

# Anger in families: Individual and dyadic contributions

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## Abstract

We addressed three questions about anger in the family, including the derivation of anger, the presence of anger contagion, and the degree to which family members share perceptions about anger in the family. Seventh-grade children, mothers, and fathers independently reported on the frequency and intensity of anger in six family relationships (child to mother, mother to child, child to father, father to child, mother to father, and father to mother). Analyses based on the social relations model revealed that family members share the belief that anger in the family is the result of individuals' own styles of anger and, to a lesser degree, is created within unique relationships. Family members also recognized emotion contagion effects across all familial relationships. Overall, children, mothers, and fathers seemed to share perceptions about anger in the family with one exception. Implications for further research and family relationships are discussed.

## Keywords

Anger, emotion contagion, families, family conflict, marital conflict, parent–child relations, social relations model

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Anger is a frequently and often intensely experienced emotion in family settings (e.g., Averill, 1982; Carpenter & Halberstadt, 2000; Kassinove, Sukhododolsky, Tsytsarev, & Solovyova, 1997). From a functionalist perspective, anger provides a means by which individuals maintain, change, or terminate relationships between themselves and others (Campos, Mumme, Kermoian, & Campos, 1994; Dix, 1991) and, thus, is important to study regarding the dynamics of family life. Surprisingly, however, few studies have examined anger in families, or the beliefs that family members have about anger and how it develops within the family constellation. Further, the limited studies on familial anger have tended to focus on anger as a component of aggression or abuse, rather than on the ordinary and normative experiences of anger that result from the typical human experience; included only mothers and children, with little attention to fathers; and considered maternal influence on children, but rarely the influence that children may have on their parents. The current study improves on these issues by including the perspectives of children, mothers, and fathers regarding typical anger in their own families.

We had three goals. First, we aimed to assess the degree to which anger in families is understood to be “in” individuals in a trait-like way or is perceived to be constructed within relationships. Second, we aimed to assess the presence of emotion contagion within and across family relationships. Third, we assessed the degree to which individuals share similar versus different perspectives about anger in the family. To do so, we utilized the social relations model (SRM), a statistical tool that allowed us to understand the individual, relational, and reciprocal aspects of familial anger by identifying sources of variability in family relationships (e.g., Cook & Kenny, 2004; Eichelsheim, Deković, Buist, & Cook, 2009; Kashy & Kenny, 1990). We highlight the rationale for our goals below and then discuss what this unique type of self-report data can tell us.

### *How much is anger in individuals and/or in relationships?*

Whether behavior is “in the person” and/or “in the context” has been a classical (e.g., Alker, 1972; Mischel, 1968) and continuing debate (e.g., Caspi & Roberts, 2001; Funder, 2006). Within the realm of emotion, the experience of anger has long been thought of as a personality or trait characteristic or part of a hostile interpretive bias (e.g., Deffenbacher et al., 1996; Epps & Kendall, 1995; Spielberger, 1980). Anger elicitation effects, in which certain people seem to be magnets for other people’s anger, have also been noted to be as strong as anger expression effects in adult work groups (Eisenkraft & Effenbein, 2010).

An understanding of anger as a trait-like phenomenon is widespread (e.g., over 1,200 studies using measures assessing trait anger can be found in PsycINFO). Although little extant work assesses the influence of trait anger in the family context, there is some supporting evidence for individuals’ own anger styles affecting familial relationships in the form of children’s externalizing behavior (Renk, Phares, & Epps, 1999) and familial quarreling and negativity (Eichelsheim et al., 2011). Individuals’ elicitation of anger within the family is also likely; family quarreling with adolescents appears to be linked to their own unique attributes (Eichelsheim et al., 2011), and adolescents’ psychopathology appears to be associated with their consistent elicitation of angry and unfriendly responses from parents (Cook, Kenny, & Goldstein, 1991).

Anger has also been increasingly understood as created within relationships as well as something individuals bring to their relationships (e.g., Campos et al., 1994; Clark & Phares, 2004; Eisenkraft & Elfenbein, 2010; Papp, Kouros, & Cummings, 2010). In fact, Mesquita (2010) argues that emotions, including anger, should be viewed entirely as relationship acts; the family provides an ideal organizational system in which to consider these relationship effects. Given the differing roles and hierarchical relationships within the family system (e.g., Kuppens, Van Mechelen, & Meulders, 2004), specific relationships may have unique anger repertoires. If so, anger within parent-child relationships might be different than anger between parents (e.g., Carpenter & Halberstadt, 2000; Eichelsheim et al., 2011; Larson & Almeida, 1999). The only extant information evaluating both of these perspectives within family systems is a longitudinal study that suggests increasing behavioral consistency of individuals' expression of anger over time (Barry & Kochanska, 2010), but this consistency may emerge from individual expression or elicitation effects and/or unique developments within particular relationships. Thus, this study serves to fill the gap regarding the degree to which anger is individually created and received within the family and/or develops within unique relationships.

To assess anger as a function of individual characteristics, we used the SRM to examine what are called "actor" and "partner" effects for all family members as perceived by all family members. Within a family, an actor effect is one person's consistency in anger expressions across all familial relationships; a partner effect is one person's tendency to elicit anger in consistent ways from all family members. Based on previous work (e.g., Eichelsheim et al., 2009), we predicted that both actor and partner effects would be visible in the family context.

To assess whether anger is embedded within relationships, we examined "relationship" effects in the SRM. These reflect the adjustment an individual family member makes for another specific family member, after controlling for both members' general tendency toward expression and elicitation. For example, how often a mother gets angry at a father is more than the simple result of how often a mother gets angry in general (actor effect) and how often family members get angry at a father in general (partner effect); rather, there may be something unique, above and beyond actor and partner effects, about this relationship that predicts how often a mother gets angry at a father (relationship effect). Because all family relationships might have special characteristics based on their unique roles, we expected that relationship effects would be present, but made no specific predictions about which relationships would be most evident. As a whole, relationship effects are interesting because they suggest the contextual nature of anger existing above and beyond trait-like components of anger.

### *Anger contagion*

Within the family context, the way in which one family member expresses anger is likely to elicit responses from other family members in consistent ways (e.g., Barry & Kochanska, 2010; Cummings, Zahn-Waxler, & Radke-Yarrow, 1981; Eichelsheim et al., 2009; Larson & Gillman, 1999). This phenomenon may be conceptualized as emotion contagion, whereby emotion expressions, tone of voice, and/or gestures of an individual elicit a similar emotion and subsequent behavioral responses in the perceiver (Hatfield,

Cacioppo, & Rapson, 1994). In the SRM, an individual's generalized reciprocities (i.e., correlations between a family member's actor and partner effects) can be positive, providing evidence of contagion. They can also be negative, providing evidence of suppression. In other words, frequent anger expressed by one actor to all family members may result in frequent anger from all members toward the actor, but frequent anger expressed by one actor could also lead to anger suppression in all family members toward that actor.

