Published in final edited form as:

Fam Relat. 2010 December ; 59(5): 520–532. doi:10.1111/j.1741-3729.2010.00620.x.

Who's the Boss? Patterns of Control in Adolescents' Sibling Relationships

Corinna Jenkins Tucker,

Department of Family Studies, University of New Hampshire, 309 Pettee Hall, Durham, NH 03824
(cjtucker@unh.edu).

Kimberly A. Updegraff*, and **Megan E. Baril****

* School of Social and Family Dynamics, Program in Family and Human Development, Arizona State University, Tempe, AZ 85287-3701

** Department of Human Development and Family Studies, The Pennsylvania State University, State College, PA 16801.

Abstract

The goals of this study were to examine longitudinal changes in perceived control in adolescents' sibling relationships and to describe the nature and correlates of three distinct control patterns: Firstborn dominant, equal, and secondborn dominant. Firstborn and secondborn adolescents in 184 predominately European-American families participated in home interviews and a series of phone interviews as part of a longitudinal study of family relationships and adolescent development. Findings revealed changes in control over three years as well as sibling differences. In addition, different patterns of control were linked to qualities of the sibling relationship and to adolescent adjustment. The different roles that firstborn and secondborn siblings assume, and why these roles are linked to relationship experiences and adjustment, are discussed.

Keywords

Adolescence; Adolescent well being; Sibling relationships

A defining feature of girls' and boys' relationships with their sisters and brothers is the distribution of power or control (Buhrmester, 1992; Dunn, 1983). In early and middle childhood, firstborns or older siblings typically assume a dominant role, and younger siblings hold the follower or less powerful role (e.g., Bigner, 1974; Brody, Stoneman, & MacKinnon, 1982; Buhrmester & Furman, 1990; McElwain & Volling, 2005); this relationship dynamic is characteristic of a complementary sibling relationship (Dunn). Cross-sectional work suggests that in adolescence, sibling relationships become more equal in the balance of power as firstborns begin to relinquish some of their control and secondborns acquire a more equal status (Buhrmester; Buhrmester & Furman; Goetting, 1986). In the current study, we expand on the existing knowledge about power dynamics in adolescents' sibling relationships by examining developmental changes in firstborn and secondborn siblings' perceptions of control over three years and by exploring potentially important differences across families in siblings' *patterns* of control. Although the role structure of sibling relationships is highlighted as one of the defining features of sibling relationships (McHale, Kim, & Whiteman, 2006), little is known about the developmental patterns and the potential variability in sibling power dynamics.

Developmental Changes in Sibling Control in Adolescence

Developmental scholars highlight the unique socialization opportunities provided by peers (Erikson, 1968; Rogoff, 1990). Through their interactions with other youth, girls and boys have opportunities to learn and develop social cognitive skills in relationships that are more equal in the division of power and control than those they develop with adults in their lives (e.g., parents, teachers). Comparisons of youth's relationships with different members of their social networks suggest that youth establish more egalitarian relationships with agemates (e.g., friends, and to a lesser extent, siblings; e.g., Buhrmester, 1992; Buhrmester & Furman, 1990; Goetting, 1986). Longitudinal data on changes in control and dominance in children's and adolescents' relationships with other youth are limited, however (for an exception see Ostrov & Collins, 2007). In a study designed to compare changes in adolescents' relational control (and intimacy) with their siblings as compared to their best friends using data from the present study, adolescents reported higher levels of control with their siblings than with their friends and declines in control with siblings and friends (averaged across the two relationships) over a three year period (Updegraff, McHale, & Crouter, 2002). In the present study, we extended this work focusing on changes in firstborns' *versus* secondborns' reports of control in the sibling dyad, highlighting insights gained from a *within-family approach* that directly compares firstborn and secondborn siblings' reports of control.

Drawing on a developmental perspective and expanding on existing cross-sectional research, our first goal was to describe longitudinal changes in siblings' perceptions of control over a three-year period, beginning when firstborns were in middle adolescence (i.e., 15 years of age) and secondborns were in early adolescence (i.e., 12.5 years of age). In this study, we measured firstborn and secondborn siblings' perceptions of their own behavioral control in the sibling relationship, generally conceptualized as "getting another to do something that s/he would not otherwise do," (Stets, 1995a, p. 2), to learn how much power and control siblings perceived themselves as having over each other. We anticipated that firstborns and secondborns would become more similar over time in their perceptions of control, in part due to developmental changes in sibling dynamics in adolescence (Buhrmester, 1992; Goetting, 1986). In this study, we also examined whether firstborns' and secondborns' trajectories of control differed by sibling dyad qualities (i.e., age spacing, sibling dyad sex composition). Current work reveals that when age spacing between siblings is wide (i.e., typically sibling pairs who differ by four years or more in their ages; Buhrmester & Furman, 1990; Furman & Buhrmester, 1985) older siblings are more likely to serve in dominant roles over their younger siblings than when age spacing is narrow (i.e., less than four years). Thus, we anticipated that greater differences would be evident in firstborn versus secondborn siblings' reports of control in widely as compared to narrowly spaced dyads. In contrast, inconsistencies in previous research with regard to the relation between sibling sex and power in sibling relationships meant that analyses testing sibling sex constellation differences were exploratory (e.g., Furman & Buhrmester, 1985, 1992).

