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Links between Sibling Experiences and Romantic Competence from Adolescence through Young Adulthood

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Abstract

Although previous research has linked sibling relationship experiences to youth's social competencies with peers, we know little about the role of siblings in youth's romantic relationship experiences. Drawing on data from a longitudinal sample of 190 families, this study examined the links between sibling experiences and the development of perceived romantic competence from early adolescence into young adulthood (ages 12 to 20). The data were collected from 373 youth (50.7% female) in home interviews on up to 5 annual occasions. Multi-level models tested the moderating role of sibling gender constellation in romantic competence development and the links between (changes in) sibling intimacy and conflict, and romantic competence. The results revealed that youth with same-sex siblings showed no change in their perceived romantic competence, but those with opposite-sex siblings exhibited increases in romantic competence over time. Controlling for parent-child intimacy, at times when youth reported more sibling intimacy, they also reported greater romantic competence, and youth with higher cross-time average sibling conflict were lower in romantic competence, on average. This study illustrates that sibling experiences remain important in social development into early adulthood and suggests directions for application and future research.

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Authors' Contributions

SD conceived of the study, participated in its design and coordination and drafted the manuscript; CL performed the statistical analyses and helped to draft the manuscript; CS participated in the editing process; SM conceived of the project which generated the data and participated in the editing process. All authors read and approved the final manuscript.

Keywords

adolescence; family; gender; romantic competence; sibling relationship

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Introduction

A central task of adolescence and young adulthood is the formation of healthful romantic relationships, which, when achieved, promote well-being and, when lacking, predict physical, social, and emotional distress (Collins, 2003; Giordano, Manning, & Longmore, 2006). A sense of competence about the ability to form satisfying relationships is an important element of healthful functioning in this domain (Davila, Stroud, Miller, & Steinberg, 2007), and thus the development and correlates of perceived competence in romantic relationships merit empirical investigation. Though research on the role of family experiences has focused on the importance of parental influences on romantic competence during adolescence (Conger, Cui, Bryant, & Elder, 2000), a family perspective also directs attention to the multiple subsystems within a family that can influence youth's development and adjustment, including the role of siblings.

A large literature documents links between a range of youth's adjustment outcomes and sibling experiences (McHale, Updegraff & Whiteman, 2012), but very little is known about the role of sibling experiences in youth's romantic development. Researchers have examined links between sibling dynamics and peer relationships (Updegraff, McHale, & Crouter, 2002), as well as sibling influences on risky sexual behavior (McHale, Bissell, & Kim, 2009), illustrating the impact of sibling relationships in the social world beyond the family context. Most studies of the implications of family dynamics have highlighted the significance of parenting for later behavior in romantic relationships (Conger et al., 2000). Recent work, however, also identified links between adolescents' sibling and romantic relationships in areas such as intimacy, conflict, and control (Doughty, McHale, & Feinberg, 2013), suggesting that siblings may play a role in youth's romantic development. Indeed, such findings are consistent with research showing that sibling relationships are central in the formation of secure attachments (Collins & Sroufe, 1999), and that the social skills learned in sibling exchanges—such as emotion regulation, perspective taking, and conflict resolution—are paramount to forming and maintaining healthful relationships (Lockwood, Kitzmann, & Cohen, 2001).

This study builds on existing work to examine the longitudinal associations between sibling relationship experiences and the development of perceived romantic competence. Using five waves of questionnaire data from an accelerated longitudinal study of siblings, wherein two cohorts of siblings (firstborns and secondborns) were repeatedly assessed over a comparatively shorter period of time (Duncan, Duncan, & Hops, 1996), we address two aims. The first is to examine the role of sibling gender constellation in the development of perceived romantic competence from adolescence through young adulthood (about age 12 to about age 20). The second is to test between- and within-person associations linking (changes in) sibling relationship intimacy and conflict to the development of youth's perceived romantic competence.

The Development of Romantic Competence and the Role of Sibling Sex Constellation

Despite the prevalence and theoretical importance of adolescent romantic relationships, the empirical study of youth's romantic development has been hindered by logistical factors. In contemporary Western societies, romantic relationships are a normative part of adolescent development, with 36% of 13-year-olds, 53% of fifteen-year-olds, and 70% of 17-year-olds reporting involvement in a romantic relationship in the past 18 months (Collins, Welsh, & Furman, 2009). By middle adolescence, a significant portion of teens' waking hours are spent "attempting to date, talking about dating, actually dating, and recovering from dating relationships" (Drysdale & Rye, 2009, p. 277). Not only are romantic relationships ubiquitous, but they are also theorized to be central to adolescents' self-worth and feelings of social competence (Connolly, Furman, & Konarski, 1994; Harter, 1999). Though deserving of empirical study, the transient nature of adolescent romantic relationships can make them difficult to capture empirically (Brown, Feiring, & Furman, 1999). One solution is to examine romantic development through constructs that are germane to adolescent romantic relationships, but which are not confined to periods when youth are actively involved with a romantic partner. One such construct is perceived romantic competence—adolescents' ideas about how proficient they are (or would be) in romantic relationships in general (Bouchey, 2007). This shift in focus allows for the examination of romantic development across a wider range of youth, not just those who have formed and are maintaining romantic relationships. Examining perceived romantic competence also sheds light on adolescents' developing understanding of romantic relationships, rather than limiting research to experiences in specific romantic relationships.

