Sibling Warmth Moderates the Intergenerational Transmission of Romantic Relationship Hostility

Objective: The objective of this study was to evaluate sibling support as a buffer against the intergenerational transmission of romantic relationship hostility.

Background: Parental marital discord in adolescence negatively affects romantic relationships in adulthood. Given that sibling support is linked to positive outcomes in adolescence and adulthood, the current study investigated sibling support as a protective factor against romantic relationship hostility from adolescence to adulthood.

Method: Using prospective longitudinal data from a community sample, 351 participants completed home assessments during adolescence (7th, 8th, 9th, and 10th grades) and adulthood (M_age = 31 years old). Romantic relationship hostility was coded from videotaped observations of participant interparental relations in adolescence and participant behavior toward a romantic partner in adulthood. In addition, the participants reported on the support they received from a sibling in adolescence, which was modeled as a moderator between romantic hostility in adolescence and adulthood using structural equation modeling.

Results: Across sibling dyads, sibling support did not moderate the intergenerational transmission of romantic relationship hostility; however, sex differences revealed that sibling support buffered this effect in sister pairs, whereas sibling support exacerbated this effect in brother pairs. Sibling support moderated this association above and beyond parental support, socioeconomic status, and sibling age spacing.

Conclusion: Perceived sibling support can potentially ameliorate or catalyze the intergenerational transmission of observed romantic relationship hostility depending on gender socialization in the family. Implications for sibling-focused interventions are discussed. High levels of interparental hostility and conflict can put children at risk for experiencing a host of social, emotional, and physical problems concurrently and over time (e.g., Rhoades, 2008). Moreover, interparental hostility predicts, on average, romantic relationship hostility in the next generation; yet, these intergenerational effect sizes are often weak to moderate (Smith-Marek et al., 2015; Stith et al., 2000), indicating that there are moderators that help contextualize the degree to which romantic hostility is transmitted. One untapped family resource is sibling relationships, which can provide a salient source of support for responding...
to negative life events (Kramer, Conger, Rogers, & Ravindran, 2019), such as family stress (K. J. Conger, Stocker, & McGuire, 2009). For instance, perceiving supportive behavior from siblings can dampen the association between hostile home environments and adolescent externalizing and internalizing problems (Davies, Parry, Bascoe, Martin, & Cummings, 2018). Furthermore, the malleability of sibling relations has provided an excellent point of intervention for improving child responses to negative family dynamics, such that sibling-focused interventions associate with better child emotion regulation and social skills, as well as sibling relationship quality (Feinberg et al., 2013; Kennedy & Kramer, 2008; C. J. Tucker & Finkelhor, 2015). These findings suggest that perceptions of sibling relations may be a protective factor against transmitting hostile family dynamics. Given the potential of sibling relations as a vehicle for improvements in individual and family functioning, we investigated whether supportive sibling relationships moderate the link between interparental hostility in adolescence and hostility toward a romantic partner in adulthood.

**Intergenerational Transmission of Hostility**

Social learning theory (Bandura, 2001) provides a useful framework for understanding how family-of-origin behaviors (both constructive and destructive) might be carried forward into the family of destination. For instance, children observe their family member’s angry, coercive, and otherwise nonsupportive patterns of behavior and then utilize a similar pattern of behavior in their relationships outside the family of origin (Bryant & Conger, 2002). Indeed, several researchers document intergenerational continuity in (a) aggression between romantic partners (e.g., Cui, Durtschi, Donnellan, Lorenz, & Conger, 2010), (b) high frequency and intensity of romantic relationship conflict (e.g., Amato & Booth, 2001), (c) reports of relationship unhappiness and dissatisfaction (e.g., Jarnecke & South, 2013), and (d) even positive behavioral interactions (e.g., Masarik et al., 2013). These studies suggest that children may emulate specific behaviors observed in their parent’s marriage while living in the family household (e.g., angry and contemptuous reactions during conflict), which ultimately deteriorate the overall quality and stability of offspring romantic relationships in adulthood. Given the influence of earlier interparental discord on adult offspring’s romantic relationship quality and the implications of adult romantic relationship dysfunction on family health and well-being (Rhoades, 2008), there is an opportunity to investigate other familial resources that play a role in social learning, such as sibling relationships.