Although individuals' generalized reciprocities of anger demonstrate patterns of emotional contagion or suppression as a general quality of a particular person, dyadic reciprocity effects capture the bidirectionality specific to a particular relationship between two family members. For example, mothers seem to adjust their interactions with their children based on the children's anger reactions during frustration (e.g., Cole, Teti, & Zahn-Waxler, 2003), which may then influence the children's future emotional reactivity with their mothers. Thus, dyadic reciprocities represent the extent to which emotional contagion or suppression may be unique to specific relationships.

Because familial relationships are highly interwoven, we predicted substantial contagion of anger (generalized reciprocities) within the family. Although there is no extant research on dyadic reciprocities, related studies suggest that expression or suppression of anger may vary depending on the power structure of the relationship (e.g., Chen, Langner, & Mendoza-Denton, 2009; Kuppens et al., 2004). Because parents have relatively equal power with each other but greater power with children, we thought that anger expressed and elicited in parents' relationships could be different than the anger expressed and elicited in the relationships between parents and their children (Rasbash, Jenkins, O'Connor, Tackett, & Reiss, 2011); thus, we tentatively predicted dyadic reciprocity effects specific to parents versus children.

### *Different perspectives from different vantage points in the family*

Self- and other-reports in the SRM are unique in several ways. First, all effects are reported by three independent sources, providing triangulation of perspectives. Second, because children, mothers, and fathers each provided assessments regarding anger in each family member's relationships, we are able to consider the extent to which family members may perceive and experience the family environment differently. We were fairly confident that seventh-grade children would be able to make fine-grained assessments of anger in the family, given previous research suggesting that young children seem to accurately report their own anger based on concordance with objective judgments of children's anger in laboratory settings (e.g., Durbin, 2010; Hubbard et al., 2004) and that young adolescents approach or equal adult recognition rates of anger in others (e.g., Herba et al., 2008; Matsumoto & Kishimoto, 1983). However, it was unclear whether different perspectives or authority-based roles within the family would be associated with different perceptions regarding where anger "resides" or the degree of anger contagion in the family. Although we had no conceptual reason or extant work available to predict differences in parents' and children's assessments, we capitalized on the richness of our data set to explore this issue.

To summarize, we predicted that anger would be found to be “residing” both in individuals and in relationships by virtue of family member reports of both individual (actor and partner) and relationship effects within the family. We also predicted that anger contagion would be prevalent in families, as evidenced by the presence of individual family members’ generalized reciprocities, and we tentatively predicted dyadic reciprocities that would reflect distinctive patterns of family relationships. Finally, we assessed, without making specific predictions, the degree of similarity in family members’ perceptions for actor, partner, and relationship effects and for the degree of anger contagion noted across family relationships.

## **Method**

### *Participants*

Participants were 74 complete family triads ( $N = 222$  individuals), comprised of seventh-grade children ( $M$  age = 12.35,  $SD = .56$ ; 42 boys), their fathers ( $M$  age = 41.34,  $SD = 7.01$ ), and their mothers ( $M$  age = 39.18,  $SD = 6.11$ ). Families were from a small town in North Carolina, United States, and reported their ethnicity as: African American ( $n = 19$ ), Asian American ( $n = 2$ ), European American ( $n = 21$ ), Hispanic American ( $n = 7$ ), Native American ( $n = 10$ ), multiracial ( $n = 6$ ), or other ( $n = 9$ ). Twelve fathers and 8 mothers had not completed high school, 43 fathers and 46 mothers had achieved a high school degree, and 16 fathers and 18 mothers had completed college or more. Five parents omitted educational status. Forty percent of the students at the school were eligible for free lunches and 10% for reduced price lunches.

### *Procedure*

A special social sciences module was offered to the entire seventh grade ( $N = 180$ ) as a way to make science more engaging in middle school. In all, 173 parents consented to have their children participate and to include their children’s data in this study. Children completed the survey at school, as described below. Parents were invited to participate as “two-parent sets;” 55% of the parents pursued this option and received financial compensation for their time. For ethical reasons, children without two available parents in the home were able to invite other adults to complete the forms, however, these sets ( $n = 20$ ) were not included in the study. Parents were asked to complete surveys at home, to work independently, and to seal their responses in separate envelopes. Parents were able to return forms over a 2-week period. Forms were examined upon receipt to make sure that the handwriting was dissimilar; two families’ data were consequently discarded, leaving 74 two-parent families with complete data for one child. After compiling the data, the researchers returned to the classrooms to teach about the basics of behavioral research and summarize results.

### *Anger survey*

The survey, modified from Averill (1982) and Carpenter and Halberstadt (2000), assessed reasons for being angry in the family, and the frequency, duration, and intensity

in each of six dyadic relationships, namely child to mother, child to father, father to child, father to mother, mother to child, and mother to father. For each dyadic relationship, the participant first identified the most frequent cause of anger in that relationship and then rated each dimension on a 7-point Likert scale: (1) how often the actor gets angry at the target for this reason (1 = *never* to 7 = *always*), (2) how long the anger lasts (1 = *very short time* to 7 = *very long time*), and (3) how intense the anger is (1 = *very mild* to 7 = *very strong*), in that order.

