



Exploring Family Obligation as a Buffer Between Parental Differential Treatment and Sibling Hostility

Lucy S. McClellan¹ · Cassidy M. Fry² · Eva H. Telzer³ · Christy R. Rogers⁴

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Abstract

High levels of between-sibling parental differential treatment (PDT) have been associated with several negative outcomes, including externalizing behavior, emotional maladjustment, and depressive symptoms, as well as with hostility in sibling relationships. In contrast, high levels of family obligation have been associated with positive adolescent adjustment and family dynamics. Given the substantial risks associated with PDT and the benefits of family obligation for emotional health and family relations, we investigated family obligation as a potential buffer against the negative effects of PDT on sibling relationships. We hypothesized that 1) younger and older siblings experiencing higher levels of PDT would demonstrate greater sibling hostility, and 2) family obligation would buffer against these associations. Adolescent younger siblings (Mage = 12.1; 24 females) and their adolescent older siblings (Mage = 14.5; 21 females) participated in a collaborative problem-solving task, which was coded for directional expressions of hostility. Siblings also independently completed questionnaires on PDT and family obligation. Greater PDT was associated with more hostility expressed from younger sibling to older sibling, and a greater sense of family obligation buffered against this association. Greater PDT was also associated with increased hostility from older sibling to younger sibling, but no significant interaction effect was found with family obligation. Findings highlight the potential of family obligation to improve sibling relationships in the context of PDT and can inform future sibling research and family intervention work; the import of these findings is limited due to the homogeneous nature of the sample and we recommend inclusion of more diverse populations.

Keywords Sibling hostility · Parental differential treatment · Family obligation · Family systems · Multi-method

Highlights

- Interacting family sub-systems were explored through a multi-method, multi-informant design.
- PDT was measured through a novel method: differences in between-sibling perceptions of parental relationship closeness.
- In the context of PDT, a risk factor for between-sibling hostility, family obligation may be protective of sibling harmony for younger, but not older, siblings.
- Findings inform additional sibling research and future family intervention designs.

✉ Lucy S. McClellan
lmcclell@gmu.edu

✉ Eva H. Telzer
ehtelzer@unc.edu

¹ Department of Psychology, George Mason University: 4400 University Drive, Fairfax, VA 22030, USA

² Department of Human Development and Family Studies, Pennsylvania State University: 201 Old Main, University Park, PA 16802, USA

³ Department of Psychology and Neuroscience, University of North Carolina at Chapel Hill: 235 E. Cameron Avenue, Chapel Hill, NC 27599, USA

⁴ Department of Human Development and Family Sciences, Texas Tech University: 1301 Akron Ave, Lubbock, TX 79409, USA

A crucial aspect of sibling research is understanding the family context in which siblings grow up and how these broader dynamics impact sibling relations (O'Connor et al., 1998). Family systems theory emphasizes the interdependence of parental, intimate, and sibling relationships within the family unit as a social system (Cox, 2010; McHale et al., 2012) and focuses on the importance of investigating family dynamics as interactive sub-systems (Cox & Paley, 1997). These dynamic subsystems interact in a complex manner to impact one another in positive and negative ways. For example, while positive parent-child relationships are associated with more positive sibling relationships (Volling & Belsky, 1992), parental marital conflict has been associated with more problematic sibling relationships (Stocker & Youngblade, 1999). Through this perspective, it is possible to identify how parent-child relationships may positively or negatively impact sibling relationships, as well as the importance of family values that have been developed within the family system. In the current study, using family systems theory as a guiding framework, we investigated sibling relationships through a multi-level lens, with the goal of better understanding the role of the broader family structure in facilitating positive sibling dynamics in order to inform future family-focused research and intervention projects.

Approximately 78% of youth aged 18 and younger live with at least one sibling (Knop & Siebens, 2018). Yet, despite their prevalence, sibling relationships are greatly under-represented in family psychology research (McHale et al., 2012). Sibling relationships typically begin early in development (often from birth), and can later serve as important sources of intimacy, companionship, and support across adolescence (Lempers & Clark-Lempers, 1992; Rogers, Guyer et al., 2018). While positive sibling relationships have been linked to adolescent prosocial behavior and psychosocial adjustment (Kim et al., 2007; Branje et al., 2004), those characterized by hostility and conflict have been associated with mental health and behavioral problems during adolescence, including aggressive behavior and peer difficulties (Bank, et al., 2004), as well as internalizing symptoms and delinquent behavior (Stocker, et al., 2002). There is also evidence showing that poor-quality sibling relationships in childhood and adolescence may predict negative mental health outcomes in adulthood (Waldinger et al., 2007). Notably, despite these strong links between sibling relationship quality and developmental outcomes across the lifespan, the majority of sibling conflict literature is focused on childhood, and the contextual factors leading to expressions of hostility between adolescent siblings have not been widely investigated. Childhood sibling relationship quality has been shown to be improved by evidence-based intervention (Feinberg et al., 2013; Kennedy & Kramer, 2008), and these improvements have been linked to better

overall family functioning, including greater harmony, decreased parental stress, and improved youth mental health and adjustment (Feinberg et al., 2013). Expanding understanding of risk and protective factors for between-sibling hostility could facilitate more precise and targeted sibling-focused interventions and lead to improved family dynamics. It should also be noted that trends in sibling relationships vary based on dyadic characteristics. Specifically, sex-constellation, age, and age spacing have been identified as predictors of sibling relationship quality, with same-sex siblings (particularly sister dyads), older adolescents, and siblings farther apart in age presenting higher relationship quality (Aguilar et al., 2001; Buist, 2010; Milevsky et al., 2005). These findings highlight the importance of controlling for these variables when investigating sibling dynamics above and beyond structural characteristics.

One possible contributor to negative sibling relationships is the differential treatment of siblings by parents, often referred to as parental differential treatment (PDT; McHale et al., 1995; Meunier et al., 2012; Shanahan et al., 2008). Greater levels of PDT (i.e., greater differences in how siblings perceive closeness with their parent) predict less sibling warmth and greater conflict in adolescence (Kowal & Kramer, 1997), as well as lower sibling intimacy in adulthood (Jensen et al., 2013). These associations between PDT and poorer sibling relationship quality have generally been reported across siblings, with more equal treatment tending to be more favorable regardless of the direction of PDT (Updegraff et al., 2005, Boll et al., 2003; Kowal & Kramer, 1997). For less-favored siblings in particular, PDT has also been shown to predict adjustment issues such as depressive symptoms, risk-taking, and internalizing behaviors over time (Richmond et al., 2005; Padilla, McHale, Updegraff et al., 2016). Identifying mechanisms which might protect against the negative impacts of PDT could expand knowledge on how to promote positive sibling outcomes in potentially unfavorable family contexts.