Adolescents' perceived romantic competence is a fairly new focus of research, and, as such, much remains to be learned about the forces that shape its development. Previous work showed that youth's perceived romantic competence typically increases across adolescence (Young, Furman, & Laursen, 2011) as youth gain social and romantic experience. Less is known, however, about the extent to which this positive trajectory continues into young adulthood. Although research has found romantic competence to be an important factor in the quality of young adults' romantic relationships (Conger et al., 2000), longitudinal work in this area is rare (Seiffge-Krenke, 2003). The research in this area also has yet to fully explore the ways in which adolescents' romantic development may be impacted by the presence of a sibling—particularly for those youth who grow up with a sibling of the opposite sex.

In normative social development, interest in romantic relationships emerges in adolescence, following a period of same-sex segregation—a period that serves to emphasize and intensify gender differences, often to the detriment of cross-sex communication and social competence (Maccoby, 1998). Youth develop confidence in their romantic competence over time (Young et al., 2011), as they gain social understanding and practice interacting with opposite-sex peers—a relatively novel experience for some youth during adolescence. The ability to navigate the intricacies of cross-sex relationships successfully is essential for the romantic endeavors of most adolescents. Growing up with a sibling of the other sex may temper the impact of normative gender segregation by providing natural opportunities to observe and practice interacting with an opposite-sex peer and that siblings' peer group.

Given this potential advantage for youth with opposite-sex siblings in the development of opposite-sex peer interaction skills, our first goal was to examine the role of sibling sex constellation in the development of romantic competence from early adolescence (age 12) into young adulthood (age 20). We tested the hypothesis that youth with opposite-sex siblings would exhibit higher levels of romantic competence compared to youth with same-sex siblings.

Romantic Competence and Sibling Relationship Characteristics

Although adolescence is often thought of as a time when youth shift their attention away from their families, this does not negate the continued importance and relevance of family experiences to adolescent development. Siblings, in particular, often remain frequent companions, models, and sources of social support across development, and they provide adolescents with opportunities to practice interacting in a low stakes setting with someone who may differ from themselves in age, gender, and personality (McHale et al., 2012). Social support from siblings may be especially beneficial in adolescence and young adulthood, when primary developmental tasks involve forming close and intimate relationships with others (Erikson, 1968). Some similarities between sibling and romantic relationships—including their ubiquity and gender dynamics, noted above, as well as their emotional tone and intensity, discussed below, give reason to postulate that sibling and romantic relationship experiences may be closely linked in adolescence.

The emotional tone and intensity of sibling relationships—including sibling intimacy and conflict, have been linked to socio-emotional development and adjustment in adolescence both theoretically and empirically (Kim, McHale, Crouter, & Osgood, 2007; Branje, Van Lieshout, Van Aken, & Haselager, 2004). Most of this research is grounded in social learning theories, which posit that behaviors learned and reinforced within the family can equip youth with social competencies that are then applied in relationships beyond the family (Cui, Conger, Bryant & Elder, 2002). For example, high levels of sibling intimacy have been linked with higher levels of peer competence (Kim et al., 2007). In terms of social development, relationships with siblings may be especially important, as the socio-emotional skills needed for successful interactions with siblings are more nuanced and sophisticated than those needed for interactions with parents (Kramer & Gottman, 1992). Sibling relationships are often the first peer-like relationships children experience, and for this reason siblings may be influential in establishing the capacity to form positive and supportive relationships with age-mates, such as by giving each other opportunities to learn social skills and practice relating to others (Lewis, 2005; Collins & Sroufe, 1999; Scharf & Mayseless, 2001). By serving as a context for youth to navigate increasingly complex social exchanges, close sibling relationships can have positive implications for siblings' subsequent relationships beyond their families (Lockwood et al., 2001).

Not all sibling experiences are positive, however, and just as positive sibling relationship experiences have been found to play a role in adolescent peer relationships, connections have also been found between negative sibling relationship experiences and adolescent development. Indeed, sibling conflict is common and has been theorized to stem from factors including rivalry for family resources and deficits in social understanding and

interaction skills (Dunn & Kendrick, 1982; Patterson, 1982). In turn, sibling conflict is related to adjustment problems, ranging from depressive symptoms, to low self-esteem, and externalizing behaviors (Kim et al, 2007; Branje et al., 2004). A link has also been found between conflict resolution styles used with siblings and those used in romantic relationships (Reese-Weber & Kahn, 2005). Some evidence suggests, however, that conflict between siblings can also serve to enhance social and communication skills by giving youth opportunities to practice expressing their feelings and needs, engaging in problem solving, and negotiating compromises (Bedford, Volling, & Avioli, 2000). Such findings are further supported by work demonstrating that the conflict resolution skills used by youth in their sibling relationships are also used in their conflicts with romantic partners (Reese-Weber & Kahn, 2005). The complexity of findings in this area speaks to the complex role that sibling relationship experiences play in youth's socio-emotional development. While associations between sibling and romantic relationship behaviors are not consistent across all resolution styles and skills (Reese-Weber & Bartle-Haring, 1998), it appears that in most cases, sibling conflict is likely to lead to more negative individual outcomes.