**Sibling Warmth as a Protective Factor**

Warm sibling relations are instrumental in navigating developmental tasks across the lifespan (Goetting, 1986) and have the potential to mitigate negative life experiences (K. J. Conger et al., 2009). Specifically, warmth and support perceived from a sibling can provide validation and resources (e.g., advice, money, transportation) in the face of hostile family environments, including parental conflict and even divorce (for a review, Kramer et al., 2019). During adolescence, perceiving greater support and warmth from siblings associates with greater social competence (Buijst & Vermande, 2014), and adolescent sibling pairs who engage in high constructive conflict resolution skills also exhibit these skills in their romantic relationships (Reese-Weber & Kahn, 2005). Moreover, sibling closeness promotes later feelings of power and autonomy during adolescence (Hollifield & Conger, 2015), particularly in romantic relationships (Doughty, McHale, & Feinberg, 2015), indicating that perceptions of sibling warmth contributes to romantic relationship quality over time. Together this literature suggests that through warmth and validation, sibling relations promote individual well-being in the context of negative family experiences and contribute to positive functioning in romantic relationships. As such, sibling relations may act as a salient resource for adolescents observing negative behaviors exchanged between their parents, and over time, dampening the transmission of these behaviors into their own adult romantic relationships.

Of note, sibling relationships differentially influence individual perception and behaviors depending on the sex composition of the sibling dyad. Social learning theory suggests that similarity between individuals, such as sex, increases the likelihood of an individual replicating a socially observed behavior
Siblings and Intergenerational Transmission

(Bandura, 2001). Same-sex sibling pairs are proposed to be more influential models for one another when compared with mixed-sex pairs (McHale, Updegraff, & Whiteman, 2012), including engagement in riskier behavior in romantic relationships (Whiteman, Zeiders, Killoren, Rodriguez, & Updegraff, 2014). Given the likelihood of more similarities and time spent in same-sex sibling dyads, compared with mixed-sex dyads, sister pairs and brother pairs may be more influential in the intergenerational transmission of hostility in romantic relationships than their mixed-sex counterparts.

Current Study

Although research has identified siblings as a protective factor against a host of negative developmental outcomes (e.g., Buist & Vermande, 2014; for a review, see Kramer et al., 2019), no study to date has investigated whether they can protect individuals against the intergenerational transmission of romantic relationship hostility. Furthermore, previous work examining sibling support on individual development has primarily used cross-sectional designs (often with retrospective reporting) and only one type of assessment (e.g., questionnaires). Thus, we used a rigorous prospective longitudinal design from adolescence into adulthood that included multidimensional objective measures, repeated measures, and multiinformant report as well as multigroup structural equation modeling to test sex differences by the sibling dyads. This innovative study design allowed us to address the following question: Can perceptions of sibling warmth in adolescence buffer against the intergenerational transmission of romantic relationship hostility from the family of origin into adulthood? We hypothesized that higher perceptions of sibling warmth would reduce the association (compensatory or buffering effect) between observed parental marital hostility in adolescence and observed hostility toward a romantic partner in adulthood (see Figure 1). In addition, we proposed that same-sex sibling pairs would show stronger compensatory (main) and buffering (interaction) effects of sibling warmth on the intergenerational transmission of romantic relationship hostility than mixed-sex sibling pairs. Of note, these hypotheses were tested while controlling for sibling age spacing, as well as parental warmth and family per capita income during adolescence, to determine the unique effect of sibling warmth above and beyond other family characteristics.

Method

Participants and Procedure

The Family Transitions Project, a longitudinal study of 558 target youth and their families (90% retention throughout data collection) began when focal participants were in 7th grade. The majority of the participants were recruited

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**Figure 1. Conceptual Model.**

- **Family of Origin** (Adolescence)
- **Observed Inter-PARENTAL Hostility**
- **Perceived Sibling Warmth**
- **(+) Intergenerational Continuity**
- **Family of Destination** (Adulthood)
- **Observed Romantic Hostility**
- **(+ Buffering Effect)**
- **(+ Compensatory Effect)**
from middle schools in the community, rather than self-selected volunteers from advertising, and resided in rural and small-town settings. Because this area had an ethnic minority population of only about 1% at the time of study inception, all participants were White European Americans from primarily lower middle and middle-class families. Additional information about the initial recruitment, participating families, and procedures is available in R. D. Conger and Elder (1994).