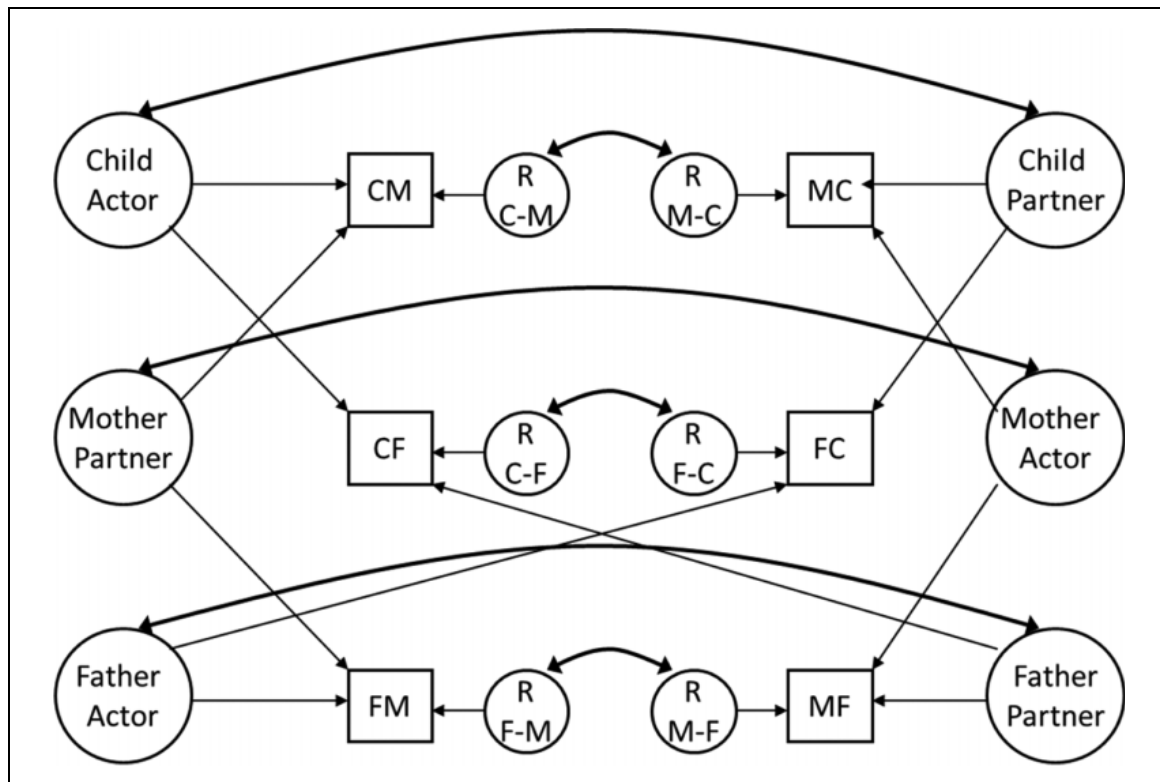
Participants rated all anger dimensions within a relationship before moving on to rate anger in the next relationship. Participants began with their anger toward a target (i.e., for the child, his/her anger toward the mother), then the target's anger back toward them (i.e., for the child, his/her mother's anger toward the child), before moving to the next target (i.e., his/her anger toward the father). The last set was the relationship for which the participant was not involved but served as an observer (i.e., for the child, the relationship between the mother and father). Thus, each participant reported on three anger dimensions for each of six relationships. The survey took approximately 20 min to complete.

### Statistical design

In the SRM for this round-robin family design (Kenny, 1990), the focus is on how much of the variance is due to each component. Utilizing mPlus (Muthén & Muthén, 2012), a confirmatory factor analysis framework was used to estimate the SRM. Although we have only three family members, there are multiple indicators per relationship in this study; thus, we were able to estimate actor, partner, and relationship effects as latent variables rather than estimating relationship effects as correlated residuals. As a result, we avoid the problem of estimating error within the relationship effects as is often the case with three-person models (Kenny et al., 2006).

There were a total of 36 indicator variables (Three Respondents  $\times$  Two Anger Ratings [duration and intensity]  $\times$  Six Directional Relationships; e.g.,  $M \rightarrow F$ ).<sup>1</sup> The six manifest variables were the ratings of duration and intensity in the six dyadic directional relationships; these are represented in Figure 1 with squares. Each of the six actor and partner factors (i.e., an actor and a partner factor for mother, for father, and for child) loaded on two different indicator variables (e.g., MF [mother–father] and MC [mother–child] variables loaded onto the mother actor effect while the FM [father–mother] and the CM [child–mother] variables loaded onto the mother partner factor; these are represented in Figure 1 as the outer circles. Dyadic relationship effect factors were also estimated to assess whether there was variance unique to the relationship that cannot be explained by generalized actor and partner effects. Each variable also loaded onto the dyadic relationship factors (see Figure 1).

The two indicator ratings were family members' ratings of anger intensity and anger duration. Although the actual models utilized 36 indicators, the squares in Figure 1 represent 6 of these independent manifest indicators to simplify and clarify the model notation. All factor loadings were constrained to 1.0 as is typical in SRM analyses (Kenny et al., 2006). Maximum likelihood estimation was used in all models. The current study meets the minimum requirements for performing SRM analysis in that it includes at least three members of each family (Cook et al., 1991) and has a sample of at least 50 families (Kashy & Kenny, 1990).



**Figure 1.** Social relations model for estimating individual (actor and partner) and dyadic (relationship) variances as well as the correlations between actor and partner variances (individual reciprocity) and relationship variances (dyadic reciprocities) from anger survey data. Each square represents six independent observed measures (child, mother, and father ratings of both anger intensity and duration). These six ratings were made for CM = child's anger toward mother; MC = mother's anger toward child; CF = child's anger toward father; FC = father's anger toward child; FM = father's anger toward mother; and MF = mother's anger toward father. Outer circles were modeled as latent factors. Inner circles are the relationship effects; R CM = relationship of child toward mother. Curved arrows represent correlations.

*Baseline and family factor models.* The baseline SRM model allowed for the classic test of actor, partner, relationship, and reciprocity effects. Actor effects were modeled via 12 pieces of information: the six ratings for each of the duration and intensity ratings. Partner effects were similarly based on 12 indicators for instances when the relevant party was the recipient of anger. Six directional relationships were also modeled as latent factors. For instance, the CM factor included ratings from each of the three observers of the child's anger duration and intensity toward the mother (a total of six indicators). A separate factor was then estimated for the MC dyadic relationship as well as the four additional dyadic combinations (child–father, father–child, MF, and FM).

Also, as is typical in an SRM (see Kenny et al., 2006), the residual variances for like items were allowed to correlate such that correlated residuals were modeled for all indicators of anger duration. Similarly all residuals of anger intensity were also allowed to correlate. We also attempted to control for rater method effects by allowing correlated residual variances for indicators associated with a common source. For instance, all ratings made by the child observer were allowed to correlate. Similar correlations were

allowed for ratings from mothers and also fathers. The correlated uniqueness model (Marsh, 1989) has been used to control for method effects in a number of studies (e.g., Merz & Roesch, 2011; Meyer, Frost, Brown, Steketee, & Tolin, 2013).

We estimated covariance terms between the actor and partner effects in order to provide an estimate of the individuals' generalized reciprocity component, while covariances between the dyadic latent factors represent dyadic reciprocity. Covariance terms are indicated with curved bidirectional arrows in Figure 1.

Because a full SRM including a family effect cannot be estimated with three-person families (Eichelsheim et al., 2009, Kenny et al., 2006), we also ran a family factor model, adopting the strategy recommended by Kenny et al. (2006). First, we estimated the baseline model without the family effect. We then deleted baseline model effects that were not significant (as well as any correlations involving these effects) and then introduced the family factor into the model. Each of the 36 observed variables served as an indicator of the family factor.