The Current Study

This study built on existing work on romantic development in adolescence by examining the role of sibling relationship experiences and sibling dyad sex constellation in the development of perceived romantic competence. The longitudinal nature of our data allowed us to examine this topic on multiple levels: comparing not only variation between individuals, but also variation within individuals over time. This enabled us to explore not only whether sibling relationship experiences and perceived romantic competence were related, but also whether and how *changes* in sibling intimacy and conflict were linked to *changes* in youth's perceived romantic competence across adolescence and into young adulthood. We tested the prediction that youth with opposite-sex siblings and higher levels of sibling intimacy would exhibit higher levels of perceived romantic competence. As the evidence on the role of sibling conflict in youth's social development suggests predominantly negative outcomes, we expected to find that high levels of sibling conflict would be linked with lower levels of perceived romantic competence. We also tested whether sibling sex constellation moderated the links between sibling relationship qualities and perceived romantic competence. Here we expected that links between relationship characteristics and romantic competence would be stronger in opposite-sex relative to same-sex dyads given the relevance of relationship experiences with an opposite-sex partner.

Using multilevel modeling (MLM), in the context of an accelerated longitudinal design (Duncan et al., 1996), we included data from each birth cohort of siblings, which combined, covered the years from age 12 (i.e., the youngest age observed in secondborns) to age 20 (i.e., the oldest age observed in firstborns). MLM also allowed us to examine two types of associations: between person associations, for example, whether youth who reported more intimate sibling relationships, on average, also reported more romantic competence; and within-person associations, for example, controlling for average sibling intimacy, whether on occasions when youth reported higher levels of sibling intimacy, they also reported higher levels of romantic competence. Because relationships with parents can account for both sibling relationship qualities and perceived romantic competence, we included controls

for intimacy with mother and with father. We also controlled for parent education as a proxy for socioeconomic status, allowing us to further isolate the impact of the sibling experiences.

Method

Participants

The data were drawn from a sample of 203 families who participated in a 10-year longitudinal study of family relationships. Families were recruited through letters sent home with fourth and fifth graders in 16 school districts of a northeastern state. The invitation letters described the study and criteria for participation, and interested families returned self-addressed postcards. The number of families that fulfilled our recruitment criteria but failed to respond was unknown, but over 90% of families who returned postcards and were eligible agreed to participate. To eliminate potential confounds, eligible families were comprised of always married couples whose two eldest children were no more than 4 years apart in age (Cicirelli, 1991). The majority of participating families (97%) were European American (3% were Asian American). Although the sample was not representative of all U.S. families, it was representative of the racial background of families from the state where data were collected (U.S. Census Bureau, 2000). Moreover, our sample reflected the educational (> 80% of adults completed high school) and financial (median income = \$55,714 for married-couple families) backgrounds of the targeted population from the state where data were collected (U.S. Census Bureau, 2000): at recruitment, the average education of parents in the sample was 14.58 years ($SD = 2.15$; range = 12–20) for mothers and 14.67 years ($SD = 2.43$; range = 10–20) for fathers (where a score of 12 signified a high school graduate) and the median family income was \$55,000 (mean = 60,233; $SD = 28,476$; range = 21,000–207,000). Although generally representative of the local population, there was substantial variation in parental education and family income with families ranging from working to upper middle-class socioeconomic status.

Data for the current study came from the sixth through tenth waves of the study (referred to here as Times 1 through 5), when data on romantic competence were collected. Nine families had dropped out before Time 1, and an additional four families declined to respond on variables of interest, leaving 190 families for these analyses. In addition, six firstborns and one secondborn were removed from the analyses, because they reported having a same-sex romantic relationship between Times 3–5. The last point of data collection was designed to be the year after the firstborn graduated from high school, which varied across families, and more than 95% of the original sample remained in the study across this period. In an accelerated longitudinal design, multiple cohorts of different ages are repeatedly assessed over shorter periods of time, such that there are temporally overlapping measurements of various age groups (Duncan et al., 1996). In our study, the average age at Time 1 was 16.47 years ($SD = .80$; range = 14.76–18.14) for firstborns and 13.88 years ($SD = 1.15$; range = 11.06–16.49) for secondborns. Because of the age differences between siblings and multiple waves of data collection, between $n = 22$ and $n = 268$ youth provided data on their perceived romantic competence at each chronological age from 12 (i.e., age 11.5–12.5) to 20 (i.e., age 19.5–20.5) years, thus allowing us to chart the development of romantic competence from adolescence into young adulthood. Sibling dyads were divided almost equally among the

four possible gender compositions, meaning that we had sufficient numbers of same-sex ($n = 93$) and opposite-sex ($n = 97$) dyads to test for their differences in longitudinal changes. Our focus on perceived romantic competence allowed us to include all remaining adolescents in our analyses, rather than limiting our sample to the 57–73% ($n = 61$ – 128) of the sample who reported being in a romantic relationship in a given phase.

Procedure

For this study we used data that were collected up to five times over the course of 5 years. Trained interviewers conducted separate home interviews with mothers, fathers, and the two oldest children in each family. After informed consent/assent was obtained, parents reported on family background characteristics and both siblings reported on their romantic competence and relationships with their siblings and parents. At each wave of data collection, each family received an honorarium for compensation.