Adolescence is a critical time to investigate PDT given that key features of adolescence include the development of greater independence and establishment of identity, often resulting in the re-structuring of family dynamics (Crocetti et al., 2017). As older siblings begin to gain independence and further develop their identity, the needs of the older sibling and younger sibling diverge, creating greater opportunity for obvious instances of PDT (Rolan & Marcceau 2018). As highlighted in a 2021 meta-analysis by Jensen and colleagues, levels of PDT and the magnitude of its correlations with other familial constructs have been shown to vary based on reporter (parent vs. child), measurement (perceived differences vs. differences in parental relationship scores) and domain (positive interactions vs. negative interactions), suggesting that differences in measurement approaches lead to the capture of distinct

constructs (Jensen et al., 2021). More specifically, warmth-based PDT, which is based on positive parental relationship qualities, has been shown to more strongly predict self-esteem and sibling relationship positivity when compared to other domains of PDT (McHale et al., 2000). For the current study, we calculated PDT using the difference between siblings' report of parental closeness, with greater PDT indicative of greater difference in closeness. Through this approach, we hoped to measure PDT perceived by both siblings as sensitively as possible, capturing between-sibling differences in key positive parental relationship characteristics.

Family obligation, defined as “the extent to which family members feel a sense of duty to assist one another and to take into account the needs and wishes of the family when making decisions” (Fuligni & Pedersen, 2002, p. 856), has been linked to a range of positive outcomes, particularly in Latinx and Asian youth (e.g., Kiang et al., 2013; Juang and Cookston, 2009; Telzer et al., 2015). Family obligation has been associated with positive family dynamics, including sibling dynamics (Yan et al., 2021; Fuligni et al., 1999). Family obligation and higher levels of assistance to the family have been associated with greater psychological wellbeing, and family assistance has been linked to a sense of role fulfillment in adolescents (Telzer & Fuligni, 2009; Fuligni & Pedersen 2002). Familism values (i.e., values that emphasize assistance, support, and interdependence between individuals in a family), have been linked to more positive family relationships and lower levels of internalizing and externalizing in Latin American adolescents and adults (Cahill et al., 2021). Further, adolescents reporting higher levels of familism values are at lower risk for PDT-linked adjustment issues and parental conflict than adolescents with lower familism values (McHale et al., 2005). It stands to reason that those adolescents who find fulfillment through familial assistance/completion of familial obligations will also prioritize positive sibling relationship qualities. However, family obligation has primarily been investigated in relation to parent-child relationships and general family dynamics (Yan et al., 2021; Tsai et al., 2015) and not as a potential contributor to sibling relationship quality directly. A sense of family obligation may diminish the association between PDT and hostility in sibling dyads by creating a more harmonious family unit. Testing this postulation, here we investigated family obligation as a buffer against the negative effects of PDT on the valence of sibling dynamics. Notably, family obligation has been found to be higher in Latinx and Asian adolescents as compared to White adolescents (Fuligni et al., 1999), and the majority of literature on family obligation and familism has been with youth from underrepresented and immigrant backgrounds. The role of family obligation in the majority White samples such as ours, in which it may be less prevalent, has been relatively less well-characterized. However,

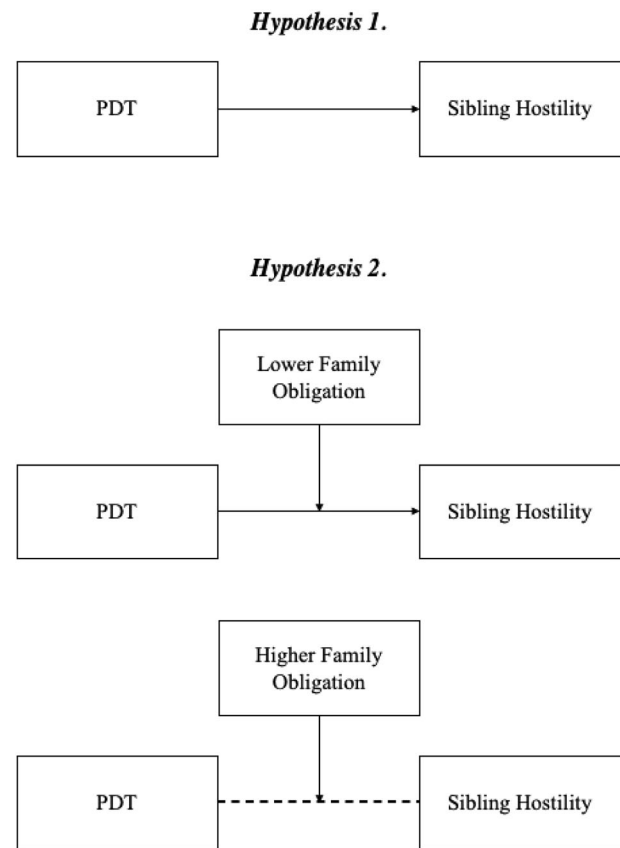


Fig. 1 Hypothesized Construct Relationships. *Note.* Diagram outlines hypothesized relationships in which parental differential treatment (PDT) predicts sibling-directed hostility for both younger and older siblings, with high levels of family obligation buffering this association. PDT is measured through differences in sibling reports of parental closeness. The dotted line indicates non-significant relationship

it appears that despite some differences, broadly speaking, family obligation is promotive across ethno-racial identities (Fuligni et al., 1999; Tsai et al., 2020).