*Multigroup CFA models.* To investigate the degree to which perceptions differed across the three rater groups (children, fathers, and mothers), we estimated a multigroup CFA model with three groups; for these analyses, three covariance matrices were computed, one per rater group. The same conceptual model as depicted in Figure 1 was estimated. However, for each of the three groups, only 12 indicators were available. Also, as all ratings were from a single rater in each group, there was no modeling of unique variance correlations across raters.

We estimated a baseline model equivalent to that described earlier. Then we constrained various variance components to be equal across the three groups. We examined changes in model fit using likelihood ratio ( $\chi^2$  difference) tests. For instances in which variance components differed across rating groups, we ran pairwise follow-up tests to determine the source of these differences.

## Results

### *Anger in individuals and relationships*

Fit of the baseline model was adequate,  $\chi^2(198) = 262.41$ ;  $p = .0015$ , CFI = .91, RMSEA = .066, SRMR = .090. Fit of the family factor model was also adequate,  $\chi^2(204) = 275.27$ ;  $p = .0006$ , CFI = .957, RMSEA = .069, SRMR = .092. However, the family factor was not significant;  $p = .114$ . Because the family factor model required the removal of nonsignificant baseline model parameters and the family factor did not contribute any additional insights into the family dynamic, we have interpreted results from our baseline model only.

As shown in Table 1, all three actor effects and all three partner effects are significant; thus, family member reports of both the expression and elicitation of anger indicate understanding anger in part as a function of the individual who is angry or is eliciting anger. As shown in Table 2, two of the six relationship effects were also significant. Specifically, both mothers' and fathers' anger at children are distinctive and have unique properties above and beyond the general actor and partner effects evident in those family relationships.



**Table 1.** Actor and partner variance estimates, and individuals' generalized reciprocity correlations.

Family member	Actor variance	Partner variance	Generalized reciprocity
Child	.262*	.287**	.264**
Mother	.331*	.459**	.467***
Father	.462***	.274*	.314**

Note. Because variance is, in principle, positive, all tests are one-tailed, testing the null hypothesis that variance does not differ from 0 (Cook & Kenny, 2004).

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**Table 2.** Relationship variance estimates with directional relationships.

Relationship	Relationship effects
Child–Mother	.228
Mother–Child	.308*
Child–Father	.126
Father–Child	.375*
Mother–Father	.047
Father–Mother	.148

Note. Because variance is, in principle, positive, all tests are one-tailed, testing the null hypothesis that variance does not differ from 0 (Cook & Kenny, 2004). Dyadic reciprocities could not be estimated, because the variance of the dyadic pairs was not significant for any of the pairs of relationships.

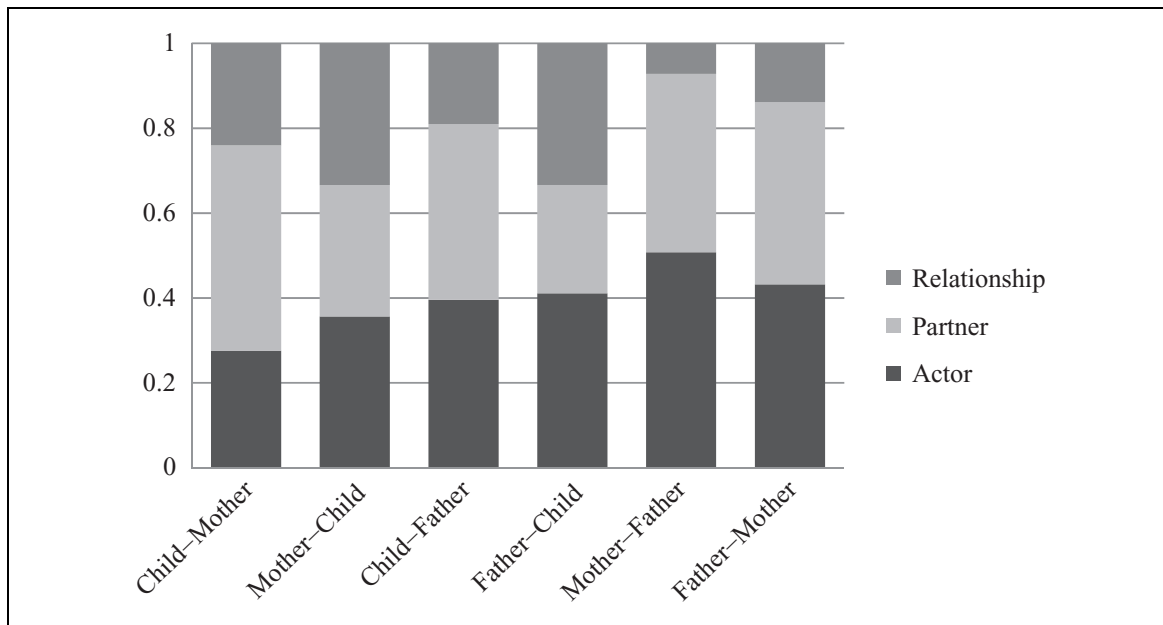
\* $p < .05$ .

In addition to the tables reporting statistical significance, we depict the magnitude of actor, partner, and relationship effects in relation to the other effects in Figure 2. The mean variance accounted for by actor and partner effects was 39.66% and 38.53%, respectively; relationship effects accounted for 22.81%.

### Contagion of anger

To determine if anger is contagious within family relationships, we examined the presence of individuals' generalized reciprocities, as described above. Because both actor and partner effects were significant for each family member, all three generalized reciprocities could be estimated. As shown in Table 1, all three estimated generalized reciprocities were significant, indicating substantial effects for contagion. Also, all effects were positive, indicating in every instance that the more anger was expressed toward a specific partner, the more it was elicited in return, regardless of the specific dyad involved.

Dyadic reciprocities indicate contagion within a particular relationship over and above the generalized tendency for a person to respond with anger in kind. However, these could not be estimated because none of the corresponding relationship effect pairs (e.g., CM and MC) were both significant. The inability to estimate dyadic reciprocity suggests that anger contagion may be a consistent generalized quality of individual family members to respond to anger with similar anger, regardless of the specific dyad



**Figure 2.** Percentages of variance due to actor, partner, and relationship effects. The lowest bands show the amount of variance accounted for by actor effects, the middle bands by partner effects, and the top bands by relationships effects. Reports by each family member (child, mother, and father) are included within each column.