Measures

Perceived romantic competence—Perceived romantic competence was measured at Times 1 through 5 with a five-item subscale designed by Harter (1982). Youth read statements describing two individuals and first selected the one most like them (e.g., “Some teenagers feel that they would be fun and interesting on a date BUT other teenagers wonder about how fun and interesting they would be on a date”). They were then asked to indicate whether they felt the statement they chose was “really true” or “somewhat true” of them. The response scale ranged from 1 to 4; item ratings were averaged, with higher scores indicating higher perceived competence. Cronbach’s alphas averaged .80 for firstborns and .73 for secondborns.

Sibling intimacy—Sibling intimacy was assessed at Times 1 through 5 using an eight-item measure developed by Blyth, Hill, and Thiel (1982), on which adolescents used a scale ranging from 1 (*not at all*) to 5 (*very much*) to rate items such as, “How much do you share your inner feelings or secrets with your brother/sister?” Item ratings were averaged, with higher scores indicating higher intimacy. Cronbach’s alphas averaged .85 for firstborns and .87 for secondborns.

Sibling conflict—Sibling conflict was assessed at Times 1 through 5 using a five-item scale developed by Stocker and McHale (1992) on which adolescents used a scale ranging from 1 (*not at all*) to 5 (*very much*) to rate items such as, “How often do you try to hurt your brother/sister by pushing, punching or hitting him/her?” and “How often do you tease, annoy, or irritate your sister/brother?” Items were designed to assess physical and verbal conflict between siblings. Item ratings were averaged, with higher scores indicating more conflict. Cronbach’s alphas averaged .76 for both firstborns and secondborns.

Parent-adolescent acceptance/warmth—Parent-adolescent acceptance/warmth was included as a control variable to isolate the role of sibling relationship qualities from the established positive impact of warm parent-child relationships on both youth’s sibling relationships and romantic competence (Conger et al., 2000; Seiffge-Krenke, 2003), as well as to account for individual differences in youth’s self-report biases. Maternal and paternal

warmth were assessed at Times 1 through 5, separately at different points in the interview, using an 8-item scale from the Child's Report of Parental Behavior Inventory (Schwarz, Barton-Henry, & Pruzinsky, 1985; Schludermann & Schludermann, 1970). Youth rated such items as, "Makes me feel better after talking over my worries with her/him," on a scale ranging from 1 (*not at all*) to 5 (*very much*). Item ratings were averaged, with higher scores indicating higher warmth. Cronbach's alphas of maternal warmth averaged .85 for firstborns and .84 for secondborns; Cronbach's alphas of paternal warmth averaged .87 for firstborns and .85 for secondborns.

Maternal and paternal conflict—Maternal and paternal conflict with offspring were assessed at Times 1 through 5, separately at different points in the interview, using a scale adapted from Smetana (1988). Youth rated the frequency of their conflict with their mothers and fathers in 12 domains (e.g., household chores, friends, bedtime and curfew) on a scale ranging from 1 (*never*) to 6 (*several time a day*). Item ratings were averaged, with higher scores indicating more conflict. Cronbach's alphas of maternal conflict averaged .85 for firstborns and .79 for secondborns; Cronbach's alphas of paternal conflict averaged .84 for firstborns and .83 for secondborns.

Parents' educational attainment—Given the potential impact of family socioeconomic status on a range of youth's outcomes (Conger, Conger, & Martin, 2010), we controlled for parents' educational attainment as a proxy for family socioeconomic status. We used the average of mothers' and fathers' years of education at Time 1 (12 years = completion of high school), given that they were correlated, $r = .49, p < .01$.

Results

Preliminary Analysis

Table 1 shows the means and standard deviations of and correlations between perceived romantic competence, sibling intimacy, and sibling conflict across Times 1, 2, 3, 4, and 5, separately for firstborns and secondborns. As reflected by the moderate-to-strong correlations, cross-time stability was evident for all three constructs, especially across shorter measurement intervals. Only modest correlations, however, were found between perceived romantic competence and sibling relationships and between sibling intimacy and sibling conflict. Due to the smaller sample sizes at Times 4 and 5 – an artifact of the study's design to follow families until the year after the firstborn's high school graduation, correlations involving variables measured at these two time points, though modest-to-moderate in magnitude, were not significant.

Statistical Analyses

As noted, MLM allowed us to take advantage of an accelerated longitudinal design and link adjacent segments of shorter periods of longitudinal data from two cohorts of siblings (i.e., firstborns and secondborns) to estimate a common developmental course from adolescence through young adulthood. MLM also took into account the dependencies of the data (i.e., siblings from the same families were assessed repeatedly) by specifying an error variance-covariance matrix through the random effects of the model (Raudenbush & Bryk, 2002).

Another major strength of such an analytic approach is that it accommodates missing data and effectively reduces biases in the estimation of parameters and standard errors (Schafer & Graham, 2002), although only about 5% of our data were missing due to attrition. A series of three-level models (Level 1 = within-individual; Level 2 = between-individual; Level 3 = between-family) were estimated using the MIXED procedure in SAS version 9.2. At Level 1, we included time-varying variables. Here, we used youth's ages as the metric of time, and included polynomial age terms (i.e., linear, quadratic) to describe the development of perceived romantic competence over time. Youth's ages were centered at age 18, the legal age to be married without parental permission in the state where the study was conducted. We also included the time-varying covariates (i.e., sibling intimacy and sibling conflict) and time-varying controls (i.e., maternal and paternal warmth and conflict) at this level.