The current study includes 351 target participants who had two biological married parents during adolescence (7th, 8th, 9th, and 10th grades) and a married or cohabiting partner in adulthood ($M_{age} = 31$ years old) because we were interested in the degree to which hostility in romantic relationships from the family of origin affects hostility in adult romantic relationships. During adolescence, parent-adolescent interactions were coded by trained observers on several dimensions of romantic relationship behaviors and affect using the Iowa Family Interaction Rating Scales (see Melby & Conger, 2001). Coders were trained for 200 hours and achieved reliability via extensive written and viewing tests. Approximately 20% of the videotaped observations were randomly assigned and demonstrated adequate interrater reliability.

**Measures**

**Romantic relationship hostility.** Seven codes were used to assess the quality of affective behaviors enacted between participants' parents during adolescence and from the participant to their romantic partner in adulthood. The rating scale of each code ranged from 1 (little evidence of the attribute in question) to 9 (a good deal of evidence for the attribute in question). Hostility (contemptuous and rejecting behavior), angry coercion (attempts to control in a threatening manner), and antisocial behavior (insensitive and uncooperative behavior) were left in their original format. The other four codes were reverse scored, which comprised positive assertiveness (displays of clear and appropriate self-expression), listener responsiveness (attends and validates the verbalizations of another), positive communication (conveys goals in neutral or positive manner), and prosocial behavior (willingness to cooperate with goals of others). Higher scores represent behaviors marked by high levels of hostility and low levels of positive engagement. Internal reliability for behaviors from mother to father ($\alpha = .80-.85$) and from father to mother ($\alpha = .77-.83$) were satisfactory during adolescence. Because the correlation between mother and father directed behavior was moderate ($r = .45-.59$), mother and father scores were averaged to create four interparental romantic hostility scores (in 7th, 8th, 9th, and 10th grade), which were modeled as four separate indicators on the latent variable. It is important to note that this sample had relatively moderate levels of interparental hostility with the following means: 3.81 in the adolescents’ 7th grade ($SD = 0.94$; range $1.57-6.86$), 4.02 in 8th grade ($SD = 0.89$; range 1.00–7.00), 4.30 in 9th grade ($SD = 1.08$; range 1.57–7.57), and 3.91 in 10th grade ($SD = 1.10$; range 1.00–8.07). In addition, the internal reliability for the seven behavioral codes from the participant to their romantic partner ($\alpha = .91$) was satisfactory during adulthood. The mean of participant hostility toward their romantic partner during adulthood was $3.71 (SD = 1.47; range = 1.00–9.00)$. To create indicators for the latent variable, we randomly parcelled the individual behavioral codes into three indicators for the target participants’ hostile behavior toward their romantic partner (e.g., Little, Themtulla, Gibson, & Shoemann, 2013).

**Sibling warmth.** As adolescents (7th, 8th, 9th, and 10th grades), participants reported on the warm affect and behaviors siblings displayed toward them in the past month. A questionnaire was selected to represent sibling support because we were interested in whether perceptions of support received from a sibling could buffer the intergenerational transmission of observed romantic hostility. The scale included eight items from the Behavioral Affective Rating Scale (Hollifield & Conger, 2015). The scale ranged from 1 (never) to 7 (always) on items such as “How often does your sibling listen
carefully to your point of view” and “How often does your sibling help you do something that was important to you?” Items were coded such that higher scores indicated greater perceptions of support from siblings. The reliability across all four times of assessment was excellent (α = .92, .92, .93, .93), and each time point was modeled as a separate indicator of the latent variable.

Sex composition of the sibling dyad. Participant and sibling sex were reported by parents at the first time of assessment. Sex was coded as 0 = “male” and 1 = “female.” In addition, sex composition of the sibling dyad was coded to assess differences between groups: 1 = “female participant with sister” (n = 106), 2 = “female participant with brother” (n = 86), 3 = “male participant with brother” (n = 77), and 4 = “male participant with sister” (n = 82).

Covariates. The participants reported on perceived maternal and paternal warmth separately in 7th grade using the same measure as sibling warmth (Behavioral Affective Rating Scale). The reliability for mothers and fathers were satisfactory (α = .89 and .91, respectively). This measure was included to control for perceptions of warmth from other family members to assess the unique contribution of sibling warmth on the intergenerational transmission of observed romantic relationship hostility.