Exploring Different Patterns of Sibling Control

Our second goal was to move beyond a focus on *normative changes* in sibling control to examine potentially different *patterns* of control that may characterize adolescents' sibling relationships. Consistent with a person-oriented approach (Magnusson, 1988), we drew on prior research to identify three distinct patterns of control based on the *combination* of firstborns' and secondborns' descriptions of their controlling behavior toward one another: (1) "Firstborn Dominant" (i.e., firstborns report higher levels of control than do secondborns); (2) "Equal" (i.e., siblings report relatively equal levels of control); and (3) "Secondborn Dominant" (i.e., secondborns report higher levels of control than do

firstborns). Some sibling dyads may display equality in the distribution of power and control as older siblings relinquish some of their power and younger siblings assume a more powerful position in their relationship (e.g., Buhrmester & Furman, 1990) and as siblings become more similar in developmentally in adolescence (Buhrmester, 1992). Other sibling relationships may be characterized by a power imbalance favoring firstborns, a pattern that may continue from childhood and exist as a function of status conferred to firstborns by parents (Mendelson, de Villa, Fitch, & Goodman, 1997) and by siblings themselves due to firstborns' initial, and perhaps continued, more advanced cognitive abilities and larger physical size as compared to secondborns. For another group of siblings, the pattern of control may be distinguished by secondborn dominance and firstborn submissiveness (Cicirelli, 1976). A secondborn dominant pattern may arise because firstborns, for whatever reason, cannot or will not assert themselves, or the secondborn is unusually assertive, though in the first decade of life this pattern may be rare.

Power imbalances favoring firstborns or secondborns may be the result of sibling de-identification (Ansbacher & Ansbacher, 1956). When siblings de-identify, they develop contrasting personality styles and interests in an effort to assume a unique family niche, and thereby, reduce sibling rivalry (Schachter, Gilutz, Shore, & Adler, 1978; Schacter, 1985). In the current study, evidence of firstborn or secondborn adolescent siblings' conscious or unconscious choices of a dominant or submissive role, may be an example of siblings' unique identity within their family. Although not extensively investigated, evidence of sibling de-identification has been found in studies of siblings' gender role orientations (McHale, Updegraff, Helms-Erikson, & Crouter, 2001), personality (Sulloway, 1997), time use (Shanahan, Kim, McHale, & Crouter, 2007), interests (Whiteman et al., 2007) and parent-child relationships (Feinberg, McHale, Crouter, & Cumsille, 2003; Whiteman & Christiansen, 2008).

Sibling de-identification theory suggests that siblings who are similar in age or sex maybe more likely to retain a power imbalance across adolescence as a manifestation of their efforts to establish distinct family niches (Schachter, Shore, Feldman-Rotman, Marquis, & Campbell, 1976). The evidence regarding age spacing and sibling power balance, however, is clear: In childhood and adolescence, closer age spacing between siblings is associated with greater role symmetry (Bigner, 1974; Buhrmester & Furman, 1990; Furman & Buhrmester, 1985). However, the findings with regard to sibling gender constellation have not been consistent. Some evidence reveals connections between gender constellation and power dynamics (e.g., Stoneman, Brody, & MacKinnon, 1986); for example, older sisters in sister-sister dyads assumed a dominant position more often than older siblings in other dyads (Stoneman et al.). Further, one observational study in which secondborns in opposite-sex sibling pairs displayed more conflict and rivalry toward firstborns while working on problem-solving tasks (Cicirelli, 1976), suggests that opposite-sex sibling pairs may be more likely than same-sex pairs to exhibit a secondborn dominant/firstborn submissive pattern. In contrast, other work demonstrates limited support for the role of gender composition in power dynamics (Buhrmester & Furman; Furman & Buhrmester). In the present study, we tested whether patterns of sibling control varied as a function of structural characteristics of the sibling relationship, including age spacing between siblings and sex constellation of the dyad.

Links between Patterns of Sibling Control and Sibling Relationship Quality and Adjustment

Our third goal was to illuminate the relationship and adjustment correlates of sibling control dynamics. Similar to the findings from studies of sibling warmth and conflict and adjustment, and grounded in ego development theory (Sullivan, 1953), we expected that

qualities of the sibling relationship (i.e., intimacy, conflict, time together) and each sibling's adjustment (i.e., self esteem, depression) across three years would vary as a function of the balance of control in the sibling relationship. Ego development theorists propose that, in adolescence, girls and boys strive for interpersonal relationships that are more egalitarian with respect to the balance of power and control (Sullivan). The developmental significance of having more egalitarian familial (e.g., parents and siblings) and extra-familial (e.g., peers and romantic partners) relationships in adolescence as compared to childhood may mean that its achievement is particularly important for adolescent well being. Thus, we anticipated that adolescents in sibling relationships characterized by similar levels of control would report the most positive relationship qualities (e.g., more intimate and companionate) and better psychological adjustment than those in relationships characterized by an unequal distribution of control. Although egalitarianism is a developmentally normative relationship pattern in adolescence, for some sibling relationships, the reduction of rivalry associated with a pattern of sibling differentiation may maintain harmony in the sibling relationship and adjustment. Given that firstborn dominance is a normative pattern in childhood that may be retained in adolescence (Bigner, 1974; Buhrmester & Furman, 1990; Goetting, 1986), we believed that sibling relationships typified by dominant firstborns would have some of the positive relationship qualities and psychological adjustment that characterize sibling relationships with similar levels of control. However, we expected that because dominant secondborn relationships are non-normative, these relationships would have the lowest quality and siblings would have the lowest adjustment relative to the other two control patterns examined in this study.

Present Study

In sum, the present study used a within-family approach to examine the developmental course, patterns, and correlates of sibling relationship control dynamics. Our first goal was to explore *developmental changes* in firstborn and secondborn siblings' reports of relational control to provide insights regarding how sibling relationship dynamics change over the course of adolescence from the perspective of both members of the sibling dyad. Extending beyond normative changes, our second goal was to identify potentially different *patterns* of sibling relational control and to explore the sibling characteristics that may be linked to these patterns (i.e., sibling sex constellation, age spacing). Our final goal was to investigate the relationship quality and well being correlates of different sibling control dynamics, examining firstborn versus secondborn siblings' experiences in relation to these different relationship dynamics.

Method

Participants

Participants were firstborn and secondborn siblings from 184 predominantly European American (4 mixed-race families) working- and middle-class families who resided in small towns and rural areas in a northeastern state participating in a larger longitudinal study of family relationships and adolescent development ($N = 197$; author citation). At Year 1, firstborns averaged 14.94 years of age ($SD = .72$) and secondborns averaged 12.43 years of age ($SD = 1.05$). Sibling dyads were approximately equally divided among the four sibling gender constellations. The mean age spacing between siblings was 2.48 years, $SD = .96$. The majority of families were two-child families (57%). The structural characteristics of this study's sibling dyads are representative of sibling dyads in the U.S. population (see Eggebeen, 1992). Both mothers and fathers were always married and had, on average, completed some college; average family income was \$62,079.32 ($SD = \$35,048.47$).