To distinguish within-person from between-person variation, the time-varying sibling relationship covariates were indicated by two variables. At Level 1, the covariate was indicated by a time-varying, group-mean centered (i.e., centered at each sibling's own cross-time average) variable. At Level 2, the covariate was indicated by the grand-mean centered (i.e., centered at the overall sample mean), cross-time average. Whereas the Level 1 version of the covariate captured within-person variation and indicated how an individual deviated from his or her own norm at each time point, the Level 2 version of the covariate captured between-person variance and indicated how the individual's cross-time average differed from those of the rest of the sample. Maternal and paternal warmth and conflict (i.e., time-varying controls) were grand-mean centered at Level 1 without including the cross-time averages at Level 2, as we did not intend to distinguish the within- versus between-person effects of these controls. In addition to the cross-time averages of the covariates, at Level 2 we also included two other time-invariant variables that differed between siblings: youth's gender and birth order. The reference groups (coded as 0) for gender and birth order were girls (vs. boys) and firstborns (vs. secondborns), respectively. At Level 3, we included two time-invariant variables that were the same for both siblings: gender constellation (with same-sex dyads being the reference group) and parental education, centered at 12 years (i.e., completion of high school).

Analyses were conducted in three stages. First, we generated a general change model (Model 1) to examine the overall change in perceived romantic competence from adolescence through young adulthood. To identify the best error structure, we compared a number of nested models that differed only in the random effect of interest and used deviance tests to determine the statistical significance of the random effects (Raudenbush & Bryk, 2002). Because the difference between two nested models in their deviances (i.e., -2 log likelihood) was Chi-squared distributed, it indicated whether adding a particular set of random variance components constituted a significantly better error structure. Non-nested models with different random variance components, however, were compared based on Information Criteria, including AIC and BIC. Second, we tested a gender-constellation-specific change model (Model 2) to examine whether, controlling for youth's gender and birth order and parental education, the pattern of change in perceived romantic competence differed for youth with same- versus opposite-sex siblings. Third, we tested a sibling intimacy model (Model 3a) and a sibling conflict model (Model 3b) to examine whether, controlling for mother- and father-child relationships (warmth and conflict, respectively),

youth's gender and birth order, and parental education, between-person differences and/or within-person changes in sibling relationship qualities were associated with between-person differences and/or within-person changes in perceived romantic competence. We only included significant interactions in the final models for all analyses, as retaining non-significant interactions tends to increase standard errors (Aiken & West, 1991).

MLM Models

The coefficients for fixed effects can be found in Table 2. Deviance tests revealed that the addition of a random linear slope at Level 2, $X^2 = 1970.9 - 1964.8 = 6.1, p < .05$, or Level 3, $X^2 = 1970.9 - 1951.5 = 19.4, p < .01$, (but not both) significantly improved the fit of an intercept-only model. However, Information Criteria indicated that, with the same number of degrees of freedom, the model with a random linear slope at Level 2 (AIC = 1961.5, BIC = 1977.9) had a better fit than a model with a linear random slope at Level 3 (AIC = 1964.8, BIC = 1991.2), and thus the former was selected as the error structure against which the fixed effects were tested. Model 1 revealed a significant linear effect of age. Overall (all youth combined), romantic competence increased steadily from ages 12 to 20. Consistent with our hypothesis, however, Model 2 revealed a significant Linear Time x Gender Constellation interaction, such that youth with opposite-sex siblings experienced a significant increase in romantic competence, $\gamma = 0.06, t = 4.52, p < .01$, while no significant changes over time were found for youth with same-gender siblings, $\gamma = 0.01, t = 0.83, n.s.$ As Figure 1 illustrates, youth with same-gender siblings reported significantly higher levels of perceived romantic competence at, for example, age 12, $\gamma = -0.22, t = -2.62, p < .01$; this situation was reversed at, for example, age 20, when youth from mixed-gender sibling dyads tended to report higher levels of perceived romantic competence, $\gamma = 0.17, t = 1.86, p = .06$. Model 3a revealed significant between and within-person effects for sibling intimacy. Youth who reported higher levels of sibling intimacy, *on average*, reported higher levels of romantic competence, and on occasions when youth reported higher levels of sibling intimacy *than usual*, they also reported higher levels of perceived romantic competence *than usual*. These effects of sibling intimacy were significant, beyond the significant positive impact of paternal warmth. Model 3b further revealed a significant between-person effect for sibling conflict. Youth who exhibited higher average levels of sibling conflict reported lower average levels of romantic competence. Notably, with sibling conflict in the model, neither the maternal nor paternal conflict control measures were significant correlates of romantic competence.