Family per capita income at 7th grade and age spacing between siblings were also included to control for variables associated with family functioning. For instance, lower income has been associated with less relationship satisfaction, less stability, and more relationship problems among family members (for a review, see R. D. Conger, Conger, & Martin, 2010). Family per capita income was computed by summing all sources of mother and father income (e.g., wages, salaries, self-employment income, farm net income) and dividing it by the number of individuals living in the household. In addition, age spacing was included to account for developmental similarity in sibling dyads, as siblings who are closer in age tend to be more influential over one another’s behavior and exhibit more similar behavior than siblings further apart in age (e.g., Samek, Goodman, Riley, McGue, & Iacono, 2018). Age spacing was calculated by dividing the sibling’s age from the target’s age, with positive values representing the target as older than their sibling, and higher integers reflecting greater age spacing. See Table S1 for all variable factor loadings, means, standard deviations, minimums, and maximums.

Analysis Plan

Full information maximum likelihood estimation was used to account for missing data, as estimates have been shown to be less biased and more efficient compared to other forms of estimation such as pairwise or listwise deletion (Enders & Bandalos, 2001). All statistics were assessed using two-tailed tests at the significance level of p < .05, and all models were estimated in Mplus, Version 7 (Muthén & Muthén, Los Angeles, CA). We conducted confirmatory factor analyses to estimate measurement models and bivariate correlations among variables and structural equation modeling to test the hypothesized main and interaction effects. The following fit indices and satisfactory ranges were used: the comparative fit index (CFI; > .93), Tucker Lewis index (TLI; > .90), and root mean square error of approximation (RMSEA; < .10). For the interaction effects models, we used the latent moderated structural equation (Klein & Moosbrugger, 2000) approach to test whether sibling warmth moderated the intergenerational transmission of observed romantic relationship hostility. The latent moderated structural equation approach produces more reliable standard errors and has demonstrated higher efficiency of parameter estimates relative to other techniques (Klein & Moosbrugger, 2000). Because the latent moderated structural equation approach in Mplus does not provide CFI, TLI, or RMSEA indices, the log likelihood (LL) ratio test was used to compare the interaction model against models that exclude the interaction effect (i.e., nested models) as well as akaike information criterion (AIC) and bayesian information criterion (BIC) indices (Klein & Moosbrugger, 2000; Van de Shoot, Lugtig, & Hox, 2012).

In the first step of analyses, we estimated models with the full sample altogether (N = 351). These models included (a) a confirmatory factor analysis (i.e., measurement model), (b) a main effects model, and (c) an interaction effect model. Second, we estimated these models separately for each of the sibling dyads (i.e., four groups). It is important to note that before any structural equation models were estimated for the four different sibling dyads, we tested for measurement invariance (e.g., Van
First, bivariate correlations were estimated for all study variables. In the measurement model including the full sample ($\chi^2 = 136.878$, df $= 73$, CFI $= .967$, TLI $= .953$, RMSEA $= .050$), observed marital hostility and perceived sibling warmth in adolescence were significantly and negatively correlated ($r = -.27$, $p < .001$; see Table 1). In addition, observed romantic hostility in adulthood significantly and positively correlated with assessments during adolescence, including observed interparental hostility ($r = .23$, $p < .01$), and negatively with perceived maternal warmth in adolescence ($r = -.14$, $p < .05$). In the measurement model, using multiple group analysis for the different sibling dyads ($\chi^2 = 507.113$, df $= 373$, CFI $= .935$, TLI $= .927$, RMSEA $= .064$) bivariate correlations varied depending on the sex constellation of the sibling dyad (see Table 2). All sibling dyads showed a significant and negative correlation between observed marital hostility and perceived sibling warmth during adolescence, except brother pairs. Furthermore, observed marital hostility toward a romantic partner in adulthood was only positively associated with observed marital hostility in adolescence for brother pairs ($r = .39$, $p < .01$) and marginally significant for sister pairs ($r = .23$, $p < .075$). Perceptions of warmth from family members in adolescence only negatively correlated with observed marital hostility toward a romantic partner in adulthood for sister pairs and sister–brother pairs. Specifically, sister pairs showed significant correlations for sibling warmth ($r = -.27$, $p < .05$) and maternal warmth ($r = -.21$, $p < .05$) and marginal significance for paternal warmth ($r = -.19$, $p < .075$), whereas sister–brother pairs yielded a significant correlation for paternal warmth ($r = -.26$, $p < .05$).
### Table 2: Bivariate Correlations of Relationship Variables by Sex Constellation of the Sibling Dyad