The study's original sample included 197 families recruited via letters sent home from school to 8th, 9th, and 10th graders in 18 school districts. Interested families returned self-addressed postcards, and families who met the study criteria (i.e., parents were always married, employed, had a firstborn in the 8th, 9th, or 10th grade, and a secondborn sibling who was no more than 4 years younger than the firstborn) were invited by phone to participate in the study. Despite our screening efforts, eight families included a sibling older than the two siblings included in the study and one family included a firstborn sibling with a cognitive disability who could not complete the interview protocol. In addition, across the 3 years of the study, 4 families were lost to attrition (2% of the sample). Therefore, the final sample for the present analyses included 184 families. Based on U.S. Census (2000), the sample closely represents the dominant racial (94% White) and economic background of the population of the state in which the data were collected.

Procedure

Separate structured home interviews lasting approximately 1 - 2½ hours were conducted by trained interviewers with parents, firstborns, and secondborns annually for three years. Before the interviews began, parents and siblings were informed about the study's general goals and interview procedures. Parents completed informed consent, siblings completed assent, and families received \$100 for their participation. Using a combination of standardized measures and open-ended questions, project team members read all questions to participants and recorded their answers. Parents' reports of demographics and background characteristics and each sibling's reports of their sibling relationship experiences and adjustment were used in this study. Siblings also participated in a series of seven nightly phone calls in the two to three weeks following each annual home visit. During each phone interview (conducted on 5 weekday evenings, 2 weekend evenings during each school year), each sibling reported on their involvement in 63 daily home and personal activities including housework, hobbies, personal care, hanging out, and media use outside of school hours. Using a cued-recall strategy (McHale, Crouter, & Bartko, 1992), they were asked the number of times they participated in the activity including the duration of (in minutes) and companions in (e.g., sibling, parent) in each of those activities. These data were used to calculate a measure of siblings' temporal involvement.

Measures

Family background information—Parents' education level and income and family members' birth dates were obtained from parents in the home interviews.

Perceived sibling control: Firstborns' and secondborns' perceived control exerted over each other was assessed using a scale adapted from Stets (1995b). For this measure, siblings responded to 10 items describing their perceptions of their controlling behavior (e.g., "I make him/her do what I want"; "I keep him/her in line") using a 5-point scale (1 = never/5 = very often). Items were summed to create a total score with higher numbers reflecting greater control. Cronbach's alphas were above .75 for both firstborns and secondborns across the three years.

Sibling intimacy—An 8-item scale measuring firstborns' and secondborns' intimacy with each other (adapted from Blyth & Foster-Clark, 1987) was completed. Items were rated on a 5-point scale (1 = not at all/ 5 = very much; e.g., "How much do you go to your brother/sister for advice/support?"). Higher summed scores indicate greater intimacy. For both firstborns and secondborns, Cronbach's alphas ranged from .78 to .81 during Years 1, 2, and 3.

Sibling conflict—Conflict in the sibling relationship was assessed by 5 items using a 5-point scale (1 = not at all/ 5 = very much; Stocker & McHale, 1992). Items included “How often do you start fights or cause trouble for your brother/sister?” A sum score was created, with higher numbers indicating more sibling conflict. Cronbach’s alphas were above .74 at each year.

Sibling temporal involvement—Sibling temporal involvement was measured by aggregating adolescents’ reports of activities in which their sibling participated across the seven phone calls for each year. Because siblings’ independent reports of their shared time were highly correlated (r ’s ranged from .82 at Year 1 to .89 at Year 3, $p < .001$), we averaged their reports.

Adjustment—We measured siblings’ self worth and depressive symptoms as indicators of their adjustment. Self worth was assessed by the general worth subscale of Harter’s (1988) Self Perception Scale for Adolescents. For each of 5 items, each sibling rated how true/untrue each statement was of him/her over the past year on a 4-point scale (e.g., “Some teenagers like the kind of person they are” but “Other teenagers often wish they were someone else”). The average of the items was calculated and higher scores indicate greater self worth. Cronbach’s alphas ranged from .79 to .85 for both siblings at each year.

Depressive symptoms were measured using the short form of the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977; Devins & Orme, 1985). Each sibling rated 12 items (e.g., “I felt depressed”) on a 4-point scale (1 = rarely or none of the time/4 = most or all of the time) to describe his/her experiences during the past week. Items were summed and higher scores indicate greater depressive affect. Cronbach’s alphas were above .70 for both firstborns and secondborns across all three years. Over the three years, correlations among siblings’ self esteem and depression scores ranged from $-.45$ to $-.50$, $p < .01$.

Results

Goal 1: Longitudinal Changes in Sibling Control

A 2 (Firstborn Sex) $\times$ 2 (Secondborn Sex) $\times$ 3 (Time) $\times$ 2 (Sibling: Firstborn versus Secondborn) mixed-model ANOVA was conducted to address our first goal of examining longitudinal changes in firstborns’ and secondborns’ reports of sibling control. A mixed model ANOVA strategy was chosen because it treats the relationship dyad as the unit of analysis (Maguire, 1999) and includes both siblings’ reports in the same analysis. Cohen’s d statistic (Cohen, 1988) was calculated as a measure of effect size. Firstborns’ and secondborns’ sex were the between-group factors, time and sibling were the within-group factors, and siblings’ reports of control were the dependent variables. This analysis revealed two significant effects. First, a sibling effect indicated that firstborns, on average, reported markedly higher levels of sibling control than did secondborns, $F(1,180) = 242.47$, $p < .001$, $d = 1.59$ (Firstborns $M = 24.79$, $SD = 5.75$ vs. Secondborns $M = 17.17$, $SD = 4.42$). Second, a time effect revealed small declines in siblings’ average reports of control over the three-year period, $F(2,179) = 17.61$, $p < .001$ (M ’s = 21.84, $SD = 4.12$; 20.58, $SD = 4.27$; and 20.13, $SD = 4.11$, for Years 1 through 3, respectively; d ’s ranged from .11 to .42); see Figure 1. This analysis suggests that both siblings became somewhat less controlling over time, but that overall, firstborns still reported higher levels of control, on average, than did their younger siblings.