Discussion

Research has long highlighted the importance of romantic involvement to positive socio-emotional development in adolescence and early adulthood (Berscheid, 1999; Berscheid & Reis, 1998). Also well-documented is the significance of positive family experiences for individuals' later romantic success (e.g. Conger et al., 2000; Amato & Booth, 2001). Little work, however, has examined the developmental trajectory of constructs that underlie romantic success, or contributions of the family beyond the parent-child relationship—such as the potential importance of sibling relationship experiences— for successful romantic relationships. By using an MLM strategy to take advantage of five waves of data collected

from two siblings in each of approximately 200 families, our analyses allowed us to gain a better understanding of the developmental trajectory of perceived romantic competence across adolescence and early adulthood. We were also able to explore the ways in which perceived romantic competence was associated with sibling gender constellation and sibling relationship experiences. At the broadest level, this research demonstrates a link between sibling relationship experiences and individual development in the social/romantic realm. That the impact of sibling experiences was evident while controlling for mother-child and father-child relationship quality lends strength to the argument that the influence of family context reflects more than just parent-child dynamics—and that sibling influences are uniquely significant. Our finding that sibling relationship experiences were linked to youth's perceived romantic skills supports developmental and family systems' claims that social dynamics learned in the family are reflected in relationships beyond the family. That sibling relationship experiences may carry over to romantic relationships further demonstrates the importance of expanding the adolescent/adult development literature to better incorporate the impact of sibling relationships.

Links between Sibling and Romantic Relationship Quality

We found that individuals with higher average levels of sibling conflict reported lower average levels of romantic competence. This finding speaks to the potential importance of sibling relationships as a context for the social learning processes that underlie the development of social skills, and is consistent with previous work suggesting that sibling interactions provide unique learning opportunities (Dunn, 2007; Katz, Kramer, & Gottman, 1992). We expanded on this prior work to examine the romantic relationship domain and to investigate the influence of siblings during adolescence and young adulthood, areas that have been understudied in sibling research. One strength of this research was our use of parent-child warmth and conflict as controls. That sibling relationship qualities emerged as unique and significant predictors further emphasizes the role played by sibling relationships in individual development. This finding also highlights the importance of considering multiple family subsystems simultaneously. The time-invariant nature of the linkage between sibling conflict and romantic competence also underscores the relevance of sibling relationship quality as an important factor across development. This finding is particularly meaningful when considering that, across the final year of data collection, the majority (63.2%, $n = 120$) of older siblings in our sample reported having left home—meaning that many siblings no longer had routine face-to-face contact. These results emphasize the enduring importance of sibling relationship dynamics. That negative sibling relationship qualities were linked to poorer romantic competence supports a conceptualization of sibling and romantic relationships as congruent, with experiences in one having direct implications for those in the other (Updegraff et al., 2002).

The conceptualization of sibling and romantic relationships as congruent is further supported by the finding that, on occasions when youth experienced higher levels of sibling intimacy, they also reported higher levels of romantic competence. The link between positive sibling experiences and perceived romantic competence is in accordance with research on the connections between positive sibling experiences and social competence with peers and friends, more generally. Our work extends these findings to romantic relationships as well as

into the period of young adulthood (Lockwood et al., 2001). The pattern of results is suggestive of both attachment as well as social learning mechanisms underlying the linkages between sibling and romantic experiences. Adolescents who have close sibling relationships also may believe they are capable of intimacy in their romantic relationships, and those who have difficulties in getting along with their siblings may be concerned about their ability to negotiate relationships with potential romantic partners.

Dyad Sex Constellation and Romantic Competence

The interaction between youth's age and sibling dyad sex constellation in predicting perceived romantic competence demonstrates the importance of considering structural variables in sibling influences. Although Maccoby's (1990; 1998) observations regarding childhood gender segregation led us to predict a difference in average *level* of romantic competence by sex constellation, this was not the case. Instead, we found differences in the *development* of romantic competence over time—that youth with an opposite-sex sibling experienced a significant increase in perceived romantic competence across adolescence and into adulthood—in contrast to their peers with same-sex siblings whose competence did not change over time. That the benefit of having an opposite-sex sibling manifests in a difference in the slope, not average level, of romantic competence is not out of line with Maccoby's argument, however. Tempering gender segregation by means of everyday contact with an opposite-sex sibling who is relatively close in age, appears to be beneficial to the development of cross-sex social competence. Daily contact with an opposite-sex sibling provides opportunities to observe and interact with a peer of the other sex, may expose youth to a larger, other sex peer group, and a sibling of the other sex also may be a source of advice and insight into an alternative “culture.” As such, youth who grow up with an opposite-sex sibling may have an advantage in adolescence, when opposite-sex interactions become more frequent and valued (Lewis, 2005). Rather than manifesting in a higher level of perceived competence in early adolescence, however, our data suggest that growing up with a sibling of the other sex is associated with a gradual increase in perceived competence across adolescence.

In contrast to youth with everyday exposure to an opposite-sex age-mate, youth with same-sex siblings may have few early opportunities upon which to evaluate their prowess and may be unaware of how little they know about developing cross-sex relationships. This misperception may correct itself over time, as such encounters become more frequent. Youth from opposite-sex dyads, however, may have a much better idea of how challenging interactions with an opposite-sex peer can be. Over time, they may be able to draw on their earlier sibling experiences and exposure to relate to potential romantic partners in ways that are satisfying and effective. Youth with opposite-sex siblings have the additional advantage of being able to go to their sibling for advice and perspective while they navigate the mixed-sex social landscape of adolescence and early adulthood. The advantages of their cross-sex sibling interactions may become more apparent and pronounced over time as adolescents increasingly interact with opposite-sex peers.