The Current Study

Expanding on previous findings of the association between PDT and poor sibling relationship quality, as well as the association between family obligation and higher quality familial relationships, the study at hand aimed to provide a preliminary exploration of family obligation as a potential buffer against the negative effects of PDT within sibling dyads. The exploration of this potential relationship can provide insight into multiple avenues that may deter hostility in sibling relationships (e.g., through equitable treatment of siblings and/or obligation to the family) and contribute to future research and intervention work. Given the demographics of the surrounding communities, the present sample primarily included White, socioeconomically advantaged families, in which levels of family obligation may be

Table 1 Ethno-Racial Distributions and Education Levels of Sample and Recruitment Area

	Current sample					Community 1 (n = 6)	Community 2 (n = 1)	Community 3 (n = 5)	Community 4 (n = 22)	Community 5 (n = 11)
Ethno-racial distribution										
Black	10%	9.7%	12.3%	37.3%	28.9%	14.5%				
White	70%	72.5%	71%	50.9%	59.0%	78.9%				
American Indian or Alaska Native	NA	0.4%	0.3%	0.3%	0.3%	0.1%				
Asian	2.2%	12.7%	9.4%	4.8%	4.6%	1.5%				
Two or more racial groups	10%	3.3%	4%	2.9%	2.6%	4.1%				
Hispanic or Latinx	7.7%	6.8%	8.9%	13.5%	11.0%	4.8%				
Average parental education										
High school graduate or higher	97.8%	96.2%	93.7%	87.7%	91.5%	95.8%				
Bachelor's degree or higher	69%	74.6%	67.8%	47.3%	50%	54.7%				
Income (in dollars)										
M	75,000–89,999	50,000–74,999	35,000–49,999	35,000–49,999	35,000–49,999	50,000–74,999				
(SD)	(45,000–119,999)	(25,000–149,999)	(15,000–149,000)	(15,000–149,000)	(15,000–149,000)	(25,000–149,999)				

For cities and towns listed, the average education is representative of residents over age 25. For the current sample, ethno-racial distribution represents both younger and older adolescents in our sample, and average parental education represents parent education. For communities 1 through 5, ethno-racial data is based on census data from our recruitment communities (United States Census Bureau, 2024). The mean and standard deviation income brackets reported are based on categorical income information available from census and demographics surveys from the present study

generally lower (Fulgini et al., 1999). Our hypotheses were as follows (see Fig. 1 for a visual representation):

1. PDT will significantly and positively predict the amount of between-sibling hostility expressed by both older and younger siblings, such that greater PDT will associate with greater sibling-directed hostility for both younger and older siblings.
2. Self-reported family obligation will moderate the association between PDT and between-sibling hostility, such that younger and older siblings reporting higher levels of family obligation will not show a significant association between PDT and expressed hostility.

Methods

Participants and procedure

Data collection took place from May 2017 to September 2017. Participants included 44 younger siblings (Mage = 12.1, range = 10.56–14.22 years old; 24 females) and their older sibling (Mage = 14.5, range = 11.75–16.98 years old; 20 females), as well as a participating parent ($n = 36$ mothers; $n = 8$ fathers). The average age difference for sibling dyads was 2.4 years ($SD = 0.84$). Families were recruited from multiple towns and cities within a Southeastern state in the United States, and the study was advertised through community flyers (i.e., displayed in pediatric offices, dental offices, and community centers) and social media (i.e., Facebook parenting groups and Craig's List). Inclusion criteria required that the younger sibling was between 10–14 years old, the older sibling was within four years of age of the younger sibling, and that the participating parent lived with both children. Siblings were also required to have lived with one another for the younger sibling's entire life (excluding infancy for adoptive pairs). Exclusion criteria required that both siblings not use psychiatric medications and be free of developmental disorders and learning disabilities. Screenings were conducted through parental reports. Thirty-five percent of interested families participated in the study, with the majority of those who didn't participate excluded due to eligibility criteria. Of the families who initially scheduled visits, 95% completed the study session. The sample consisted of full biological, half biological, and adoptive sibling dyads, and, in terms of ethno-racial proportions, education levels, and income levels, was broadly representative of the cities that families were recruited from. See Table 1 for information on recruitment community demographics as they compare to the sample demographics. The sample showed satisfactory representation of the communities they were recruited from regarding ethno-racial identity and parental education, but less so for income. For

Table 2 Younger Sibling, Older Sibling, and Dyad Characteristics ($N = 45$)

Variables	N (%)
Younger Sibling Ethnicity	
African American/Black	5 (11.1%)
Caucasian/White	31 (68.9%)
Hispanic/Latino	5 (11.1%)
South Asian	1 (2.23%)
Multiethnic	3 (6.67%)
Older Sibling Ethnicity	
African American/Black	4 (8.89%)
Caucasian/White	32 (71.11%)
Hispanic/Latino	2 (4.44%)
East Asian	1 (2.22%)
Multiethnic	6 (13.33%)
Dyad Composition by AssignedSex at Birth	
Younger Sister/Older Sister	10 (22.2%)
Younger Sister/Older Brother	14 (31.1%)
Younger Brother/Older Sister	11 (24.5%)
Younger Brother/Older Brother	10 (22.2%)
Dyad Relationship	
Full Biological	41 (91.1%)
Half Biological	2 (4.45%)
Adoptive	2 (4.45%)

Please note that, at the time of data collection, all participants identified as cisgender

additional sample characteristics, see Tables 2 and 3. Participants attended a laboratory visit, where the younger sibling, older sibling, and participating parent completed individual questionnaires. Sibling dyads completed two videotaped interaction tasks, including a cooperative task and a stress task. Each sibling was compensated \$20 for their participation. Parents were also compensated \$20 – half to cover transportation costs, and half for their participation. For families who drove, parking was reimbursed. If families did not have a reliable mode of transportation, an alternative method of transportation was offered.