Firstborns’ and secondborns’ control trajectories did not vary by sex or sex composition. However, age spacing differences in longitudinal changes in firstborns’ and secondborns’ reports of sibling control were evident. A 2 (Age Gap) $\times$ 3 (Time) $\times$ 2 (Sibling: Firstborn versus Secondborn) mixed-model ANOVA was conducted with age gap as the between-

group factor, Time and Sibling were the within-group factors, and siblings' reports of control were the dependent variables. Age gap was defined as wide (i.e., greater than or equal to four years) versus narrow (i.e., less than four years; Buhrmester & Furman, 1990; Furman & Buhrmester, 1985, 1992). A Sibling $\times$ Age gap effect revealed greater *differences* in siblings' reports of control in sibling dyads with wider spacing ($n = 14$) than dyads with narrower spacing ($n = 170$), $F(1,182) = 6.08$, $p < .05$, $d = .77$ (Wide spacing: $M = 12.00$, $SD = 5.07$; Narrow spacing: $M = 7.43$, $SD = 6.78$). In both types of dyads, older siblings reported more control than younger siblings, but the difference was greater in widely-spaced dyads. Because the widely spaced group was small (in part due to our sampling criteria), we conducted these analyses again using a median split of sibling age difference (median = 2.33 years) and the same pattern emerged.

Goal 2: Defining Patterns of Sibling Control

Our second goal was to identify different patterns of sibling control and to test whether these groups differed as a function of sibling dyad structural characteristics. We chose an a priori classification strategy using difference scores that was conceptually and theoretically meaningful and reflective of the existing literature on sibling relationships to categorize adolescents' sibling relationships into the three different patterns of interest. Alternative approaches such as cluster analysis and growth mixture models were not appropriate given our expectations about control patterns and our small sample size (Whiteman & Loken, 2006). Difference scores have been shown to be an appropriate and useful approach for assessment of inter-individual differences in perceptions of family and relationship experiences (Dunn, Stocker, & Plomin, 1990; Rogosa & Willett, 1985; Rovine, 1994). Using a difference score, calculated as firstborns' minus secondborns' reports of control (see Updegraff et al., 2002 for an example of this approach), we retained information about the direction and magnitude of differences (Rovine). A score of zero would indicate that firstborns and secondborns reported similar levels of control, a positive score would reflect greater control by firstborns than by secondborns, and a negative score would reflect greater control by secondborns than by firstborns.

To capture the conceptually distinct experiences of sibling control based on differences in adolescent siblings' perceptions of control within families, we chose a strategy in which equal control was differences within a $\frac{1}{2}$ standard deviation of zero (N 's = 41, 42, and 53, for Years 1, 2, and 3, respectively). Sibling dyads with a difference score greater than $\frac{1}{2}$ standard deviation above zero were labeled "Firstborn Dominant" because firstborns perceived themselves as more controlling than their younger siblings (N 's = 123, 129, and 119, for Years 1, 2, and 3, respectively). When the difference score was $\frac{1}{2}$ standard deviation or more below zero, the group was labeled "Secondborn Dominant" because secondborns perceived themselves as more controlling than their older siblings (N 's = 20, 13, and 12, for Years 1, 2, and 3, respectively). Across the 3 years, 62-68% of the groupings were stable, and 68-71% of the unstable dyads were Firstborn Dominant and Equal dyads re-classified as either Equal or Firstborn Dominant, respectively.

We chose to use Year 1 groups for our Goal 2 and 3 analyses based on the relative stability of the groups across 3 years and the validity of our approach as evidenced by the findings from a 3 (Sibling Control Group at Year 1: Equal, Firstborn Dominant, Secondborn Dominant) $\times$ 2 (Sibling: Firstborn versus Secondborn) $\times$ 3 (Time) mixed model ANOVA with Sibling Control Group as a between-group factor, Sibling and Time as the within groups factors and siblings' reports of control at all three years as the dependent variables. Cohen's d statistic (Cohen, 1988) was calculated as a measure of effect size. A significant Sibling Control Group $\times$ Sibling interaction, $F(2,181) = 71.60$, $p < .01$, revealed that differences in siblings' reports of control (i.e., firstborn reports – secondborn reports) were distinct across each of the sibling control groups (Firstborn Dominant $M = 10.68$, $SD = 5.17$;

Equal group $M = 4.02$, $SD = 4.46$; Secondborn Dominant $M = -2.42$, $SD = 5.69$; Firstborn Dominant vs. Equal $d = .95$; Firstborn Dominant vs. Secondborn Dominant $d = 2.22$; Equal vs. Secondborn Dominant vs. Equal $d = 1.12$). Additionally, a significant Sibling Control Group $\times$ Time $\times$ Sibling interaction, $F(4, 360) = 21.87$, $p < .01$, in combination with follow-up tests, showed that in Firstborn Dominant pairs firstborns reported consistently higher levels of control than firstborns did in the Equal or Secondborn Dominant groups in Year 1 vs. Year 2 ($d = 1.05$, $d = 1.25$, respectively) and Year 1 versus Year 3 ($d = 1.00$, $d = 1.27$, respectively; see Table 1), with the highest levels of control in Year 1. Our approach also demonstrates the value of including both siblings' reports and reflects the unique within-dyad experiences of firstborn and secondborn siblings. Alternative analyses suggested no differences in relationship quality and well being for stable versus non-stable sibling dyads and the inclusion of a stability variable representing whether the sibling control groupings changed from Year 1 to Year 3 as an additional covariate in the ANCOVAs for Goal 3 did not change the pattern of findings.