Limitations and Future Directions

In the face of its contributions, some limitations of our research suggest directions for future study. One such limitation lies in our use of self-perceived romantic competence as the outcome of interest. Perceived romantic competence is a meaningful construct in its own right, and as we noted, offers advantages for research on adolescents. However, future work in this area would benefit from determining the degree to which self-perceived romantic competence corresponds to romantic competence as perceived by others. Thus, the development of romantic competence also may be measured in terms of the quality of romantic relationships, particularly as reported by romantic partners.

Another avenue for future work rests on our argument that relationships with an opposite-sex sibling provide opportunities to gain social skills that can benefit later interactions with opposite-sex peers. This argument, however, does not take into account that sex is a status variable and does not reflect the ways in which or extent to which a sibling exhibits gendered characteristics. Gender is multi-faceted, and includes characteristics ranging from personality and communication style, to identity and interests, all of which may come into play in romantic relationships. Thus a boy with a “tomboy” for his sister may be less advantaged in a relationship with a stereotypically feminine partner than a boy with a more gender-stereotypical sister. Future research should move beyond dyad sex constellation to examine what gendered characteristics of siblings make a difference for youth’s romantic relationship experiences.

In addition to a sibling’s gendered qualities, youth with opposite-sex siblings also may be exposed to their siblings’ peer groups, compounding their opportunities to breach the gender-segregation of middle childhood (Maccoby, 1998). While not “mandatory” to the same degree that sibling contact is, exposure to opposite-sex peers is often ongoing, and is unlikely to be avoided completely. Future investigations of sibling influences should thus look beyond siblings’ characteristics and sibling relationship experiences to examine indirect sibling influences, such as aspects of their peer group—including group size, gender typicality, frequency/extent of contact with the opposite-sex sibling, and emotional tone of interactions. Given the potential importance of opposite-sex social exposure to youth’s romantic development, this would seem to be a promising area of research.

Additionally, although this study sheds light on the importance of sibling experiences to the development of perceived romantic competence in heterosexual youth, our sample did not include sufficient numbers of lesbian, gay, bisexual or transgender (LGBT) youth to conduct meaningful analyses. We are thus left with no information about how our findings might apply to adolescents oriented to other than heterosexual romantic relationships. In the context of a same-sex romantic relationship, exposure to social interactions with an opposite-sex sibling may provide few advantages to the development of romantic competence. Future work on sibling influences should include more diverse samples of adolescents in order to learn more about this topic.

A related concern about the generalizability of our findings is that, although our sample was largely representative of married-couple families in the geographic area in which the data were collected (McHale, Updegraff, Helms-Erikson, & Crouter, 2001), it was not

representative of youth in the US and should be replicated with a larger and more diverse sample. For example, cultural differences in family socialization and social norms may have implications for sibling dynamics (Chen & French, 2008). Indeed, some research suggests that familism values play a prominent role in the family lives of ethnic/racial minority youth, and that these values may have implications for sibling relationships and sibling influences (Updegraff, McHale, Whiteman, Thayer, & Delgado, 2005). Finally, although our study was longitudinal and allowed us to test within-person associations while controlling for stable individual differences, its correlational design does not allow for causal inferences. For example, romantic competencies may have had implications for sibling relationship qualities rather than the other way around, or these experiences may be reciprocally influential. Notably, there is not clear evidence that child sex emerges via social selection effects, and thus there may be more reason to view the sibling gender constellation effects we observed as having causal effects.

Implications

In addition to its theoretical contributions, the current study has implications for practice. By demonstrating the importance of opposite-sex sibling interactions to perception of romantic skills, our results illustrate the importance of positive sibling relationships for yet another domain of development—romantic competence. Parents and practitioners need to be aware that, although sibling squabbles may seem like minor concerns, they may have lasting implications for youth's development. That is, reducing sibling conflict and promoting sibling intimacy may have benefits beyond simply improving family harmony, and thus should be a focus of prevention/intervention programs aimed at fostering positive development in youth.

Conclusion

Although previous research has documented connections between sibling relationship experiences and social development with peers, less is known about the ways in which these experiences have implications for youth's social development in the romantic realm. The current study built on existing work to demonstrate that sibling experiences were related to adolescents' perceived romantic competence and that they explained variance beyond that accounted for by parent-child relationship characteristics. Siblings have previously been included in some models of family influences, but their importance has been relatively neglected, particularly in young adulthood. This work supports the conceptualization of siblings as significant influences on youth's development and the importance of promoting positive sibling dynamics. Our findings additionally suggest that sibling interactions may be particularly meaningful for adolescents from opposite-sex dyads in the romantic domain, as long-term social exposure to an opposite-sex sibling may have the potential to ameliorate the negative impact of gender segregation in middle childhood (Maccoby, 1990). Future research should continue to examine the processes through which growing up with an opposite-sex sibling has implications for romantic competence and later romantic relationship formation, a central task of adolescence and early adulthood.

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Figure 1.
Interaction of age and gender constellation in predicting perceived romantic competence.