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sister pairs above the diagonal (n = 106), brother pairs below (n = 77)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1. Observed interparental hostility in adolescence</td>
<td>—</td>
<td>−.30*</td>
<td>−.12</td>
<td>−.28*</td>
<td>−.23*</td>
<td>−.09</td>
<td>.23†</td>
</tr>
<tr>
<td>2. Perceived sibling warmth in adolescence</td>
<td>−.11</td>
<td>—</td>
<td>.39***</td>
<td>.40***</td>
<td>.14</td>
<td>−.06</td>
<td>−.27*</td>
</tr>
<tr>
<td>3. Perceived maternal warmth in adolescence</td>
<td>.01</td>
<td>.54***</td>
<td>—</td>
<td>.66***</td>
<td>.02</td>
<td>−.03</td>
<td>−.21*</td>
</tr>
<tr>
<td>4. Perceived paternal warmth in adolescence</td>
<td>−.04</td>
<td>.49***</td>
<td>.65***</td>
<td>—</td>
<td>−.00</td>
<td>.03</td>
<td>−.18†</td>
</tr>
<tr>
<td>5. Family per capita income</td>
<td>−.29***</td>
<td>.14</td>
<td>.05</td>
<td>.03</td>
<td>—</td>
<td>−.15</td>
<td>−.12</td>
</tr>
<tr>
<td>6. Age spacing between siblings</td>
<td>−.16</td>
<td>.14</td>
<td>.02</td>
<td>.10</td>
<td>−.18</td>
<td>—</td>
<td>−.10</td>
</tr>
<tr>
<td>7. Observed romantic hostility in adulthood</td>
<td>.39**</td>
<td>−.07</td>
<td>−.11</td>
<td>.02</td>
<td>−.20†</td>
<td>.03</td>
<td>—</td>
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<tr>
<td>Sister–brother pairs above diagonal (n = 86), sister–sister pairs below (n = 82)</td>
<td></td>
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<tr>
<td>1. Observed interparental hostility in adolescence</td>
<td>—</td>
<td>−.32*</td>
<td>−.07</td>
<td>−.21†</td>
<td>−.12</td>
<td>.02</td>
<td>.12</td>
</tr>
<tr>
<td>2. Perceived sibling warmth in adolescence</td>
<td>−.45***</td>
<td>—</td>
<td>.29*</td>
<td>.40**</td>
<td>−.10</td>
<td>.05</td>
<td>−.11</td>
</tr>
<tr>
<td>3. Perceived maternal warmth in adolescence</td>
<td>−.22†</td>
<td>.42***</td>
<td>—</td>
<td>.54***</td>
<td>.01</td>
<td>.01</td>
<td>−.19</td>
</tr>
<tr>
<td>4. Perceived paternal warmth in adolescence</td>
<td>−.18</td>
<td>.34***</td>
<td>.59***</td>
<td>—</td>
<td>.10</td>
<td>.01</td>
<td>−.26*</td>
</tr>
<tr>
<td>5. Family per capita income</td>
<td>−.28*</td>
<td>.23*</td>
<td>.10</td>
<td>.13</td>
<td>—</td>
<td>.01</td>
<td>−.24**</td>
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<td>6. Age spacing between siblings</td>
<td>.30**</td>
<td>−.31**</td>
<td>.08</td>
<td>−.02</td>
<td>−.21</td>
<td>—</td>
<td>.15</td>
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<tr>
<td>7. Observed romantic hostility in adulthood</td>
<td>.22</td>
<td>.01</td>
<td>−.07</td>
<td>−.10</td>
<td>−.06</td>
<td>.09</td>
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</table>

Note: Two-tailed significance.

†p < .075; *p < .05; **p < .01; ***p < .001.
were observed marital hostility in adolescence ($\beta = .18$, $p < .01$) and family per capita income ($\beta = -.13$, $p < .05$). Using the LL ratio test (Klein & Moosbrugger, 2000), the interaction model for the full sample did not result in a large or statistically significant difference in fit compared to its appropriately nested main effects model ($\Delta \text{LL} = 0.01$, $\Delta df = 1$, $p > .05$). Perceived sibling support was not a significant moderator between observed marital hostility in adolescence and observed hostility toward a romantic partner in adulthood for the full sample.