We conducted ANOVAs to assess whether there were differences between the sibling control groups in structural qualities of the sibling relationship (i.e., gender constellation, sibling age, age spacing between siblings). These analyses revealed a main effect for firstborn age, $F(2, 181) = 3.88$, $p < .02$, qualified by an effect showing age spacing differed across the three groups, $F(2, 181) = 3.93$, $p < .02$. Age spacing was greater in the Firstborn Dominant group ($M = 2.60$, $SD = .97$) as compared to both the Equal group ($M = 2.35$, $SD = .90$, $d = .28$) and the Secondborn Dominant group ($M = 2.01$, $SD = .80$, $d = .66$), suggesting that firstborn dominance may be related to greater differences in siblings' cognitive and physical development. Thus, we included age spacing as a covariate in the analyses for Goal 3. Gender constellation was unrelated to siblings' control patterns. Additional analyses testing for group differences in family size, mothers' and fathers' education, and family income were not significant.

Goal 3: Siblings' Patterns of Control Correlates: Sibling Relationship Quality and Adjustment

To address our final goal, we conducted a series of 3 (Sibling Control Group at Year 1: Equal, Firstborn Dominant, Secondborn Dominant) $\times$ 2 (Sibling: Firstborn versus Secondborn) $\times$ 3 (Time) mixed model ANCOVAs with Sibling Control Group as a between-group factor, Sibling and Time as the within groups factors, and age spacing as the covariate. The dependent variables were firstborns' and secondborns' ratings of their sibling relationship qualities (i.e., intimacy, conflict, temporal involvement) and adjustment (i.e., self worth, depressive symptoms) at each of the three years. Tukey follow-up tests were conducted to interpret significant effects. Only significant effects involving Sibling Control Group are discussed.

Sibling relationship qualities—Beginning with the qualities of adolescents' sibling relationships, no group differences were found in how intimate siblings felt toward one another or in how much time they spent together across all three years based on patterns of control at Year 1. Patterns of sibling control, however, were associated with the amount of conflict siblings initiated $F(2, 179) = 4.08$, $p < .02$, for the Sibling Control Group $\times$ Sibling interaction (see sibling difference scores in Table 2). Follow-up for the interaction revealed that older siblings in the Firstborn Dominant group initiated more conflicts as compared to younger siblings but younger siblings initiated more conflicts than firstborns in the Equal group ($d = .47$) and the Secondborn Dominant group ($d = .21$), perhaps representing one strategy firstborns use to maintain dominance over secondborns.

Adjustment—Group differences were apparent in adolescents' reports of perceived self worth and depressive symptoms. For self worth, a Sibling Control Group $\times$ Sibling interaction, $F(2,178) = 5.29$, $p < .01$, revealed that firstborns reported higher self worth than did secondborns in Secondborn Dominant pairs; in contrast, siblings in the Firstborn Dominant group did not differ in self worth (Firstborn Dominant vs. Secondborn Dominant $d = .67$; see Table 2 for sibling difference scores). Differences in siblings' self worth in the Equal group did not differ from the Firstborn or Secondborn Dominant groups. Turning to depressive symptoms, a Sibling $\times$ Time $\times$ Sibling Control Group interaction, $F(4,358) = 2.46$, $p < .05$, in combination with follow-up tests, showed that siblings in Firstborn Dominant pairs reported comparable levels of depressive symptoms in Years 2 and 3. However, in Secondborn Dominant pairs, differences in siblings' depressive symptom levels increased from Year 2 to Year 3 with older siblings reporting lower and younger siblings reporting higher levels of depressive symptoms at Year 3 ($d = .70$). The Equal group fell in between the other two groups and did not differ (see Table 3). Taken together, these findings suggest lower adjustment for secondborns relative to firstborns is characteristic of the Secondborn Dominant pattern.

Discussion

Unlike other relationship qualities that characterize the sibling relationship (e.g., warmth, conflict), the nature and extent of power and control in sibling relationships have been rarely examined. Our investigation of this dynamic was bolstered by our within-family design, which allowed us to include the perceptions of both members of the sibling dyad and examine both developmental changes and different patterns of sibling control across families. By typologizing sibling relationships based on both siblings' perspectives on control, we were able to highlight insights about this sibling relationship phenomenon such as child-specific patterns, patterns of dissonance in the sibling dyad, and correlates of sibling dyads who have similar patterns of control that would not have been possible if data were gathered from only one sibling in each family. Further, because we had data from both siblings, we had less concern about correlated self reports when interpreting our findings. Additional strengths of our study include analyses of longitudinal data collected through multiple methods (i.e., structured home and telephone interviews).

Our first goal was to explore the developmental pattern of sibling control over a three-year period beginning when older siblings were in middle adolescence and younger siblings were in early adolescence. Cross-sectional data has shown that sibling relationships become more egalitarian in adolescence (e.g., Buhrmester, 1992), with siblings engaging in increasing amounts of reciprocal interactions that are characteristic of peer relationships. Consistent with this premise, our findings showed that firstborn and secondborn siblings exhibited declines in their efforts to control their siblings over time, though this decline was not as steep as expected. Perhaps, evidence of dramatic declines in sibling control occurs later in development. We hypothesized that with this decline, siblings' power roles would become more symmetrical but inspection of sibling differences indicated, however, that firstborns in this sample maintained higher average levels of control than their younger siblings over the three-year period. Thus, despite average declines in siblings' reports of control as a group, sibling dyads appear to retain a hierarchical structure characterized by a firstborn dominant position, and this was particularly so for dyads with wider age spacing. Consistent with some past cross-sectional studies (e.g., Buhrmester & Furman, 1990), trajectories of control were not related to sibling sex composition.

