostility ($M = 1.14$, $SD = 1.26$)	Family positive engagement ($M = 3.12$, $SD = 0.57$)
Marital hostility ($M = 1.92$, $SD = 0.44$)	.00	.43**	.55**	−.27†
Marital positive engagement ($M = 0.02$, $SD = 0.43$)	−.06	−.56**	−.50**	.49**
Marital adjustment ($M = 6.08$, $SD = 1.11$)	−.09	−.30*	−.32*	.31*

[a] Dummy coded as 0 = female; 1 = male. [b] Dummy coded as 0 = nonclinical group; 1 = psychiatrically hospitalized group.
† $p < .10$. * $p < .05$. ** $p < .01$.

Table 2
Hierarchical Regression Models Predicting Marital Interactions and Marital Adjustment

Adolescent-era predictors	Marital hostility		Marital positive engagement		Marital adjustment		
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 3
Sex (0 = female; 1 = male)	−.01	.00	−.04	−.00	−.08	−.05	−.06
Psychiatric hospitalization	.43**	.32*	−.56**	−.38**	−.30*	−.17	−.23
Family hostility		.47**		−.32**		−.22	.05
Family positive engagement		.06		.18		.14	.07
Sex × Family hostility							−.40*
Sex × Family engagement							
Psychiatric hospitalization × Family hostility							
Psychiatric hospitalization × Family engagement							
Family hostility × Family engagement							
Statistics for step							
R^2	.19**	.38**	.32**	.46**	.10	.17	.25*
ΔR^2		.19**		.14**		.07	.08*
F	5.04**	6.38**	10.36**	8.84**	2.35	2.04	2.66*
(*df*)	(2, 44)	(4, 42)	(2, 44)	(4, 42)	(2, 43)	(4, 41)	(5, 40)

Note. Values presented are standardized regression weights. If no value was entered for a variable in Step 3, its contribution to prediction of the criterion variable was not significant, and it was not included in the final model.
* $p < .05$. ** $p < .01$.

psychopathology; participants who had experienced adolescent psychiatric hospitalization had a markedly higher rate of psychiatric diagnoses at Time 2 (47%) than did participants from the nonclinical group (10%); $\chi^2(1, N = 46) = 8.13$, $p < .01$. Also, as expected, participants with an Axis I psychiatric diagnosis at Time 2 displayed more marital hostility, lower marital positive engagement, and poorer marital adjustment, all ts$(44) > 2$, ps $< .05$. Therefore, we repeated the hierarchical regressions, including adult psychopathology as an additional control variable. The pattern of results was unchanged across all models; family-of-origin hostility continued to predict unique variance in marital hostility and positive engagement for men and women and in marital adjustment for men only.

Mediation Models

To test whether marital interaction patterns mediated the association between family-of-origin interaction patterns and later marital adjustment, we conducted a series of regression analyses (Baron & Kenny, 1986; MacKinnon, Fairchild, & Fritz, 2007). The mediated effect was estimated with the product of coefficients method, and its significance was tested with bootstrapping methods, as is considered best practice in examining mediation for small to moderate-size samples (Dearing & Hamilton, 2006; MacKinnon et al., 2007). We tested mediation separately for each type of interaction pattern (e.g., does marital hostility mediate the association between family hostility and marital adjustment?). For hostility, the data met the prerequisites of mediation (Baron & Kenny, 1986) for men only; family-of-origin hostility predicted marital hostility and marital adjustment (as described above), and marital hostility was associated with poorer marital adjustment ($r = -.38$, $p < .05$). For women, family-of-origin hostility did not predict marital adjustment. Therefore, the model was run for men only. As shown in Figure 2, once marital hostility was included in the model, the effect of men's family-of-origin hostility on marital adjustment was reduced to nonsignificance, whereas marital hostility retained its significance, indicating mediation. The indirect effect of family hostility on marital adjustment was −.26 ($SE = .13$; 95% confidence interval = −.49 to −.01); because zero is not within this interval, the indirect effect can be considered significant at the $p < .05$ level.