**Table 3.** Multigroup model assessing differing perceptions by reporter.

	Model fit					Likelihood ratio test	
	<i>df</i>	$\chi^2$	<i>p</i>	CFI	RMSEA	$\Delta\chi^2$	<i>p</i>
Baseline model	54	67.47	.103	.944	.058		
Variations constrained by							
Actor	60	78.95	.051	.921	.065	11.48	.077
Partner	60	77.89	.060	.926	.063	10.42	.108
Relationship	66	87.48	.040	.911	.066	20.01	.066
Generalized reciprocity							
Actor-partner	81	113.06	.011	.867	.073	45.59	.014*

Note. Analyses were compared to the baseline multigroup model using three groups. Dyadic reciprocity could not be investigated because the variance of the dyadic pairs was not significant for any of the relationships. \* $p < .05$ .

involved. In other words, as an example, mothers were seen as reciprocating anger toward fathers in the same manner as they did children.

### *Differences in perceptions*

Fit for group-specific baseline and nested models can be found in Table 3. As can be seen, the estimated actor, partner, and relationship effects did not significantly differ

across mother, father, and child rater groups, indicating that the perceptions of where anger resides in the family are similar across reporters. However, there was a significant difference among the estimated actor-partner variances and covariances once all were jointly constrained to be equal (see Table 3). Pairwise follow-up tests indicated that this was due to differences between father and child raters ( $\Delta\chi^2 = 30.21$ ,  $\Delta df = 15$ ,  $p = .011$ ). Inspecting the output indicated that the actor-partner reciprocity estimates for child raters (child actor-child partner covariance = .96, mother = .70, father = .86) was considerably larger than that of father raters (child = .45, mother = .29, father = .37), indicating that children perceive more contagion within relationships than do fathers. Mothers' perceptions of contagion fall midway between fathers and children and are not significantly different from either.

## Discussion

The overarching goals of this study were to examine the "locations" of anger (i.e., within individuals or within relationships), the prevalence of emotion contagion when family members are angry at each other, and similarity in perceptions of anger across various family members. To our knowledge, this is the first attempt to elicit three different family members' reports about angry feelings in the family, specifically, in a full round-robin design.

Overall, the substantial number of significant effects demonstrates that, within the context of family life, anger is a function of the behavioral consistency that individuals bring to their relationships and, to a lesser degree, the emergent quality of their relationships with one another. The individuals' generalized reciprocity effects also provide substantial evidence of contagion effects within family relationships, regardless of the nature of the particular dyad involved. Given that mothers, fathers, and their seventh-grade children were independent reporters, results also demonstrated a surprising amount of consistency in perspectives across family roles, particularly for perceptions to actor, partner, and relationship effects. There was also an interesting difference in perceptions, with children perceiving greater emotion contagion within relationships than fathers. We discuss these points further below.

### *Where does anger reside in the family?*

Our participants agreed that family members uniformly demonstrate behavioral consistency as actors, expressing anger in similar ways regardless of the target. They also identified substantial behavioral consistency for themselves and others as partners, eliciting others' anger regardless of actor effects. Relationship effects were also identified for parents' anger with their children. These results are generally quite consistent with a review of SRM studies on family affect (support, warmth, and attachment) in three-person families (Eichelsheim et al., 2009). One exception is our finding of slightly larger partner effects, which is perhaps not surprising in a study on anger, given that both actor and partner effects support previous claims of anger as related to personality traits (e.g., Deffenbacher et al., 1996). These are also slightly larger than found for expressed negativity (Rasbash et al., 2011), perhaps because they are reports of the internalized

experience of anger rather than observed expressions of hostility or contempt which may be suppressed relatively more than the feelings themselves.

The relationship effects suggest a more complex family systems understanding of anger, and provide some support for the conceptualization of emotion as created within social contexts (Barry & Kochanska, 2010; Mesquita, 2010). In accordance with this conceptualization, significant percentages of variance were associated with relationship effects for both parents' anger at children. These relationship effects indicate parents' unique adjustments in these relationships, suggesting that both mothers and fathers are responding to children in ways above and beyond their general experience of anger. This is also somewhat consistent with Eichelsheim, Deković, Buist, and Cook (2009). In contrast to that review of primarily positive affect in the family, however, we found relatively weak relationship effects for interparental anger, suggesting that actor and partner effects were largely sufficient explanations for anger in those relationships. These findings of different relationship effects by family role suggests the distinctiveness of different relationships in the family and is worthy of further study.

Also of interest are the effects that did *not* happen. First, it is interesting to note that no self-serving effects emerged for children, mothers, or fathers. For example, the percentage of variance associated with partner effects in mothers' reports of the anger they themselves experienced toward other family members (i.e.,  $M \rightarrow C$  or  $M \rightarrow F$ ) was not larger than the partner effect in mothers' reports which involved their own "culpability" as a partner (i.e.,  $C \rightarrow M$  or  $F \rightarrow M$ ) or other partner effects in which they were not involved ( $C \rightarrow F$  or  $F \rightarrow C$ ), nor did they perceive larger actor effects for the relationships in which they were eliciting anger more so than any other actor effect. Thus, family members were not assigning relatively greater responsibility to others for their own anger or for the anger they received. Second, although reporter differences emerged as noted above, overall the actor, partner, and relationship effects were similar across the six family relationships. Therefore, what might vary across family relationships may not be large variations in the size of these effects but rather the instigating events leading to anger and their perceived meanings (Carpenter & Halberstadt, 2000), mean levels of anger (Ross & Van Willigen, 1996), and outcomes that emerge from the experience and expression of anger (Bronstein, Briones, Brooks, & Cowan, 1996; Cox, Lopez, & Schneider, 2003).

### *Anger as a consequence of others' anger*

The SRM analyses of family reports of anger indicate pervasive evidence that anger is contagious within families. We could not estimate dyadic reciprocity effects because these effects are dependent upon significant bidirectional relationship effects; that is, although mothers' anger at children and fathers' anger at children showed unique properties, above and beyond the overall actor and partner effects, there were no reciprocal directional relationships ( $F \rightarrow M$  and  $M \rightarrow F$ ) that were both significant. These results suggest that although anger contagion is abundant within the family, unique adjustments within specific relationships were not noted by family members. It is notable that not any one family member (e.g., child, mother, or father) was perceived as an "emotional magnet"; that is, although we have no direct test of family members'

perceptions of individuals as emotional magnets, there was no greater (or lesser) emotion contagion associated with any one family role. We also did not find evidence that contagion was greater from parents to children than vice versa. Instead, it appears that anger contagion is systemic and generalized, rather than embedded in any particular relationship. In concert with observations of parents with much younger children (Barry & Kochanska, 2010), these results together suggest consistent effects across children's lives.