Moving beyond developmental changes in sibling relationship dynamics, our second goal was to explore different *patterns* of control in adolescents' sibling relationships. We employed an a priori grouping strategy formed on the basis of firstborns' and secondborns'

perceptions of control over each other in early/middle adolescence. Based on this strategy, we found that siblings were most commonly classified as Firstborn Dominant and least likely to be categorized as Secondborn Dominant. Differences in siblings' reports of control were distinct across control groups. Our largest group, the Firstborn Dominant, may reflect the hierarchical relationship dynamics characteristic of sibling relationships in childhood that were still present in our adolescent sample. Though the majority of the group memberships were stable, the number of siblings in the Egalitarian pattern increased from Year 1 to Year 3 (Buhrmester, 1992; Buhrmester & Furman, 1990; Updegraff et al., 2002). Evidence of instability in some of the dyads may be representative of the developmental period of adolescence, more generally, that is characterized by relative instability and re-negotiation of family interaction patterns. Replication of these findings with adolescent and early adult siblings who are assuming an independent lifestyle would enhance understanding of the developmental pattern of sibling control.

The three sibling control patterns were not linked to structural characteristics of the sibling relationship, with the exception of larger age spacing between siblings being associated with greater asymmetry, a finding consistent with previous studies (e.g., Furman & Buhrmester, 1985). Larger age spacing in conjunction with the likelihood that these siblings were developmentally the most different in Year 1 (i.e., when younger siblings were in early adolescence and older siblings were in middle adolescence) probably contributed to the greater imbalance of sibling power at this time point. As shown in other studies (e.g., Buhrmester & Furman, 1990), the sex composition of the sibling dyad was not related to firstborn and secondborn siblings' reports of their controlling behavior. These findings, however, are not consistent with de-identification theory which suggests that similarity in sex and age would be linked to a power imbalance as siblings seek to create a unique family niche to reduce competition for parental attention. Factors other than structural characteristics such as siblings' differences in relationships with parents (Feinberg et al., 2003) and the dynamics of parents' marriages (Updegraff et al., 2004) may account for variability in patterns of control and siblings' possible engagement in de-identification processes.

Our findings did suggest that patterns of control were linked to some qualities of the sibling relationship (i.e., conflict) but not others (i.e., intimacy, time spent together). In terms of sibling conflict, secondborns initiated more conflict with their older siblings when they were equal in their perceived controlling behavior or when they were the more dominant sibling. It may be that, for secondborns, a balanced or dominant role allows them status, similar to a peer, to initiate conflicts with their older siblings (e.g., taking things that belong to their sibling). Also, for those secondborns in Equal relationships, a lack of distinction from their sibling may contribute to their rivalrous, conflictive behavior (Feinberg et al., 2003). For those secondborns in Secondborn Dominant relationships, higher rates of conflictive behaviors toward their sibling may represent their efforts to maintain this non-normative dominant position.

Patterns of control in the sibling dyad also were associated with adolescents' perceptions of their self worth and depression. Complex changes over time were apparent in depression, such that in Year 2, secondborns in Secondborn Dominant pairs reported depression levels similar to their older siblings but by the third year sibling differences increased with secondborns reporting higher levels of depression. Though difficult to interpret why this may happen, ego development theory (Sullivan, 1953) would suggest that during adolescence youth strive for greater symmetry in their familial relationships. Perhaps secondborns who remain part of the atypical Secondborn Dominant pattern in middle/late adolescence are at greater risk for lower adjustment. Firstborns who are older may be

focused on symmetrical extra-familial relationships and less influenced by family dynamics at this time than are secondborns.

Taken together, the findings partially supported our hypotheses that firstborn and secondborn adolescents' sibling relationship quality and adjustment would be the highest in the Egalitarian pattern followed by the Firstborn Dominant pattern and lowest in the Secondborn Dominant pattern. However, because this is a correlational study, it is unclear whether siblings' conflictive behavior and well being were an antecedent or a consequence of sibling control patterns. A lack of differentiation among the three sibling control patterns in some aspects of sibling relationship quality and adjustment may be the result of each sibling's acceptance of differences in individual relationship preferences and parents' expectations for sibling roles (Mendelson et al., 1997). Although dyad members have exclusive access to some relationship information, because we relied strictly on self report data, we were not able to assess the additional value observational data and parent ratings of sibling control may provide when studying this phenomenon. Replication of these results with samples not predominately European American could address whether patterns of sibling relationship control and their connections to relationship quality and adjustment differ by ethnicity and culture. For example, among non-Western cultures and some ethnic groups in Western cultures, where sibling caretaking by older siblings is the norm (Burton, Allison, & Obeidallah, 1995; Zukow-Goldring, 2002), complementary sibling roles may continue to be normative throughout adolescence and linked to enhanced sibling relationship quality and individual adjustment.

Implications

The nature of sibling control dynamics has important connections to sibling relationship quality and adjustment during adolescence that vary among the 3 different patterns of sibling control. Practitioners and therapists should be alert for sibling relationships that retain an imbalance of control across adolescence and even into adulthood because such sibling differentiation may be masking underlying sibling rivalry, a relationship dynamic linked to lower well being. Though they are a rather small group, secondborns in the Secondborn Dominant group appear to be especially at risk for well being concerns. Clinicians could assess whether imbalances in relationship control are characteristic of these adolescents other intra- and extra-familial relationships and the implications of such relationship patterns. Family life education programming aimed at prevention could promote positive adolescent sibling relationship experiences by facilitating sibling and parent discussions of expectations for siblings' roles and sibling bonding. Though sibling power and control are less studied than other sibling relationship qualities (i.e., warmth, conflict), this study is an important first step for understanding the developmental pattern and correlates of sibling control.

Acknowledgments

We are grateful to the families who participated in this project. We thank a large staff of graduate and undergraduate students for their help in conducting this investigation. Funding was provided by NICHD grant R01HD29409-01A3 (Ann C. Crouter and Susan M. McHale, co-principal investigators). The authors thank Susan McHale and Ann Crouter for reading an earlier version of this manuscript and offering suggestions for improvement.

References

- Ansbacher, H.L.; Ansbacher, R.R. The individual psychology of Alfred Adler. Basic Books; New York: 1956.
- Bigner JJ. Secondborns' discrimination of sibling role concepts. *Developmental Psychology*. 1974; 10:564–573.