For the model testing whether marital positive engagement mediates the association between family positive engagement and marital adjustment, the data met the prerequisites of mediation for the full sample (including men and women). Family-of-origin positive engagement predicted marital adjustment and marital positive engagement (see Table 1), and marital positive engagement was associated with better marital adjustment ($r = .31$, $p < .05$). As shown in Figure 2, although inclusion of marital positive engagement in the model predicting marital adjustment reduced the effect of family-of-origin positive engagement to nonsignificance, the coefficient for marital positive engagement was also nonsignificant. The indirect effect of family-of-origin positive engagement on marital adjustment was .17 ($SE = .14$; 95% confidence interval = −.09 to .49; *ns*).

Discussion

The current findings indicate that family conflict interaction patterns during adolescence prospectively predict offspring marital conflict interaction patterns during adulthood. Even when controlling for the influence of psychopathology, family interaction patterns still accounted for 14–20% of the variance in observed marital interaction patterns. To our knowledge, these findings represent the first observational, longitudinal evidence of continuity in observed relationship behaviors from the family of origin to intimate

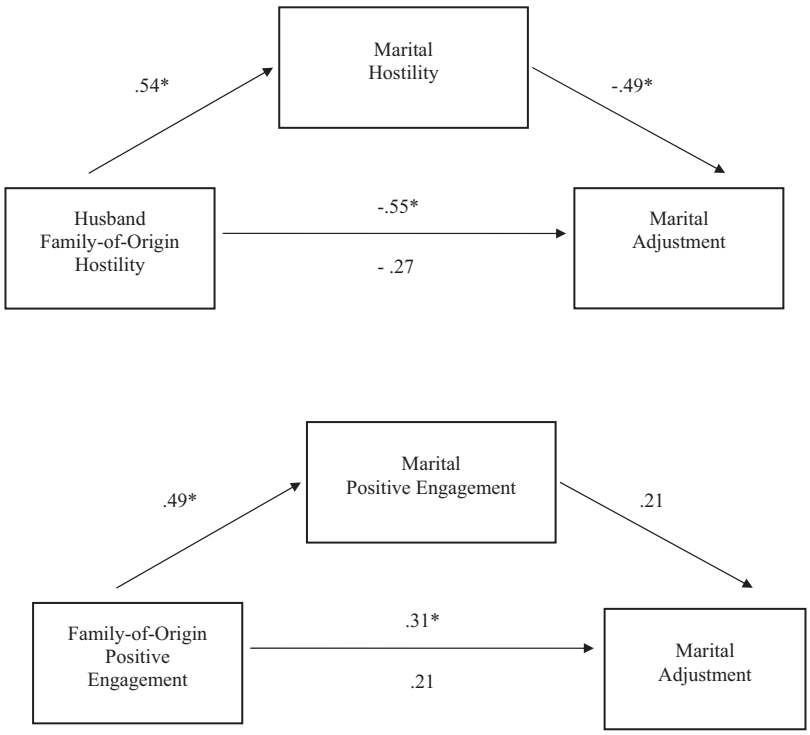

Figure 2. Mediation models predicting marital adjustment. Values are standardized regression coefficients. For paths from family-of-origin interactions to marital adjustment, direct effects are displayed above the path and mediated effects are shown below the path. The model predicting marital adjustment with family-of-origin hostility and marital hostility is shown for men only. $^{\dagger}p < .10$. $^{*}p < .05$. $^{**}p < .01$.

relationships in adulthood (i.e., in offspring's early 30s). As such, these findings extend the existing literature, which has demonstrated continuity in communication patterns over intervals of 10 years or less from the family of origin to dating relationships during late adolescence or early adulthood (ages 18–23 years). Despite the significantly longer interval between assessments in this study (17 years), the magnitude of prospective associations between family-of-origin interactions and later relationship interactions was similar to or larger than that seen in the other studies (e.g., $r = .51$; Conger et al., 2000; $r = .18$, Andrews et al., 2000). Although greater variance in family and marital functioning in this mixed community and clinical sample may have contributed to stronger associations than might be seen in more homogeneous samples, the associations remained moderate to large even when controlling for this variability (by including psychiatric status in the regression model).