We also note that all reciprocity effects were positive, providing evidence only for contagion and not suppression. We imagine, however, that suppression effects might occur in authoritarian or highly hierarchical families in which children are not allowed to express anger toward authority figures, or in abusive families in which children's anger might activate further abuse from the parent. Children in abusive families are more skilled than other children at recognizing anger in adults (Pollak, Messner, Kistler, & Cohn, 2009); perhaps suppression of anger follows as a second step in a self-protective process. Alternatively, shared family values that emphasize family harmony over the exploration of conflicts, or beliefs regarding anger expression as dangerous or harmful, might also lead to suppression effects for anger (Dunsmore, Her, Halberstadt, & Perez-Rivera, 2009). The addition of other family members might also lead to identification of compensatory effects, so that when there is substantial anger between parents, siblings unite to reduce their anger expression or vice versa (Eichelsheim et al., 2009).

### *Anger perceptions by family members are both shared and different*

Family members' perceptions of actor, partner, and relationships effects were not significantly different from each other, suggesting relatively shared assessments regarding where anger resides. These results suggest that by seventh grade, children may have constructs that are as complex as their parents regarding the emergence of anger from individuals and relationships. Differences do emerge, however, regarding the amount of contagion between individuals in familial relationships; children perceive relatively greater amounts of contagion in relationships than fathers do, with mothers' perceptions midway between them. This may be a function of false consensus bias; that is, one tends to estimate others' experiences as similar to one's own (e.g., Prinstein & Wang, 2005; Ross, Greene, & House, 1977). Thus, because children have greater difficulty regulating their own emotions, they may also imagine that other family members respond similarly (Silvers et al., 2012). Fathers may experience less anger in response to others' anger and, thus, have their own false consensus bias. Fathers' generally lesser investment in the "father" aspect of their identity compared to mothers' investment in the "mother" aspect of their identity may also allow them to experience some distance from others' anger, thus accounting for significantly lower perceptions of contagion (Corwyn & Bradley, 1999). Alternatively, fathers may not perceive as much anger contagion across relationships because they may be relatively less attuned to the emotional climate of the family (Barrett, Lane, Sechrest, & Schwartz, 2000; Matta & Knudson-Martin, 2006). Future research may want to explore consequences of over- or under-perceiving the contagion of anger. Beliefs about anger contagion might have some regulatory effects on one's own expression of anger, and/or sympathy toward others when they do express

anger, or a more reasoned perspective about the anger being expressed (recognizing that some of the intensity may be due to contagion effects).

### *Limitations, strengths, and future directions*

These data are comprised of both self-reports and other reports, and self-report methodology tends to exaggerate trait-like descriptions of behavior (Deater-Deckard, 2000). Thus, this study may slightly overestimate trait-like effects, as evidenced by the relatively stronger actor and partner effects. However, by anchoring participants' reports in a method utilizing questions about specific events rather than global assessments, we believe we may have succeeded in minimizing these tendencies.

It is also important to highlight that the effects found in this study are based on the reports of three independent sources, providing triangulation of perspectives. We also note that family members were not asked directly whether anger was in the individual or in the relationship, nor whether they knew about emotion contagion. Rather, the questions were based in the specific anger events that they experienced within the family. Thus, although consistencies in children's, mothers', and fathers' aggregated reports created the significant effects, they were not the result of any consciously articulated views that family members had about trait-like or contextual underpinnings of anger or their personal beliefs about emotional contagion. These goals were not knowable to the respondents.

Additionally, asking family members to report about themselves and other family members allows participants to review their own "libraries" of anger events, so that they are considering not only multiple examples when reporting on the phenomenology of anger in their families, but they are also activating their scripts about family interaction (Baldwin, 1992). Individuals' scripts regarding family interactions are important determinants of future behavior in that they provide a schema for how individuals interpret and react in family situations, a mechanism that may serve as a conduit for enduring individual- or dyadic-level characteristics (Bogensneider & Pallock, 2008; Dattilio, 2005). Although scripts may vary across family members regarding reasons for anger or the phenomenology of anger (Carpenter & Halberstadt, 1996, 2000; Covell & Abramovitch, 1987), this study demonstrated that children and their parents revealed surprisingly similar views of the *processes* involved in family functioning. Finally, the similarities across family members suggest strongly that by seventh grade, children can provide highly organized assessments of their own and others' anger in ways similar to those of adult family members.

That family members identified several relationship effects as well as anger contagion in such an opaque type of design leads directly now to the question of family members' actual awareness of actor, partner, relationship, and reciprocity effects, and the emergence of that awareness. This is important because recognition of these effects may well precede more skillful responses to anger in the family. Future research might focus on whether awareness of relationship effects and contagion leads to utilizing strategies for minimizing unproductive anger in the family context. Further, in terms of increasing family harmony, it may be important for family counselors or peer mediators in schools to share these findings and to discuss various strategies that might minimize their effects

(e.g., accommodation, Rusbult, Verette, Whiteney, Slovik, & Lipkus, 1991; refocusing attention elsewhere, Morris, Silk, Steinberg, Terranova, & Kithakye, 2010).

Discussion of actor and partner effects may also be useful in family therapy. For example, given that family members may see anger as more trait-like, does that reduce or increase the responsibility to change one's actions, either as an actor or as a recipient? Does recognizing relational anger help family members to think about how they create anger within relationships and understand anger as potentially more malleable? Certainly, recognizing the contagion of anger may help family members to regulate their expression of anger and to understand (at least after the event) why family members may have responded in kind. Increasing family members' awareness and understanding of each other's anger may facilitate responding in more healthy and positive ways rather than creating cycles of escalating anger.

In sum, our findings indicate that actor, partner, and relationship effects account for considerable variance in mothers', fathers', and young adolescents' experience and expression of anger. In answer to the question we posed above as to where anger resides, the effects together suggest that anger resides in the person, but it is also to some degree uniquely *created* within relationships. Also of significance was the pervasiveness of anger contagion; anger expressed toward a family member was understood to be met with similar anger in return. A surprising amount of agreement occurred among these independent reporters regardless of family role, with the one exception of children perceiving a greater amount of anger contagion than fathers. These results highlight the sophisticated self-knowledge and family knowledge that can be obtained by asking individuals about anger in the family and suggest, to some degree, anger is a family matter.

## Note

1. Correlations between anger frequency, duration, and intensity were substantial, with median correlations across the six relationships for children, mothers, and fathers of .59, .51, and .54, respectively. Mean anger scores across the six relationships for each family member suggest mild to moderate anger (3.20, 3.05, and 2.90 for children, mothers, and fathers, respectively), with good variability (1.43, 1.21, and 1.06). However, initial analyses of a full model with all three indicators indicated a poor fit to the data. Further examination indicated that models based on anger duration and intensity fit the data better than combinations of variables utilizing anger frequency. This is likely because duration and intensity both describe the quality of anger events that have occurred, whereas frequency measured whether or not an event has occurred. To proceed, frequency was dropped from further analyses.