- Blyth DA, Foster-Clark F. Gender differences in perceived intimacy with different members of adolescents' social networks. *Sex Roles*. 1987; 17:689–718.
- Brody GH, Stoneman Z, MacKinnon CE. Role asymmetries in interactions among school-aged children, their younger siblings, and their friends. *Child Development*. 1982; 53:1364–1370.
- Buhrmester, D. The developmental course of sibling and peer relationships. In: Boer, F.; Dunn, J., editors. *Children's sibling relationships: Developmental and clinical issues*. Erlbaum; Hillsdale, NJ: 1992. p. 19–40.
- Buhrmester D, Furman W. Perceptions of sibling relationships during middle childhood and adolescence. *Child Development*. 1990; 61:1387–1398. [PubMed: 2245732]
- Burton, LM.; Allison, KW.; Obeidallah, D. Social context and adolescence: Perspectives on development in inner-city African-American teens. In: Crockett, LJ.; Crouter, AC., editors. *Pathways through adolescence: Individual development in relation to social contexts*. Erlbaum; Mahwah, NJ: 1995. p. 119–138.
- Cicirelli VG. Mother-child and sibling-sibling interactions on a problem-solving task. *Child Development*. 1976; 47:588–596.
- Cohen, J. *Statistical power analysis for the behavioral sciences*. Erlbaum; Hillsdale, NJ: 1988.
- Devins, GM.; Orme, CM. Center for epidemiologic studies depression scale. In: Keyser, DJ.; Sweetland, RC., editors. *Test critiques*. Test Corporation of America; Kansas City, MO: 1985. p. 144–160.
- Dunn J. Sibling relationship in early childhood. *Child Development*. 1983; 54:787–811.
- Dunn J, Stocker C, Plomin R. Nonshared experiences within the family: Correlates of behavioral problems in middle childhood. *Developmental Psychopathology*. 1990; 2:113–126.
- Eggebeen D. Changes in sibling configuration for American preschool children. *Social Biology*. 1992; 39:27–44. [PubMed: 1514122]
- Erikson, EH. *Identity, youth and crisis*. Norton; New York: 1968.
- Feinberg ME, Hetherington EM. Differential parenting as a within-family variable. *Journal of Family Psychology*. 2001; 15:22–37. [PubMed: 11322082]
- Feinberg ME, McHale SM, Crouter AC, Cumsille P. Sibling differentiation: Sibling and parent relationship trajectories in adolescence. *Child Development*. 2003; 74:1245–1260. [PubMed: 14552396]
- Furman W, Buhrmester D. Children's perceptions of the qualities of sibling relationships. *Child Development*. 1985; 56:448–461. [PubMed: 3987418]
- Furman W, Buhrmester D. Age and sex differences in perceptions of networks of personal relationships. *Child Development*. 1992; 63:103–115. [PubMed: 1551320]
- Goetting A. The developmental tasks of siblingship over the life cycle. *Journal of Marriage and the Family*. 1986; 48:703–714.
- Harter, S. *Manual for the self perceptions profile for adolescents*. University of Denver; Denver, CO: 1988.
- Maguire MC. Treating the dyad as the unit of analysis: A primer on three analytic approaches. *Journal of Marriage and the Family*. 1999; 61:213–223.
- Magnusson, D. The logic and implications of a person-oriented approach. In: Cairns, R.; Bergman, L.; Kagan, J., editors. *Methods and models for studying the individual*. Sage; Thousand Oaks, CA: 1998. p. 33–64.
- McElwain NL, Volling BL. Preschool children's interactions with friends and older siblings: Relationship specificity and contributions to problem behavior. *Journal of Family Psychology*. 2005; 19:486–496. [PubMed: 16402863]
- McHale, SM.; Crouter, AC.; Bartko, WT. Traditional and egalitarian patterns of parental involvement: Antecedents, consequences, and temporal rhythms. In: Featherman, D.; Lerner, R.; Perlmutter, M., editors. *Life-span development and behavior*. Vol. II. Erlbaum; New York: 1992. p. 49–81.
- McHale, SM.; Kim, J.; Whiteman, SD. Sibling relationships in childhood and adolescence. In: Noller, P.; Feeney, JA., editors. *Close relationships: Functions, forms, and processes*. Psychology Press/Taylor & Francis; Hove, England: 2006. p. 127–149.