Next, we used a multiple group analysis to estimate main effects for the four different sibling dyad groups, which yielded good model fit ($\chi^2 = 515.459$, $df = 373$, CFI = .926, TLI = .921, RMSEA = .066). As shown in Table 3, the statistically significant main effects predicting hostility toward a romantic partner in adulthood were observed marital hostility in adolescence for brother pairs ($\beta = .36$, $p < .01$) and for brother–sister pairs ($\beta = .26$, $p < .05$) and family per capita income for sister–brother pairs ($\beta = -.22$, $p < .05$). The LL ratio tests indicated that the interaction models (ran separately for each sibling dyad) did not result in a large or statistically significant difference in fit compared to its nested main effects models for sister pairs ($\Delta \text{LL} = 1.865$, $\Delta df = 1$, $p > .05$), sister–brother pairs ($\Delta \text{LL} = 0.735$, $\Delta df = 1$, $p > .05$), and brother–sister pairs ($\Delta \text{LL} = 0.006$, $\Delta df = 1$, $p > .05$). Although the interaction model for the brother pairs resulted in a statistically significant LL ratio test ($\Delta \text{LL} = 3.702$, $\Delta df = 1$, $p < .05$), the AIC (2,843.977) and BIC (2,991.636) were preferably lower in this model (see Van de Shoot, Lugtig, & Hox, 2012) compared to its nested main effects model (AIC = 2,849.38; BIC = 2,994.696). In conclusion, the main and interaction effect models fit the data adequately for each of the four sibling dyads.

Interestingly, the interaction between observed interparental hostility and perceived sibling warmth amplified the intergenerational transmission of hostility in romantic relationships from adolescence into adulthood (see Figure 2, Panel A). Simple slope analyses revealed that girls who perceived low sibling warmth from a sister ($B = 0.56$, $p < .001$) were particularly vulnerable to the intergenerational transmission of observed romantic relationship hostility. In contrast, brother pairs exhibited the opposite pattern: a positive interaction effect ($\beta = .38$, $p < .01$), indicating that higher levels of perceived sibling warmth amplified the intergenerational transmission of observed romantic relationship hostility (Figure 2, Panel B). Specifically, simple slope analyses showed that boys who perceived average ($B = 0.59$, $p = .02$) or high ($B = 1.14$, $p = .04$) sibling warmth from a brother were particularly vulnerable to the intergenerational transmission of observed romantic relationship hostility. Perceived sibling warmth was not a significant moderator for mixed sex dyads.

### Table 3. Structural Equation Models for Different Sibling Constellations Predicting Observed Romantic Hostility in Adulthood (N = 351)

<table>
<thead>
<tr>
<th>Predictors in adolescence</th>
<th>Full sample (N = 351)</th>
<th>Sister pair (n = 106)</th>
<th>Brother pair (n = 77)</th>
<th>Sister–brother (n = 86)</th>
<th>Brother–sister (n = 82)</th>
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</thead>
<tbody>
<tr>
<td><strong>Main effects</strong></td>
<td></td>
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</tr>
<tr>
<td>Observed interparental hostility</td>
<td>.18**</td>
<td>.14</td>
<td>.36**</td>
<td>.03</td>
<td>.26*</td>
</tr>
<tr>
<td>Perceived sibling warmth</td>
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<td>-.18</td>
<td>-.01</td>
<td>-.02</td>
<td>.21</td>
</tr>
<tr>
<td>Perceived mother warmth</td>
<td>-.08</td>
<td>-.15</td>
<td>-.22</td>
<td>-.08</td>
<td>-.06</td>
</tr>
<tr>
<td>Perceived father warmth</td>
<td>-.06</td>
<td>.04</td>
<td>.19</td>
<td>-.18</td>
<td>-.09</td>
</tr>
<tr>
<td>Family per capita income</td>
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<td>Age spacing between siblings</td>
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<td>-.12</td>
<td>-.03</td>
<td>.15</td>
<td>.10</td>
</tr>
<tr>
<td><strong>Interaction effect</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Intergenerational Hostility × Sibling Warmth</td>
<td>-.01</td>
<td>-.22*</td>
<td>.38**</td>
<td>.19</td>
<td>.02</td>
</tr>
</tbody>
</table>

*Note: Values represent standardized coefficients ($\beta$). Two-tailed significance.

*p < .05; **p < .01.
Figure 2. Latent Interactions Between Observed Intergenational Hostility and Perceived Sibling Warmth in Adolescence Predicting to Observed Hostility Toward A Romantic Partner in Adulthood.