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## References

- Alker, H. A. (1972). Is personality situationally specific or intrapsychically consistent? *Journal of Personality, 40*, 1–16. doi:10.1111/j.1467-6494.1972.tb00644.x
- Averill, J. R. (1982). *Anger and aggression: An essay on emotion*. New York, NY: Springer.

- Baldwin, M. W. (1992). Relational schemas and the processing of social information. *Psychological Bulletin*, *112*, 461–484. doi:10.1037/0033-2909.112.3.461
- Barrett, L. F., Lane, R. D., Sechrest, L., & Schwartz, G. E. (2000). Sex differences in emotional awareness. *Personality and Social Psychology Bulletin*, *26*, 1027–1035. doi:10.1177/01461672002611001
- Barry, R. A., & Kochanska, G. (2010). A longitudinal investigation of the affective environment in families with young children: From infancy to early school age. *Emotion*, *10*, 237–249. doi:10.1037/a0018485
- Bogenschneider, K., & Pallock, L. (2008). Responsiveness in parent-adolescent relationships: Are influences conditional? Does the reporter matter? *Journal of Marriage and Family*, *70*, 1015–1029. doi:10.1111/j.1741-3737.2008.00543.x
- Bronstein, P., Briones, M., Brooks, T., & Cowan, B. (1996). Gender and family factors as predictors of late adolescent emotional expressiveness and adjustment: A longitudinal study. *Sex Roles*, *34*, 739–765. doi:10.1007/BF01544314
- Campos, J. J., Mumme, D. L., Kermoian, R., & Campos, R. (1994). A functionalist perspective on the nature of emotion. *Monographs of the Society for Research in Child Development*, *59*, 284–303. doi:10.2307/1166150
- Carpenter, S., & Halberstadt, A. G. (1996). What makes people angry? Laypersons' categorisations of anger in the family. *Cognition and Emotion*, *10*, 627–656. doi:10.1080/026999396380088
- Carpenter, S., & Halberstadt, A. G. (2000). Mothers' reports of events causing anger differ across family relationships. *Social Development*, *9*, 458–477. doi:10.1111/1467-9507.00138
- Caspi, A., & Roberts, B. W. (2001). Personality development across the life course: The argument for change and continuity. *Psychological Inquiry*, *12*, 49–66. doi:10.1207/S15327965PLI1202\_01
- Chen, S., Langner, C. A., & Mendoza-Denton, R. (2009). When dispositional and role power fit: Implications for self-expression and self-other congruence. *Journal of Personality and Social Psychology*, *96*, 710–727. doi:10.1037/a0014526
- Clark, T. R., & Phares, V. (2004). Feelings in the family: Interparental conflict, anger, and expressiveness in families with older adolescents. *The Family Journal*, *12*, 129–138. doi:10.1177/1066480703261961
- Cole, P. M., Teti, L. O., & Zahn-Waxler, C. (2003). Mutual emotion regulation and the stability of conduct problems between preschool and early school age. *Development and Psychopathology*, *15*, 1–18. doi:10.1017/S0954579403000014
- Cook, W. L., & Kenny, D. A. (2004). Application of the social relations model to family assessment. *Journal of Family Psychology*, *18*, 361–371. doi:10.1037/0893-3200.18.2.361
- Cook, W. L., Kenny, D. A., & Goldstein, M. J. (1991). Parental affective style risk and the family system: A social relations model analysis. *Journal of Abnormal Psychology*, *100*, 492–501. doi:10.1037/0021-843X.100.4
- Corwyn, R. F., & Bradley, R. H. (1999). Determinants of parental and maternal investment in children. *Infant Mental Health Journal*, *20*, 238–256. doi:10.1002/1097-0355
- Covell, K., & Abramovitch, R. (1987). Understanding emotion in the family: Children's and parents' attributions of happiness, sadness, and anger. *Child Development*, *58*, 985–991. doi:10.2307/1130539
- Cox, R. L., Lopez, N. L., & Schneider, H. G. (2003). Anger expression: Parental and cognitive factors. *Psychological Reports*, *93*, 49–65. doi:10.2466/PR.93.5.59-65



- Cummings, E. M., Zahn-Waxler, C., & Radke-Yarrow, M. (1981). Young children's responses to expressions of anger and affection by others in the family. *Child Development, 52*, 1274–1282. doi:10.2307/1129516
- Dattilio, F. M. (2005). Restructuring family schemas: A cognitive-behavioral perspective. *Journal of Marital and Family Therapy, 31*, 15–30. doi:10.1111/j.1752-0606.2005.tb01540.x
- Deater-Deckard, K. (2000). Parenting and child behavioral adjustment in early childhood: A quantitative genetic approach to studying family processes. *Child Development, 71*, 468–484. doi:10.1111/1467-8624.00158
- Deffenbacher, J. L., Oetting, E. R., Thwaites, G. A., Lynch, R. S., Baker, D. A., Stark, R. S., . . . Eiswerth-Cox, L. (1996). State-trait anger theory and the utility of the trait anger scale. *Journal of Counseling Psychology, 43*, 131–148. doi:10.1037/0022-0167.43.2.131
- Dix, T. (1991). The affective organization of parenting: Adaptive and maladaptive processes. *Psychological Bulletin, 110*, 3–25. doi:10.1037/0033-2909.110.1.3
- Dunsmore, J. C., Her, P., Halberstadt, A. G., & Perez-Rivera, M. B. (2009). Parents' beliefs about emotions and children's recognition of parents' emotions. *Journal of Nonverbal Behavior, 33*, 121–140. doi:10.1007/s10919-008-0066-6
- Durbin, C. E. (2010). Validity of young children's self-reports of their emotion in response to structured laboratory tasks. *Emotion, 10*, 519–535. doi:10.1037/a0019008
- Eichelsheim, V. I., Deković, M., Buist, K. L., & Cook, W. L. (2009). The social relations model in family studies: A systematic review. *Journal of Marriage and Family, 71*, 1052–1069. doi:10.1111/j.1741-3737.2009.00652.x
- Eichelsheim, V. I., Buist, K. L., Deković, M., Cook, W. L., Manders, W., Branje, S. J. T., . . . Meeus, W. H. (2011). Brief report: Negativity in problematic and non-problematic families: A multigroup social relations model analysis with structured means. *Journal of Family Psychology, 25*, 152–156.
- Eisenkraft, N., & Elfenbein, H. A. (2010). The way you make me feel: Evidence for individual differences in affective presence. *Psychological Science, 21*, 505–510. doi:10.1177/0956797610364117
- Epps, J., & Kendall, P. C. (1995). Hostile attribution bias in adults. *Cognitive Therapy and Research, 19*, 159–178. doi:10.1007/BF02229692
- Funder, D. C. (2006). Towards a resolution of the personality triad: Persons, situations, and behaviors. *Journal of Research in Personality, 40*, 21–34. doi:10.1016/j.jrp.2005.08.003
- Hatfield, E., Cacioppo, J., & Rapson, R. (1994). *Emotional contagion*. New York, NY: Cambridge University Press.
- Herba, C. M., Benson, P., Landau, S., Russell, T., Goodwin, C., Lemche, E., . . . Phillips, M. (2008). Impact of familiarity upon children's developing facial expression recognition. *Journal of Child Psychology and Psychiatry, 49*, 201–210. doi:10.1111/j.1469-7610.2007.01835.x
- Hubbard, J. A., Parker, E. H., Ramsden, S. R., Flanagan, K. D., Relyea, N., Dearing, K. F., . . . Hyde, C. T. (2004). The relations among observational, physiological, and self-report measures of children's anger. *Social Development, 13*, 14–39. doi:10.1111/j.1467-9507.2004.00255.x
- Kashy, D. A., & Kenny, D. A. (1990). Analysis of family research designs: A model of interdependence. *Communication Research, 17*, 462–482. doi:10.1177/009365090017004004
- Kassinove, H., Sukhodolsky, D. G., Tsytsarev, S. V., & Solovyova, S. (1997). Self-reported anger episodes in Russia and America. *Journal of Social Behavior & Personality, 12*, 301–324.