- McHale SM, Updegraff KA, Helms-Erikson H, Crouter AC. Sibling influences on gender development in middle childhood and early adolescence: A longitudinal study. *Developmental Psychology*. 2001; 37:115–215. [PubMed: 11206426]
- Mendelson MJ, de Villa EP, Fitch TA, Goodman FG. Adults' expectations for children's sibling roles. *International Journal of Behavioral Development*. 1997; 20:549–572.
- Ostrov J, Collins WA. Social dominance in romantic relationships: A prospective longitudinal study of non-verbal processes. *Social Development*. 2007; 16:580–595.
- Radloff L. The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*. 1977; 1:385–401.
- Rogoff, B. *Apprenticeship in thinking: Cognitive development in social context*. Oxford University Press; New York: 1990.
- Rogosa D, Willett J. Understanding differences in change by modeling individual differences in growth. *Psychometrika*. 1985; 50:203–228.
- Rovine, M. Estimating nonshared environment using sibling discrepancy scores. In: Hetherington, EM.; Reiss, D.; Plomin, R., editors. *Separate social worlds of siblings: The impact of nonshared environment on development*. Erlbaum; Hillsdale, NJ: 1994. p. 33–62.
- Schachter FF. Sibling deidentification in the clinic. *Family Process*. 1985; 24:415–427. [PubMed: 4043356]
- Schachter FF, Gilutz G, Shore E, Adler M. Sibling de-identification judged by mothers: Cross-validation and developmental studies. *Child Development*. 1978; 49:543–546.
- Schachter FF, Shore E, Feldman-Rotman S, Marquis RE, Campbell S. Sibling de-identification. *Developmental Psychology*. 1976; 12:418–427.
- Shanahan L, Kim J, McHale SM, Crouter AC. Sibling similarities and differences in time use: A pattern-analytic, within-family approach. *Social Development*. 2007; 16:662–681.
- Stets J. Role identities and person identities: Gender identity, master identity, and controlling one's partner. *Sociological Perspectives*. 1995a; 38:129–150.
- Stets J. Modeling control in relationships. *Journal of Marriage and the Family*. 1995b; 57:489–501.
- Stocker C, McHale SM. The nature and family correlates of preadolescents' perceptions of their sibling relationships. *Journal of Social and Personal Relationships*. 1992; 9:179–195.
- Stoneman A, Brody GH, MacKinnon CE. Same-sex and cross-sex siblings: Activity choices, roles, behavior, and gender stereotypes. *Sex Roles*. 1986; 15:495–511.
- Sullivan, HS. *The interpersonal theory of psychiatry*. Norton; New York: 1953.
- Sulloway, FJ. *Born to rebel: Birth order, family dynamics, and creative lives*. Pantheon Books; New York: 1997.
- Updegraff KA, Helms HM, McHale SM, Crouter AC, Thayer SM, Sales LH. Who's the boss? Patterns of perceived control in adolescents' friendships. *Journal of Youth and Adolescence*. 2004; 33:403–420.
- Updegraff KA, McHale SM, Crouter AC. Adolescents' sibling relationship and friendship experiences: Developmental patterns and relationship linkages. *Social Development*. 2002; 11:182–204.
- U.S. Census Bureau. [Retrieved July 2010] DP-1. Profile of general demographic characteristics for Pennsylvania: 2000. 2000. from http://factfinder.census.gov/servlet/QTTable?_bm=y&-geo_id=04000US42&-qr_name=DEC_2000_SF1_U_DP1&-ds_name=DEC_2000_SF1_U
- Whiteman S, Loken E. Comparing analytic techniques to classify dyadic relationships: An example using siblings. *Journal of Marriage and Family*. 2006; 68:1370–1382.
- Whiteman S, McHale S, Crouter AC. Competing processes of sibling influence: Observational learning and sibling deidentification. *Social Development*. 2007; 16:642–661.
- Whiteman SD, Christiansen A. Processes of sibling influence in adolescence: Individual and family correlates. *Family Relations*. 2008; 57:24–34.
- Zukow-Goldring, P. Sibling caregiving. In: Bornstein, MH., editor. *Handbook of parenting: Vol. 3. Being and becoming a parent*. 2nd ed. Erlbaum; Mahwah, NJ: 2002. p. 253–286.

Figure 1.
Firstborn and secondborn adolescent siblings' reports of control across three years.

Means and standard deviations for firstborns', and secondborns' reports of control by sibling control group across three years

Table 1

	Firstborns		Secondborns		Sibling Difference ^a	
	M	SD	M	SD	M	SD
Year 1:						
Firstborn Dominant	28.71 ^a	5.32	16.15	3.95	12.56	5.16
Egalitarian	20.49 ^b	4.16	20.07	4.53	.44	2.49
Secondborn Dominant	17.40 ^b	4.16	25.44	5.49	- 8.04	3.44
Year 2:						
Firstborn Dominant	25.57 ^c	5.98	15.65	4.56	9.92	6.71
Egalitarian	23.61 ^b	6.65	17.51	5.87	6.10	7.50
Secondborn Dominant	20.90 ^b	5.35	19.95	5.63	.95	8.19
Year 3:						
Firstborn Dominant	25.14 ^c	6.52	15.57	4.53	9.57	7.55
Egalitarian	22.34 ^b	5.26	16.78	5.25	5.56	6.62
Secondborn Dominant	19.80 ^b	6.19	19.95	5.81	- .15	9.01

Note. Means with different superscripts are significantly different from one another.

^a Sibling difference is firstborns' reports minus secondborns' reports.

Means and standard deviations for firstborns' and secondborns' reports of sibling conflict and self worth by sibling control group

Table 2

	Firstborns		Secondborns		Sibling Difference ^a	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Conflict:						
Firstborn Dominant	2.85	.58	2.81	.68	.05 ^a	.64
Egalitarian	2.58	.57	2.79	.57	-.22 ^b	.64
Secondborn Dominant	2.72	.61	3.13	.59	-.41 ^b	.79
Self worth:						
Firstborn Dominant	3.14	.48	3.17	.49	-.03 ^a	.62
Egalitarian	3.35	.45	3.16	.53	.18 ^{ab}	.61
Secondborn Dominant	3.35	.58	2.84	.75	.51 ^b	.74

Note. For each analysis, means with different superscripts are significantly different from one another.

^aSibling difference is firstborns' reports minus secondborns' reports collapsed across three years.

Means and standard deviations for firstborns' and secondborns' reports and differences in siblings' reports of depression by sibling control group across three years

Table 3

	Firstborns		Secondborns		Sibling Difference ^d	
	M	SD	M	SD	M	SD
Year 1:						
Firstborn Dominant	21.48	5.35	20.89	5.00	.59	6.84
Egalitarian	19.98	5.44	20.02	4.50	-.05	6.32
Secondborn Dominant	20.65	7.02	23.00	5.47	-2.35	6.75
Year 2:						
Firstborn Dominant	21.36	5.27	22.06	5.85	-.70 ^a	7.40
Egalitarian	20.95	5.67	20.24	4.65	.71 ^{abc}	7.32
Secondborn Dominant	21.95	7.47	22.45	6.44	-.50 ^b	7.61
Year 3:						
Firstborn Dominant	21.67	6.01	22.05	5.97	-.39 ^a	7.75
Egalitarian	20.00	5.21	20.90	5.49	-.90 ^{abc}	6.79
Secondborn Dominant	20.05	5.15	25.80	5.98	-5.75 ^c	6.29

Note. Means with different superscripts are significantly different from one another.

^a Sibling difference is firstborns' reports minus secondborns' reports.