Measures

Parental Differential Treatment

To capture subjective differences in perceived parental treatment, PDT was calculated through younger sibling and older sibling report. Siblings reported on closeness in their relationships with their parents using a 7-item subscale of the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987), which measures positive

Table 3 Demographics: Family Total Income, Participating Parent's Education, and Marital Status ($N = 45$)

Variables	N (%)
Family Total Income	
<\$45,000	3 (6.70%)
\$45,000–\$74,999	12 (26.7%)
\$75,000–\$99,999	13 (28.9%)
\$100,000–\$150,000	11 (24.4%)
>\$150,000	6 (13.3%)
Parental Education	
Some high school	1 (2.20%)
High school diploma	1 (2.20%)
Some college	6 (13.3%)
Associate's degree	6 (13.3%)
Bachelor's degree	13 (28.9%)
Some graduate school	3 (6.70%)
Master's degree (e.g., M.A., M.S.W.)	12 (26.7%)
Professional Degree (e.g., Ph.D.)	3 (6.70%)
Parental Marital Status	
Single	3 (6.70%)
Married to first spouse	35 (77.8%)
Divorced and remarried	7 (15.5%)

parental relationship qualities (i.e., the extent to which adolescents felt they could trust, communicate with, and were supported by their parents; Rogers, McCormick et al., 2018). Siblings responded to statements about their parents using a Likert scale from 1 (*almost never or never*) to 5 (*almost always or always*). Example statements include, “My parents respect my feelings” and “My parents encourage me to talk about my difficulties.” The scale demonstrated excellent reliability (younger sibling: $\alpha = 0.91$; older sibling: $\alpha = 0.92$).

To identify sibling disparities in perceived trust, communication, and support in parent relationships, two complementary PDT variables were computed. Younger sibling-favored PDT was indirectly computed by subtracting older sibling report of parental closeness from the younger sibling report and was used as a predictor of younger sibling hostility. Positive scores for younger sibling-favored PDT indicated that the younger sibling felt greater closeness and positivity in their relationship with their parents than their older sibling did, with greater scores indicating that the younger sibling felt greater relative parental closeness. Negative scores for younger sibling-favored PDT indicated that the younger sibling felt less parental closeness relative to their older sibling, with lower scores reflecting that the younger sibling felt less relative closeness.

Older sibling-favored PDT was calculated by subtracting younger sibling parental closeness from older sibling parental closeness and was used as a predictor of older sibling

hostility. Positive scores on older sibling-favored PDT indicated that the older sibling felt greater closeness and positivity in their parental relationship when compared to the younger sibling, and higher scores reflected that the older sibling felt greater relative parental closeness. Negative scores indicated less closeness felt by the older sibling relative to the younger sibling, with lower scores indicating that the older sibling felt less relative closeness. A positive association between PDT and sibling hostility always indicated a positive association of that sibling's hostility with the perception of PDT in their favor. A score of zero represented no difference between siblings in their perceptions of parental closeness, and an absence of PDT.

Family Obligation

Younger and older siblings reported on their obligation to perform family chores and activities using the 11-item current assistance subscale of the family obligation measure (Fulgini et al., 1999). Adolescents reported how often they thought they should fulfill various familial obligations on a Likert scale ranging from 1 (*almost never or never*) to 5 (*almost always or always*). Example items include, "How often do you think you should spend time at home with your family?" and "How often do you think you should run errands that the family needs done?" Higher scores on this measure indicated a greater sense of family obligation. The scale demonstrated excellent reliability (younger sibling: $\alpha = 0.88$; older sibling: $\alpha = 0.76$).

Directional Hostility

Sibling interactions were recorded to objectively characterize the affective quality of each sibling relationship through behavior, removing the possibility of response bias. Specifically, dyads completed a videotaped collaborative problem-solving task called the Desert Survival Situation (Fry, et al., 2021; Lafferty & Pond, 1974). The task required each sibling to independently rank a list of survival items by importance, with seven minutes allotted for the dyad to collaboratively discuss and reach a final consensus for each item ranking. Only the collaborative portion of the task was videotaped. Task videos were coded for directional expressions of hostility, defined as expressions of anger, criticism, contempt, or disapproval directed from one individual to the other (separately coded as expressions from younger sibling to older sibling, and from older sibling to younger sibling; Iowa Family Interaction Rating Scales; Melby et al., 1998). Global measures of hostility were specifically coded using affect, vocal tone, and body language – for example, exhibiting an exasperated tone – and rated according to frequency and intensity of these behaviors, from 1 (*not at all characteristic*) to 9 (*mainly characteristic*). To assess interrater reliability, a subset of 18

videos were coded by multiple independent raters. These 18 sibling dyad videos included additional observational tasks collected in the larger project and represented 21% of the total data collected. After between-rater discrepancies were discussed and resolved, the remaining videos were coded by only one rater. Hostility was captured as a global score across the task that encompassed multiple indicators of non-verbal hostility. Pearson correlations indicated satisfactory interrater reliability ($r = 0.79$).

Covariates

To account for potential confounding factors, covariates that have previously been identified as related to sibling relationship quality were included in the analyses (e.g., Aguilar et al., 2001; Milevsky et al., 2005). As is typical in sibling research, participants' age (calculated from self-reported date of birth) and assigned sex at birth (self-reported) were included as covariates in participant models. To assure that our PDT measure was reflective of between-sibling differences, and not overall levels of PDT (Padilla, McHale, Rovine et al., 2016), parental closeness was averaged between siblings and included as a covariate. Other demographic covariates that could potentially be associated with sibling hostility were examined, but to maintain parsimony and allow for greater statistical power, these were not included in the final model. See the study supplemental materials for models including these additional covariates.

Results

Two linear regression models were computed to investigate family obligation as a moderator of the association between PDT and sibling hostility. Younger sibling and older sibling models were estimated separately, such that the younger sibling model included younger sibling-favored PDT, younger sibling-reported family obligation, and observed younger sibling hostility toward their older sibling, whereas the older sibling model included older sibling-favored PDT, older sibling-reported family obligation, and observed older sibling hostility toward their younger sibling. Both models included the main effect of PDT on directional hostility in step one, and the interaction term between family obligation and PDT at step two (conducted using the R package *stats*; R Core Team, 2020). Younger sibling age and assigned sex (in the younger sibling model), older sibling age and assigned sex (in the older sibling model), and average parental closeness were included as covariates. To further probe significant interaction effects, the Johnson and Neyman (1936) technique for calculating the regions of significance was used (plotted using the R-based tool *interActive*; McCabe et al., 2018).