This study also adds to the existing literature by examining the relative influence of two specific family-of-origin conflict interaction patterns—positive engagement and hostility—on offspring marital interaction patterns and marital adjustment. In models including both family-of-origin hostility and positive engagement as predictors, only family hostility was predictive of marital hostility or marital positive engagement. It is possible that these findings result from specifics of measurement, such as greater overlap in the coding systems for the hostility scales than for the positive engagement scales or more reliable detection of hostility than positive engagement by coders. However, the simple association between family-of-origin positive engagement and marital positive engagement, which was just as strong as the simple association for hostility, argues against these explanations. Rather, it is when family-of-origin hostility is simultaneously considered that positive engagement ceases to uniquely predict marital interactions. In contrast, even when controlling for family-of-origin positive engagement, hostility predicted unique variance in both marital hostility and marital positive engagement. These results echo the findings of Gottman and collaborators (Gottman, 1994; Gottman et al., 1998) that negative behaviors in marital interactions are more strongly predictive of relationship decline than is the absence of positivity. Hostility not only may be particularly damaging to marriages when expressed during couple conflicts but, when expressed in families, may more negatively influence offspring's future abilities to communicate constructively with romantic partners.

These findings, which do not support a model of specificity in the continuity of positively engaged versus hostile interaction patterns, raise some concerns about the ade-

quacy of a rigid social learning perspective in explaining the intergenerational transmission of communication patterns. Rather than indicating that offspring learn specific interaction behaviors in the family of origin that they then express in later intimate relationships, these results suggest that exposure to family hostility during adolescence has a particularly strong relation to both positive engagement and hostile behaviors in marriage. One plausible explanation is that experiencing hostility in family-of-origin conflicts may foster avoidance of (i.e., low engagement in) problem discussions, as well as hostility, in future relationships. In this respect, these results could be seen as more in line with a developmental psychopathology perspective, in which specific problematic environments in adolescence influence the development of an array of relationship behaviors that influence an array of adult outcomes. Further research is needed to clarify whether associations between family-of-origin characteristics and later intimate relationships are better characterized by pure homotypic continuity (e.g., family hostility solely predicting future marital hostility) or heterotypic continuity (e.g., family hostility predicting multiple marital behaviors and outcomes).

It is also possible that other mechanisms beyond social learning account for the general continuity in conflict resolution patterns from the family of origin to adult relationships. A disengaged or hostile family environment may foster development of an insecure attachment style (Howes & Markman, 1989; Lewis, Feiring, & Rosenthal, 2000), which in adulthood may predict maladaptive behaviors during marital conflicts (Crowell et al., 2002; Simpson, Rholes, & Phillips, 1996). Alternatively, genetic similarities between parents and offspring may account for similarity in their relationship behaviors (Harden et al., 2007), or individuals may select partners who use communication patterns similar to those experienced in their families of origin. Additionally, an unmeasured variable (e.g., global level of individual functioning) may contribute to both family and marital functioning, accounting for their association. This concern is somewhat mitigated, however, by the persistence of associations between family-of-origin interaction patterns and marital interaction patterns when controlling for psychopathology at both time points.

The hypothesis that continuity in conflict resolution patterns from the family of origin to offspring's later marital relationships is a mechanism through which families of origin influence adult marital quality received mixed support. According to zero-order correlations, higher hostility and lower positive engagement in the family at age 14 years were linked with poorer marital adjustment at age 31 years. Moreover, for men, family-of-origin hostility was linked to poorer marital adjustment, even when controlling for the strong influence of adolescent psychopathology, and the influence of family-of-origin hostility on men's marital adjustment was mediated by marital hostility. This finding supports the notion that, at least for men, experiences in family-of-origin conflicts are important to later marital adjustment because of the ways in which they shape patterns of interaction around conflict, consistent with evidence from studies based on retrospective data (Story et al., 2004). In contrast, there was no evidence that positive marital engagement mediated the influence of family-of-origin engagement on marital adjustment. In sum, the findings are suggestive of hostile interactions as a mechanism of intergenerational transmission of relationship functioning for men, although nonsignificant results for women and for positive engagement should be interpreted with caution given the low power in this small sample.