Table 1
Means, Standard Deviations, and Correlations for Perceived Romantic Competence, Sibling Intimacy, and Sibling Conflict

	<i>M (SD)</i>		Correlations														
	Firstborns	Secondborns	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. T1 PRC	2.66 (0.56)	2.63 (0.45)	-	.46**	.37**	.32**	.17	.18*	.11	.09	.07	.17	-.09	-.14 [†]	-.13 [†]	-.03	.05
2. T2 PRC	2.58 (0.57)	2.50 (0.58)	.64**	-	.66**	.56**	.81**	.13 [†]	.17*	.24**	.19*	.37 [†]	-.03	-.11	-.04	.03	-.03
3. T3 PRC	2.68 (0.61)	2.56 (0.61)	.52**	.60**	-	.70**	.69**	.11	.15*	.26**	.15	.07	-.12	-.18*	-.15*	-.09	-.27
4. T4 PRC	2.69 (0.70)	2.65 (0.59)	.63**	.57**	.68**	-	.64**	.15	.17 [†]	.19*	.10	.11	.01	-.13	-.04	.07	.12
5. T5 PRC	2.92 (0.49)	2.82 (0.67)	.26	.31	.31	.47*	-	.40*	.30	.30	.13	.26	.22	.00	.24	.12	-.08
6. T1 SI	2.93 (0.66)	3.02 (0.70)	.09	.15*	.12	.03	.29	-	.69**	.53**	.44**	.34 [†]	-.20**	-.12	-.15*	-.11	-.12
7. T2 SI	3.03 (0.66)	3.07 (0.74)	-.01	.06	.11	.01	.24	.70**	-	.68**	.63**	.62**	-.20**	-.17*	-.08	-.12	-.03
8. T3 SI	3.24 (0.69)	3.30 (0.79)	.03	.11	.17*	-.11	.34	.66**	.69**	-	.77**	.86**	-.15*	-.14 [†]	-.15*	-.24*	.03
9. T4 SI	3.34 (0.68)	3.36 (0.76)	.12	.11	.09	-.03	.29	.55**	.54**	.74**	-	.81**	-.14*	-.34**	-.33**	-.23*	-.03
10. T5 SI	3.27 (0.74)	3.44 (0.86)	-.07	.15	.15	-.21	.29	.72**	.54**	.84**	.79**	-	-.07	-.00	-.08	.01	-.08
11. T1 SC	2.59 (0.62)	2.65 (0.65)	-.12 [†]	-.11	-.09	-.22*	-.41*	-.22**	-.26**	-.26**	-.28**	.18	-	.59**	.47**	.29**	.43*
12. T2 SC	2.43 (0.64)	2.49 (0.65)	-.19*	-.15*	-.10	-.23*	-.57**	-.15*	-.21**	-.17*	-.14	.22	.59**	-	.59**	.34**	.41*
13. T3 SC	2.16 (0.63)	2.28 (0.70)	-.19*	-.20**	-.20**	-.23*	-.69**	-.20**	-.24**	-.21**	-.18 [†]	.01	.54**	.61**	-	.51**	.58**
14. T4 SC	2.03 (0.64)	2.13 (0.63)	-.22*	-.17 [†]	-.17 [†]	-.17 [†]	-.48*	.01	-.08	-.15	-.21*	.14	.46**	.64**	.73**	-	.79**
15. T5 SC	2.02 (0.59)	2.14 (0.64)	-.08	.06	-.10	-.23	-.43*	.32	.20	.09	.20	.24	.30	.31	.49*	.62**	-

Note. Correlations for firstborns are below the diagonal and correlations for secondborns are above the diagonal.

T1, T2, T3, T4, and T5 = Times 1, 2, 3, 4, and 5, respectively; PRC = perceived romantic competence; SI = sibling intimacy; SC = sibling conflict.

Since the last point of data collection was designed to be the year after the firstborn graduated from high school (which differed across families), the numbers of participating families varied from 27 (at Time 5) to 190 (at Time 1).

[†] $p < .10$;

* $p < .05$;

** $p < .01$.

Table 2
Gamma Coefficients (γ) and t-Ratios for Multi-Level Models of Perceived Romantic Competence.

	Model 1		Model 2		Model 3a		Model 3b	
	γ	t-ratios	γ	t-ratios	γ	t-ratios	γ	t-ratios
Intercept	2.67	82.38**	2.47	38.41**	2.49	38.52**	2.50	38.19**
Linear	0.03	3.79**	0.01	0.83	0.01	0.54	0.01	0.66
Gender constellation			0.07	1.10	0.04	0.66	0.04	0.66
Linear x Gender constellation			0.04	2.74**	0.04	2.19*	0.05	2.59*
Gender			0.14	2.93**	0.16	3.39**	0.13	2.79**
Birth order			0.02	0.63	-0.00	-0.05	0.32	0.61
Parental education			0.03	2.63**	0.03	2.07*	0.03	2.06*
BP sibling intimacy					0.11	2.62**		
WP sibling intimacy					0.06	2.06*		
TV maternal warmth					0.05	1.62		
TV paternal warmth					0.06	2.03*		
BP sibling conflict							-0.14	-2.77**
WP sibling conflict							-0.01	-0.47
TV maternal conflict							0.03	0.60
TV paternal conflict							-0.04	-0.94

Note. BP = between-person; WP = within-person; TV = time-varying.

* $p < .05$;

** $p < .01$