Table 4 Bivariate Correlations, Means, and Standard Deviations of Primary Variables

Measure	1	2	3	4	5	6	7	8
1. YS hostility	—							
2. OS hostility	0.61 **	—						
3. YS family obligation	-0.15	-0.05	—					
4. OS family obligation	-0.09	-0.06	0.50 **	—				
5. PDT (YS-favored)	0.44**	0.34 *	0.09	-0.28 •	—			
6. PDT (OS-favored)	-0.44 **	-0.34 *	-0.09	0.28 •	-1.00 **	—		
7. YS-Parental closeness	0.19	0.28 •	0.60 **	0.32 *	0.47 **	-0.47 **	—	
8. OS-Parental closeness	-0.30 *	-0.16	0.40 **	0.58 **	-0.69 **	0.69 **	0.32 *	—
Mean	3.20	3.07	3.98	3.79	3.41	-3.41	30.52	27.29
Standard deviation	2.12	2.13	0.70	0.54	6.21	6.21	4.76	5.84

YS Younger sibling, OS Older sibling, PDT Parental differential treatment

• $p < 0.1$, * $p < 0.05$, ** $p < 0.01$. Two-tailed significance

Table 5 Moderating Effects of Family Obligation on the Association Between PDT and Sibling Hostility

Predictor	Younger Sibling		Older Sibling	
	Step 1: R ² = 0.16 <i>b</i> (SE)	Step 2: R ² = 0.23 <i>b</i> (SE)	Step 1: R ² = 0.25 <i>b</i> (SE)	Step 2: R ² = 0.23 <i>b</i> (SE)
Age	-0.15 (0.31)	-0.13 (0.30)	-0.10 (0.27)	-0.10 (0.28)
assigned sex	0.43 (0.61)	0.23 (0.59)	1.97 (0.60) **	1.97 (0.61) **
PDT	0.17(0.05) **	0.15 (0.05) **	-0.10 (0.05) *	-0.10 (0.05) •
Family obligation	-0.98 (0.56) •	-0.88 (0.54)	-0.59 (0.68)	-0.59 (0.72)
Average closeness	0.08 (0.97)	0.05 (0.09)	0.14 (0.09)	0.14 (0.09)
PDT x family obligation	—	-0.13 (0.06) *	—	0.00 (0.07)

SE Standard error, YS Younger sibling, OS Older sibling, PDT Parental differential treatment. These are the unstandardized estimates for the regression model predicting sibling-directed hostility exhibited by both younger and older siblings

• $p < 0.1$, * $p < 0.05$, ** $p < 0.01$. Two-tailed significance

Descriptive Statistics

Bivariate correlations, means, and standard deviations of the study variables are presented in Table 4. Notably, younger siblings reported greater parental closeness than older siblings, $t(87) = 2.86, p = 0.005$. Variables of interest were associated with one another in the expected directions. Younger sibling hostility and older sibling hostility were significantly and positively correlated with one another, as were younger and older sibling-reported family obligation. Younger sibling-favored PDT was positively correlated with both younger and older sibling hostility while older sibling-favored PDT was negatively correlated with both younger sibling and older sibling hostility.

Regression Results

Regression results are displayed in Table 5. For step one of the younger sibling model, results indicated that PDT significantly predicted younger sibling hostility toward their older sibling ($b = 0.17, p = 0.002$), such that younger

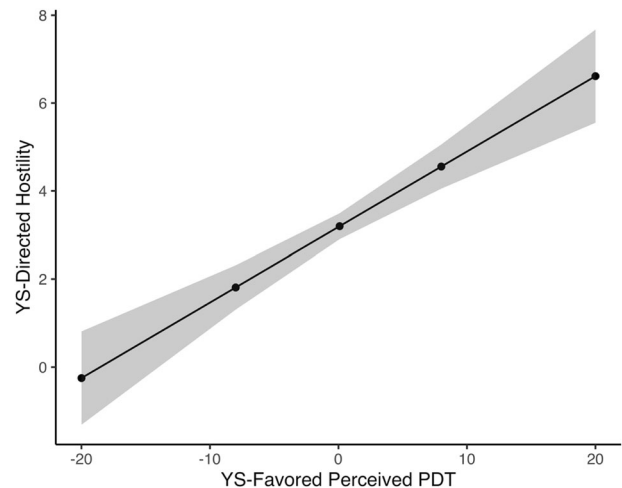


Fig. 2 The Main Effect of Younger Sibling-weighted PDT on Younger Sibling Hostility Toward Older Sibling

siblings who perceived themselves as being closer with their parents displayed higher hostility, and younger siblings who perceived their older sibling as being closer with their

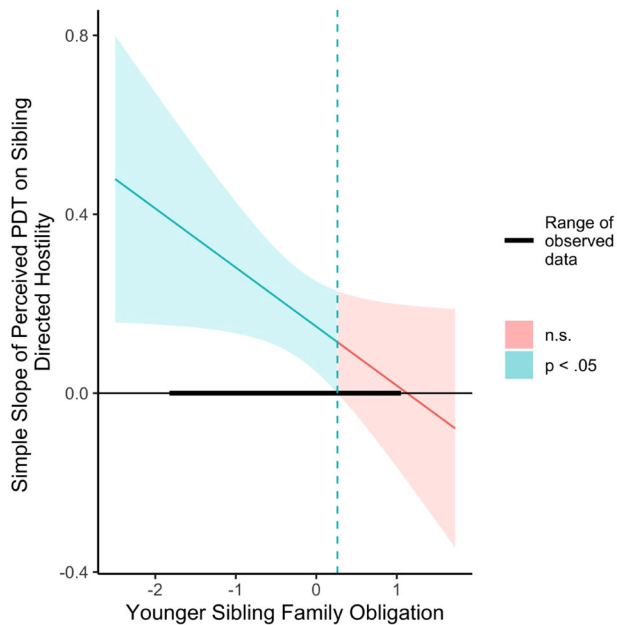


Fig. 3 The Moderating Effect of Younger Sibling Family Obligation between PDT and Hostility Toward Older Sibling. *Note.* Simple slope of PDT on younger sibling (YS) hostility towards older sibling (OS), plotted along the hypothetical range of YS family obligation values (± 3 SD). Shaded region represents 95% confidence intervals. The area to the left of the vertical dotted line comprises 63.6% of the data and represents the region of significance. The slope greater than 0.34 SD away from the mean is not significant, representing the buffering effect of higher levels of YS family obligation on the association between PDT and YS hostility. Covariates include YS age, YS assigned sex, and average parental closeness across YS and OS. Greater PDT scores indicate more positive parental relationships for YS when compared to OS

parents displayed lower hostility (see Fig. 2). The main effect of younger sibling family obligation was not significant ($b = -0.98$, $p = 0.090$). No covariates significantly predicted hostility. Next, step two tested moderation effects. The interaction between PDT and family obligation significantly predicted hostility ($b = -0.13$, $p = 0.048$). To probe this interaction, regions of significance were explored (see Fig. 3). When family obligation was greater than 0.34 standard deviations from the mean, the simple slope of PDT on hostility was not significant. When family obligation was less than 0.34 standard deviations from the mean, the relationship between PDT and hostility was significant ($p < 0.05$). These findings suggest that higher perceptions of family obligation buffered against the negative effects of PDT on younger siblings' expressions of hostility.