Panel A displays sister–sister pairs, and Panel B displays brother–brother pairs. Covariates included perceived mother and father warmth, family per capita income, and sibling age spacing as reported in adolescence. Axes represent standardized values of latent variables. *p < .05. **p < .001.

Discussion

Given that sibling relationships have been established as a potential resource against negative developmental outcomes (e.g., Buist & Vermande, 2014; Davies et al., 2018), this study was the first to test whether perceived sibling support could moderate the intergenerational transmission of observed romantic relationship hostility. Many studies rely on retrospective cross-sectional designs and single reporters to examine the associations between varying relationship dynamics (Reese-Weber & Kahn, 2005); however, the current study used a range of methods in a prospective longitudinal design to reduce rater bias and confounding factors. Our findings highlight the salient, yet complicated role sibling relationships play in the transmission of hostility between romantic partners from the family of origin to adulthood romantic relationships. Specifically, perceived sibling support during adolescence acts as a protective factor against the intergenerational transmission of hostile behavior in romantic relationships for sister dyads, but acts as a risk factor for brother dyads. Importantly, these findings persisted above and beyond the effects of perceived parental support, socioeconomic status, and age spacing between siblings, suggesting that sibling relations are unique socializing agents that either dampen or exacerbate the intergenerational transmission of romantic relationship hostility.

Consistent with our hypothesis, perceptions of supportive sibling relations in sister pairs buffered against the negative effects of marital hostility observations in adolescence on later observed hostility toward a romantic partner in adulthood. This finding is consistent with social learning theory (Bandura, 2001) given that same-sex sibling pairs tend to be more similar in developmental obstacles and interests than mixed-sex pairs and thus have a greater propensity to influence one another’s behavior (McHale, Updegraft, et al., 2012). Furthermore, both observational and longitudinal research shows that adolescent girls, specifically sister pairs, perceive exchanging more guidance, advice, and intimacy with
siblings when compared with adolescent boys (Hollifield & Conger, 2015; Samek & Rueter, 2011), indicating that sister pairs may obtain the greatest benefits from positive sibling relationships. Indeed, this finding corroborates previous theoretical and empirical research proposing that supportive sister pairs have the potential to positively influence one another’s behavior. This finding also extends past research in that warmth between sisters can reduce the intergenerational transmission of observed romantic relationship hostility.

Contrary to our hypothesis, perceived sibling support among brother pairs exacerbated the intergenerational transmission of observed romantic relationship hostility. Similar to sister pairs, brother pairs are theoretically more similar and thus more likely to influence one another’s behavior (Bandura, 2001; McHale, Updegraff, et al., 2012); however, rather than supporting one another to refrain from hostile behavior, brothers may encourage one another to replicate the hostile behaviors observed between their parents during adolescence in their own romantic relationships during adulthood. One explanation for this sex difference may reside in how gender roles are socialized within the family, such that parental attitudes regarding gender roles, especially fathers, predict later stereotyped interests and activities (McHale, Crouter, & Tucker, 2012). Perhaps when boys observe their father’s hostile treatment toward their mothers, they engender these attitudes and practice these behaviors toward women and receive encouragement and validation from their supportive brothers. These gender roles may also be reinforced through male friendships, as male peer support has been heavily linked to both physical and sexual abuse toward women in college, above and beyond geographical region, school type, and cultural group (Schwartz & DeKeseredy, 2000). Thus, fathers, male friends, and brothers may perpetuate patriarchal gender roles inclusive of aggressive and hostile behavior toward female partners. Another explanation may involve the cultural and historical contexts of the study. Because our participants consisted of two-parent heterosexual White families who resided in rural communities, traditional cultural values may have contributed to these sex differences.