- Kenny, D. A. (1990). Design issues in dyadic research. In C. Hendrick & M. S. Clark (Eds.), *Research methods in personality and social psychology* (pp. 164–184). Thousand Oaks, CA: Sage.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York, NY, US: Guilford Press.
- Kuppens, P., Van Mechelen, I., & Meulders, M. (2004). Every cloud has a silver lining: Interpersonal and individual differences determinants of anger-related behaviors. *Personality and Social Psychology Bulletin*, *30*, 1550–1564. doi:10.1177/0146167204271176
- Larson, R. W., & Almeida, D. M. (1999). Emotional transmission in the daily lives of families: A new paradigm for studying family process. *Journal of Marriage & the Family*, *61*, 5–20. doi:10.2307/353879
- Larson, R. W., & Gillman, S. (1999). Transmission of emotions in the daily interactions of single-mother families. *Journal of Marriage & the Family*, *61*, 21–37. doi:10.2307/353880
- Marsh, H. W. (1989). Confirmatory factor analysis of multitrait-multimethod data: Many problems and a few solutions. *Applied Psychological Measurement*, *13*, 335–361.
- Matsumoto, D., & Kishimoto, H. (1983). Developmental characteristics in judgments of emotion from nonverbal vocal cues. *International Journal of Intercultural Relations*, *7*, 415–424. doi:10.1016/0147-1767(83)90047-0
- Matta, D. S., & Knudson-Martin, C. (2006). Father responsibility: Couple processes and the construction of fatherhood. *Family Process*, *45*, 19–37. doi:10.1111/j.1545-5300.2006.00078.x
- Merz, E. L., & Roesch, S. C., (2011). Modeling trait and state variation using multilevel factor analysis with PANAS daily diary data. *Journal of Research in Personality*, *45*, 2–9. doi:10.1016/j.jrp.2010.11.003
- Mesquita, B. (2010). Emoting: A contextualized process. In B. Mesquita, L. Barrett, & E. R. Smith (Eds.), *The mind in context* (pp. 83–104). New York, NY: Guilford Press.
- Meyer, J. F., Frost, R. O., Brown, T. A., Steketee, G., & Tolin, D. F., (2013). A multitrait-multimethod matrix investigation of hoarding. *Journal of Obsessive-Compulsive and Related Disorders*, *2*, 273–280.
- Mischel, W. (1968). *Personality and assessment*. New York, NY: Wiley.
- Morris, A. S., Silk, J. S., Steinberg, L., Terranova, A. M., & Kithakye, M. (2010). Concurrent and longitudinal links between children's externalizing behavior in school and observed anger regulation in the mother-child dyad. *Journal of Psychopathology and Behavioral Assessment*, *32*, 48–56. doi:10.1007/s10862-009-9166-9
- Muthén, L. K., & Muthén, B. O. (1998–2012). *Mplus User's Guide*. 7th ed. Los Angeles, CA: Author.
- Papp, L. M., Kouros, C. D., & Cummings, E. M. (2010). Emotions in marital conflict interactions: Empathic accuracy, assumed similarity, and the moderating context of depressive symptoms. *Journal of Social and Personal Relationships*, *27*, 367–387. doi:10.1177/0265407509348810
- Pollak, S. D., Messner, M., Kistler, D. J., & Cohn, J. F. (2009). The development and neural bases of facial emotion recognition. *Advances in Child Development and Behavior*, *34*, 207–246. doi:10.106/j.cognition.2008.10.010
- Prinstein, M. J., & Wang, S. S. (2005). False consensus and adolescent peer contagion: Examining discrepancies between perceptions and actual reported levels of friends' deviant and health risk behaviors. *Journal of Abnormal Child Psychology*, *33*, 293–306. doi:10.1007/s10802-005-3566-4
- Rasbash, J., Jenkins, J., O'Connor, T. G., Tackett, J., & Reiss, D. (2011). A social relations model of observed family negativity and positivity using a genetically informative sample. *Journal of Personality and Social Psychology*, *100*, 474–491. doi:10.1037/a0020931

- Renk, K., Phares, V., & Epps, J. (1999). The relationship between parental anger and behavior problems in children and adolescents. *Journal of Family Psychology, 13*, 209–227. doi:10.1037/0893-3200.13.2.209
- Ross, C. E., & Van Willigen, M. (1996). Gender, parenthood, and anger. *Journal of Marriage and Family, 58*, 572–584. doi:10.2307/353718
- Ross, L., Greene, D., & House, P. (1977). “The false consensus effect: An egocentric bias in social perception and attribution processes”. *Journal of Experimental Social Psychology 13*, 279–301. doi:10.1016/0022-1031(77)90049-X
- Rusbult, C. E., Verette, J., Whitney, G. A., Slovik, L. F., & Lipkus, I. (1991). Accommodation processes in close relationships: Theory and preliminary empirical evidence. *Journal of Personality and Social Psychology, 60*, 53–78. doi:10.1037/0022-3514.60.1.53
- Silvers, J. A., McRae, K., Gabrieli, J. D. E., Gross, J. J., Remy, K., & Ochsner, K. N. (2012). Age-related differences in emotional reactivity, regulation, and rejection sensitivity in adolescence. *Emotion, 12*, 1235–1247. doi:10.1037/a0028297
- Spielberger, C. D. (1980). *Preliminary manual for the State-Trait Anger Scale (STAS)*. Tampa, FL: University of South Florida Human Resources Institute.