For the older sibling model, PDT predicted hostility toward the younger sibling ($b = -0.10$, $p = 0.050$), such that older siblings who perceived themselves as being closer with their parents displayed lower hostility, and older siblings who perceived their younger sibling as being closer with their parent displayed higher hostility (see Fig. 4). Family obligation did not significantly predict hostility

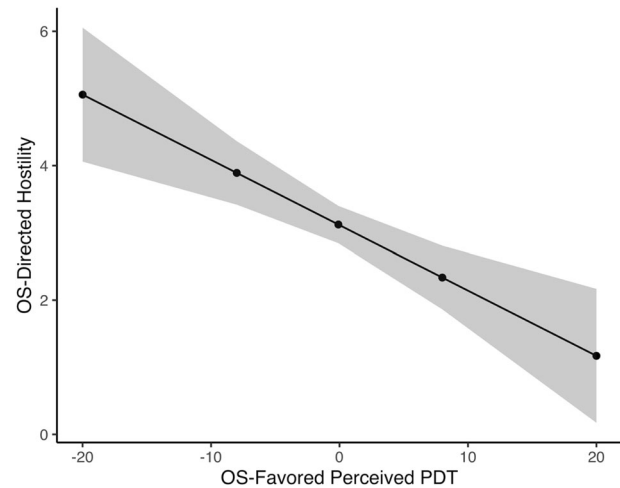


Fig. 4 The Main Effect of Older Sibling-Weighted PDT on Older Sibling Hostility Toward Younger Sibling

($b = -0.59$, $p = 0.386$). The only significant covariate was sibling assigned sex, such that girls tended to exhibit greater hostility toward their younger sibling ($b = 1.97$, $p = 0.002$). Finally, results from the moderation analysis indicated that the interaction between PDT and family obligation did not significantly predict hostility ($b = 0.00$, $p = 0.100$).

Discussion

Sibling relationships, despite being some of the most salient relationships during adolescent development, are understudied in comparison to parent and peer relationships (McHale et al., 2012). Hostile sibling relationships have the potential to harm adolescent well-being, making it imperative to identify how to best avoid these conflictual dynamics (Bank, et al., 2004; Stocker et al., 2002). While sibling relationships may be prone to conflict in the context of PDT, the presence of PDT does not guarantee poor relationship quality between adolescent siblings. In this study, we utilized a multi-informant, multi-method design to perform an initial exploration of associations between PDT, sibling hostility, and family obligation. Our use of observational data and reports from multiple family members allowed us to obtain data less susceptible to response bias, and to objectively measure sibling hostility alongside both younger sibling and older sibling perspectives of parental closeness and family obligation. We found that when younger siblings felt relatively closer to their parents compared to their older siblings, they behaved in a more hostile manner toward their siblings. However, younger sibling family obligation buffered against the negative effects of PDT on expressions of hostility toward their older sibling. These initial findings suggest that family obligation can facilitate a more harmonious family environment, even in

the context of PDT. The findings of this study expand understanding of sibling relationships within the greater family context and provide insight into how to foster low-conflict sibling relationships in adolescence, a time of social transition and emotional sensitivity (Burnett & Blakemore, 2009). These findings inform future sibling-focused interventions by identifying family obligation as a protective factor in ameliorating between-sibling hostility in an effort to improve family functioning and youth adjustment.

First, we investigated PDT, conceptualized as differences in perceived closeness with a parent, as a predictor of younger sibling and older sibling hostility. The findings partially aligned with our hypotheses, such that PDT significantly predicted greater younger sibling hostility towards their older sibling as well as greater older sibling hostility towards their younger sibling. These associations are in line with previous literature showing associations between PDT and poor-quality sibling relationships (McHale et al., 1995; Meunier et al., 2012; Shanahan et al., 2008). For both siblings, hostility was higher in cases where the younger sibling experienced greater parental closeness relative to the older sibling. This is consistent with previous studies in which the magnitude of PDT was associated with poorer relationship quality across siblings, and not just with the experience of the favored or unfavored sibling (e.g., Boll et al., 2003; Kowal & Kramer, 1997; Jensen et al., 2013). However, interestingly, PDT in favor of the older sibling was associated with less hostility for both siblings. It is possible that feeling closer to a parent led younger siblings to feel a sense of allyship against their older sibling, thus contributing to greater younger sibling hostility, as well as greater hostility reciprocated by the older sibling. This formation of parent-child coalitions against one sibling, whether intentional or unintentional, creates considerable social stress for the disfavored sibling (Eno, 1985). However, it is unclear why PDT favoring younger siblings was associated with increased hostility, while PDT favoring older siblings was not. Given that PDT that is perceived as fair has been shown to have less of a negative impact on sibling relationship quality (Kowal & Kramer, 1997), it is possible that, within this sample, PDT favoring older siblings was seen as more justified.

Second, we investigated family obligation as a moderator between PDT and sibling hostility. Aligning with our hypotheses, younger sibling family obligation appeared to ameliorate the association between PDT and younger sibling hostility. This finding complements previous work linking family obligation with positive family dynamics (Yan et al., 2021; Telzer & Fuligni, 2009) and further highlights the benefits of family obligation as a potential neutralizer to negative outcomes in the context of PDT (McHale et al., 2005). Specifically, a sense of duty to assist, support, and respect the family may facilitate a sense of

obligation to treat siblings supportively and respectfully, leading one to prioritize sibling relationship quality even in challenging circumstances. This interpretation aligns with the role of family obligation as a core component of familism, a construct which emphasizes family as a key source of support and comfort (Hernández & Bámaca-Colbert, 2016). Interestingly, older sibling family obligation did not buffer the association between PDT and older sibling hostility toward their younger sibling. One possible explanation for this insignificant finding is that adolescent expression of hostility may be less impacted by familial values as adolescents age. This could potentially occur due to the age-related transition from family to peer orientation that takes place during adolescence (Laursen & Williams, 1997). However, it is important to note that older and younger siblings cannot be directly compared to one another in this study due to the use of separate models.