Although we hypothesized that sibling warmth would exhibit a stronger buffering effect for same-sex pairs compared with mixed-sex pairs, sibling warmth did not modify the association between observations of marital hostility in the family of origin and hostility toward romantic partners during adulthood for mixed-sex pairs. This finding is particularly interesting given that previous work has found that for mixed-sex sibling pairs, perceived control in the sibling relationship is highly associated with power in romantic relationships (e.g., Doughty et al., 2015), indicating a link of empowerment from sibling to romantic relations during adolescence. The rigorous longitudinal design of our study temporally expands on this work and highlights that mixed-sex sibling relations may not play as salient as a role in buffering the intergenerational transmission of hostility from adolescence into adulthood. This is consistent with research showing that sibling contact and positive relations are lower in mixed-sex sibling pairs, especially when compared with sister pairs, across adolescence, and emerging and early adulthood (Hollifield & Conger, 2015; Killoren, De Jesus, Updegraff, & Wheeler, 2015; Lee, Mancini, & Maxwell, 1990). Future work would greatly benefit from investigating how sibling relations correlate with family and romantic relationship dynamics across different developmental periods (i.e., childhood, adolescence, adulthood) to better understand which gender constellations of sibling dyads are particularly influential.

This study provides more understanding of familial factors that can buffer and exacerbate the intergenerational transmission of romantic relationship hostility; however, there are a few limitations that should be noted. First, the sample only included offspring with a married or cohabiting partner of two-parent heterosexual White families from rural communities, which limits the generalizability of the findings to other populations. Given that family dynamics vary based on family and cultural values (e.g., family obligation; Fuligni & Zhang, 2014), it is important for future work to replicate these findings across different family contexts. Furthermore, it is important to note that this community sample had relatively moderate levels of romantic relationship hostility and that it would be beneficial to investigate these familial processes in higher hostility contexts. Second, the assessment of sibling relations only occurred in adolescence, which leaves a gap in understanding of sibling warmth between living in the family of origin to the family of destination.
Future work would benefit from following sibling relations across developmental stages to ascertain when sibling support is most influential and whether fluctuations in sibling support affect the transmission of positive and negative familial behaviors. Third, although this study captured the moderating effects of sibling support, the processes by which sibling support prevents or reinforces familial behaviors was not assessed. Investigating individual differences in family relations, such as personality and family values (e.g., Masarik et al., 2013), provides a promising opportunity for future work to better understand the role of siblings in the development of romantic relations.

This study identifies perceived sibling warmth as a salient factor in the intergenerational transmission of romantic relationship hostility. Furthermore, the findings highlight the importance of gender socialization within the family context, as sex composition of the sibling dyad determines whether sibling warmth ameliorates or catalyzes the transmission of romantic hostility from the family of origin in adolescence to the family of destination in adulthood. Or, in the case of mixed-sex sibling dyads, perceived sibling support has no effect at all. Given the role of sibling relationships in the development of romantic relationship dynamics in this study, these findings provide future directions to investigate the mechanisms through which siblings encourage and reinforce warm and supportive behaviors between romantic partners from adolescence into adulthood. Moreover, these findings inform our understanding of how siblings can promote or deter individuals from engaging in hostile romantic relations and thus may guide future directions in family engagement efforts. Specifically, sibling-focused interventions that target the enhancement of sibling relations have been successful in improving child emotion regulation, social skills, and academic performance, sibling relationship quality, and parenting strategies (Feinberg et al., 2013; Kennedy & Kramer, 2008; C. J. Tucker & Finkelhor, 2015). The findings from this study provide preliminary evidence that sibling-focused interventions may be an ideal vehicle to promote healthy family functioning in the family of origin during adolescence, which contributes to the foundation for family dynamics in the family of destination. Furthermore, these findings suggest that there is potential for gender-targeted interventions, such that sister pairs may reap benefits from sibling-focused interventions that emphasize improving warmth and support exchanged in sibling interactions, whereas brother pairs may require a different set of intervening objectives. Community-based research would profit from adapting sibling-focused interventions to families with adolescent offspring to ameliorate hostile family dynamics in the family of origin and possibly the family of destination.

**Note**

This research was supported by the Eunice Kennedy Shriver National Institute of Child Health and Human Development and the National Institute of Mental Health (HD064687, HD051746, and MH051361). We greatly appreciate the assistance of the Family Transitions Project data collection and coding team, as well as the time and dedication of the participating families during the past 30 years. Most of all, we would like to thank our research parents, Rand and Kathi Conger, who created a home in the Family Research Group and who supported our journey as researchers and humans.

**Supporting Information**

Additional supporting information may be found online in the Supporting Information section at the end of the article.

**Appendix S1. Supplemental Material**

**Table S1.** Factor Loadings, Means, Standard Deviations, Minimums, and Maximums for Latent Variable Indicators and Manifest Variables (N = 351)

**Table S2.** Measurement Invariance Among the Four Different Sibling Dyads Based on Sex Constellation

**References**