The sex difference found in links between family-of-origin hostility and later marital adjustment adds to previous research suggesting that men may be at greater risk than women for poor marital outcomes if they experienced hostile conflicts in the family of origin. For example, exposure to interparental aggression by men, but not women, has been linked with negative affect and communication during problem discussions among couples (Halford et al., 2000). Moreover, the current findings from mediational models corroborate previous evidence that family-of-origin negativity influences men's, but not women's, marital outcomes by increasing the likelihood that the man and his spouse engage in hostile conflict resolution patterns (Story et al., 2004). However, in contrast to those studies, we found no sex difference in the associations between family-of-origin hostility and marital hostility. Men and women who experienced hostile family interactions as adolescents were equally likely to have hostile marital interactions (the stronger findings for men only emerged in our data when predicting marital adjustment). The difference in findings could be due to our use of prospective, observational measures of family-of-origin conflict; other studies using similar methods also have not found sex differences (e.g., Conger et al., 2000). It is possible that although the actual experience of family-of-origin hostility is linked with similar marital interaction patterns for both sexes, current perceptions of family-of-origin relations (as captured by retrospective report) are associated with marital interactions only for men.

This study has several important strengths that bolster our confidence in the findings. First, the longitudinal design allowed for prospective tests of the proposed associations between family-of-origin and marital variables. This avoids problems associated with retrospective reports, which may be influenced by current mood and relationship experiences. Another important strength is our use of observational, rather than self-report, measures of both family and marital interaction patterns during conflict discussions. The effect sizes for hypothesized associations were generally moderate to large and persisted when controlling for the powerful effects of adolescent and adult psychopathology. Moreover, findings were robust across various strategies of measurement (i.e., when assessing interactions at the individual level, at the family level, or solely between mothers and adolescents; see Footnote 3).

Nevertheless, several important limitations of the study should be noted. Most significantly, the current sample was not a representative one. Although the inclusion of a clinical group ensured a wide range of psychosocial functioning in a relatively small sample, the fact that over 30% of partic-

ipants were psychiatrically hospitalized during adolescence certainly limits generalizability of findings. Additionally, participants who completed both the family interaction at age 14 years and the adult couple interaction (and were therefore included in present analyses) had more engaged families of origin and better adjusted marriages, were more likely to be in a committed relationship (by definition), and were less likely to have a history of severe adolescent psychopathology, as compared with other study participants. Further, the sample was not diverse in terms of socioeconomic status, race, or ethnicity. Because all of these issues impact the generalizability of findings, it is important that the current results be replicated in larger, more representative samples. Additionally, as is often the case when collecting in-depth data across many years, the sample size was relatively small, limiting our statistical power to detect substantive relations between variables, especially mediating and moderating effects that may have been present. Null findings should therefore be interpreted with caution.

With these caveats in mind, the current findings add to our understanding of close relationships by suggesting that the strategies families use to resolve differences are strongly connected to offspring's eventual experiences in intimate adult relationships. As such, they are supportive of a developmental approach to studying marriage, which takes into account experiences and characteristics that precede the marital relationship (Bradbury, Cohan, & Karney, 1998; Bryant & Conger, 2002). Conceptualizing destructive marital conflict as reflecting, in part, long-learned patterns, rather than simply as a response to current relationship problems, may be useful clinically, especially when addressing conflict that appears to be treatment resistant. The current findings also support family-based interventions to promote healthy parent–child communication, which not only may improve current family and child functioning but also may prevent dysfunction in offspring's adult relationships. The robust effects of family hostility on offspring's marital functioning support a particular clinical focus on reducing the expression of hostile affect between family members. Such interventions may alter the offspring's behavioral repertoire for handling conflict in future intimate relationships, not only by reducing the expression of hostility but also by increasing positive engagement in problem resolution, both of which are associated with higher marital quality (M. D. Johnson et al., 2005) and lower risk for divorce (e.g., Rogge & Bradbury, 1999). Because negative couple communication also predicts maladaptive future parenting interactions with children (Lindahl, Clements, & Markman, 1997), early intervention to alter these communication patterns may help to break the cycle in which poor interpersonal communication is transmitted from one generation to the next.

The current findings also suggest that assessing couples' family histories of conflict resolution may help determine risk for destructive marital conflict and distress. Identification of such high-risk couples is important for the most effective use of relationship education programs that teach couples healthy communication skills. Although marriage education programs have demonstrated overall effectiveness in improving couple communication (see Halford, Markman, Kline, & Stanley, 2003), the positive effects may be limited to high-risk couples (Halford, Sanders, & Behrens, 2001). Consequently, there has been a call for shifting to a secondary prevention approach, in which high-risk couples are targeted for intervention. Our data suggest that targeting couples who experienced poor family-of-origin conflict resolution to receive communication skills training may be warranted.

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