Despite the strength our multi-informant multi-method approach, this study was not without limitations. Firstly, although this study provides initial insight into the inter-relatedness of PDT, family obligation, and between-sibling hostility, the small sample size prevented the effective utilization of hierarchical analyses and limited the robustness of study findings. In addition to allowing for more intensive analyses, a larger sample size would have made it possible to explore additional moderators of the association between PDT and sibling hostility (e.g., sibling sex constellation, ethnic and racial identity), as well as allowed us to examine a greater number of covariates simultaneously without compromising the power of the analyses. Further, there are additional variables that were not collected with this sample (e.g., cultural values, parenting style), which may impact experiences of family obligation, PDT, and between-sibling hostility. Future family research should recruit larger samples with in-depth data on culture, values, and parenting style to examine additional relevant constructs and investigate whether these findings are replicable through multi-level modeling.

Additionally, we exclusively focused on sibling dyads, which narrows our understanding of the full sibling collective within the family context. Future research should explore these family dynamics in larger sibling collectives, which would allow exploration of how PDT may vary in larger families with more sibling subsystems. For instance, PDT in larger sibling collectives may lead to greater sibling conflict, as siblings might feel a greater need to compete for parental attention. Conversely, PDT may not significantly predict conflict in larger sibling collectives if disfavored siblings are able to form coalitions and turn to each other for support. Because an inclusive measure of parental closeness was used to capture parental closeness across varying family structures, we were only able to account for youth relationships with parents generally (rather than looking at differences based on individual parents). Thus, we were

unable to determine whether relationships between PDT, family obligation, and sibling hostility might vary based on parent gender and family constellation. Further, most of the parents in the study were married, which prevented us from adequately examining differences based on family structure. Future research should include PDT variables representative of multiple parent relationships and more diverse family structures. Future studies might also compare how the relationships between PDT, family obligation, and between-sibling hostility vary based on PDT measurement type and domain (i.e., including directly reported PDT in addition to a PDT difference score, or investigating the impact of negative relationship construct differences as well as positive construct differences).

Finally, most of our participants identified as White. While this is notable given that White youth tend to report relatively low family obligation (Fulgini et al., 1999), it is also a limitation of the study. While family obligation has in general been found to be a promotive factor across ethnic and racial identities (Fulgini et al., 1999; Tsai et al., 2020), there is also research to suggest that links between family obligation, adolescent adjustment and parental interactions may vary by race and ethnicity (Tsai et al., 2020; Yau et al., 2009). However, our sample was not large or diverse enough to examine differences across race or ethnicity. Given that our sample was relatively racially homogenous and was representative of a fairly high SES area of the Southeastern United States, findings cannot be generalized across more racially, ethnically, and socioeconomically diverse communities. Future research should strive to recruit a more representative sample to allow for comparisons of the role of family obligation across ethno-racial identities.

In conclusion, this study highlights the importance of the family context in understanding adolescent sibling relations through the inclusion of multiple influential family processes. Our findings fill existing gaps in understanding how PDT and family obligation together inform sibling dynamics above and beyond siblings' age, assigned sex, and average parental closeness – specifically among primarily White families who have greater access to resources. Our findings reveal the buffering effect of family obligation against the association between PDT and sibling hostility. Finally, this study presents key information on how to minimize hostility in adolescent sibling relationships through the larger family dynamic, highlighting the role of both equitable treatment and expectation of family respect, support, and assistance in creating a more harmonious sibling unit. The information identified here can serve to educate families on avenues to minimize between-sibling conflict and maximize familial harmony. This work also informs sibling-focused interventions to improve youth and family functioning. In addition to teaching regulation and communication strategies (Feinberg et al., 2013; Kennedy

& Kramer 2008), interventions may benefit from incorporating activities to bolster family obligation values, which could protect sibling relations from other negative family dynamics. Given our sample demographics, these findings are most relevant to practitioners and interventionists working mainly with well-resourced, White clients. Findings also present potential family processes which should be explored in future research within more diverse samples.

Data availability

The data that support the findings of this study are available on request from the corresponding author.

Supplementary information The online version contains supplementary material available at <https://doi.org/10.1007/s10826-024-02814-1>.

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Compliance with ethical standards

Conflict of interest The authors have no financial or non-financial competing interests to declare.

Ethics approval This research was completed in line with the principles of the Declaration of Helsinki. Approval was granted by the Institutional Review Board of University of North Carolina at Chapel Hill (No. 6-2360).

Informed consent All subjects provided written assent and parents provided written consent in accordance with the University of North Carolina at Chapel Hill Institutional Review Board.

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References

- Aguilar, B., O'Brien, K. M., August, G. J., Aoun, S. L., & Hektner, J. M. (2001). Relationship quality of aggressive children and their siblings: A multiinformant, multimeasure investigation. *Journal of Abnormal Child Psychology*, 29(6), 479–489. <https://doi.org/10.1023/A:1012273024211>.

- Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence*, 16(5), 427–454. <https://doi.org/10.1007/bf02202939>.
- Bank, L., Burraston, B., & Snyder, J. (2004). Sibling conflict and ineffective parenting as predictors of adolescent boys' antisocial behavior and peer difficulties: Additive and interactional effects. *Journal of Research on Adolescence*, 14(1), 99–125. <https://doi.org/10.1111/j.1532-7795.2004.01401005.x>.
- Boll, T., Ferring, D., & Filipp, S.-H. (2003). Perceived parental differential treatment in middle adulthood: Curvilinear relations with individuals' experienced relationship quality to sibling and parents. *Journal of Family Psychology*, 17(4), 472–487. <https://doi.org/10.1037/0893-3200.17.4.472>.
- Branje, S. J., van Lieshout, C. F., van Aken, M. A., & Haselager, G. J. (2004). Perceived support in sibling relationships and adolescent adjustment. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 45(8), 1385–1396. <https://doi.org/10.1111/j.1469-7610.2004.00845.x>.
- Buist, K. L. (2010). Sibling relationship quality and adolescent delinquency: A latent growth curve approach. *Journal of Family Psychology*, 24(4), 400–410. <https://doi.org/10.1037/a0020351>.
- Burnett, S., & Blakemore, S. J. (2009). The development of adolescent social cognition. *Annals of the New York Academy of Sciences*, 1167(1), 51–56. <https://doi.org/10.1111/j.1749-6632.2009.04509.x>.
- Cahill, K. M., Updegraff, K. A., Causadias, J. M., & Korous, K. M. (2021). Familism values and adjustment among Hispanic/Latino individuals: A systematic review and meta-analysis. *Psychological Bulletin*, 147(9), 947–985. <https://doi.org/10.1037/bul0000336>.
- Cox, M. J. (2010). Family systems and sibling relationships. *Child Development Perspectives*, 4(2), 95–96. <https://doi.org/10.1111/j.1750-8606.2010.00124.x>.
- Cox, M. J., & Paley, B. (1997). Families as systems. *Annual Review of Psychology*, 48, 243–267. <https://doi.org/10.1146/annurev.psych.48.1.243>.
- Crocetti, E., Branje, S., Rubini, M., Koot, H. M., & Meeus, W. (2017). Identity processes and parent-child and sibling relationships in adolescence: A five-wave multi-informant longitudinal study. *Child Development*, 88, 210–228. <https://doi.org/10.1111/cdev.12547>.
- Eno, M. M. (1985). Sibling relationships in families of divorce. *Journal of Psychotherapy & the Family*, 1(3), 139–156. https://doi.org/10.1300/J287v01n03_11.
- Feinberg, M. E., Solmeyer, A. R., Hostetler, M. L., Sakuma, K. L., Jones, D., & McHale, S. M. (2013). Siblings are special: Initial test of a new approach for preventing youth behavior problems. *Journal of Adolescent Health*, 53(2), 166–173. <https://doi.org/10.1016/j.jadohealth.2012.10.004>.
- Fry, C. M., Telzer, E. H., & Rogers, C. R. (2021). Siblings as buffers: Social problems and internalizing and externalizing behaviors across early adolescence. *Journal of Family Psychology*, 35(7), 939–949.
- Fulgini, A. J., & Pedersen, S. (2002). Family obligation and the transition to young adulthood. *Developmental Psychology*, 38(5), 856–868. <https://doi.org/10.1037/0012-1649.38.5.856>.
- Fulgini, A. J., Tseng, V., & Lam, M. (1999). Attitudes toward family obligations among American adolescents with Asian, Latin American, and European Backgrounds. *Child Development*, 70(4), 1030–1044. <https://doi.org/10.1111/1467>.
- Hernández, M. M., & Bámaca-Colbert, M. Y. (2016). A behavioral process model of familism. *Journal of Family Theory & Review*, 8(4), 463–483. <https://doi.org/10.1111/jftr.12166>.
- Jensen, A. C., Jorgensen-Wells, M. K. A., Pickett, J. M., Andrus, L. E., Leiter, V. K., Graver, H., Pollard, B. M., Kroff, S. L., Russo, R. B., & Hanna-Walker, V. R. (2021). Marital relationships spillover and parental differential treatment of siblings: A multilevel meta-analysis. *Journal of Family Theory & Review*, 13(3), 347–365. <https://doi.org/10.1111/jftr.12425>.
- Jensen, A. C., Whiteman, S. D., Fingerma, K. L., & Birditt, K. S. (2013). “Life Still Isn’t Fair”: Parental differential treatment of young adult siblings. *Journal of Marriage and the Family*, 75(2), 438–452. <https://doi.org/10.1111/jomf.12002>.
- Johnson, P. O., & Neyman, J. (1936). Tests of certain linear hypotheses and their application to some educational problems. Statistical research memoirs.
- Juang, L. P., & Cookston, J. T. (2009). A longitudinal study of family obligation and depressive symptoms among Chinese American adolescents. *Journal of Family Psychology*, 23(3), 396–404. <https://doi.org/10.1037/a0015814>.
- Kennedy, D. E., & Kramer, L. (2008). Improving emotion regulation and sibling relationship quality: The more fun with sisters and brothers program. *Family Relations*, 57(5), 567–578. <https://doi.org/10.1111/j.1741-3729.2008.00523.x>.
- Kiang, L., Andrews, K., Stein, G. L., Supple, A. J., & Gonzalez, L. M. (2013). Socioeconomic stress and academic adjustment among Asian American adolescents: The protective role of family obligation. *Journal of Youth and Adolescence*, 42(6), 837–847. <https://doi.org/10.1007/s10964-013-9916-6>.
- Kim, J.-Y., McHale, S. M., Crouter, A. C., & Osgood, D. W. (2007). Longitudinal linkages between sibling relationships and adjustment from middle childhood through adolescence. *Developmental Psychology*, 43(4), 960–973. <https://doi.org/10.1037/0012-1649.43.4.960>.
- Kowal, A., & Kramer, L. (1997). Children’s Understanding of Parental Differential Treatment. *Child Development*, 68(1), 113–126. <https://doi.org/10.1111/j.1467-8624.1997.tb01929.x>.
- Knop, B., & Siebens, J. (2018). *A child’s day: Parental interaction, school engagement, and extracurricular activities: 2014*. US Census Bureau: US Department of Commerce, Economics and Statistics Administration.
- Lafferty, J. C., & Pond, A. W. (1974). *Desert survival situation*. Plymouth, MI: Human Synergetics.
- Laursen, B. and Williams, V. A. (1997). Perceptions of interdependence and closeness in family and peer relationships among adolescents with and without romantic partners. *New Directions for Child and Adolescent Development* (78) 3-20. <https://doi.org/10.1002/cd.23219977803>.
- Lempers, J. D., & Clark-Lempers, D. S. (1992). Young, middle, and late adolescents’ comparisons of the functional importance of five significant relationships. *Journal of Youth and Adolescence*, 21(1), 53–96. <https://doi.org/10.1007/BF01536983>.
- McCabe, C., Kim, D., & King, K. (2018). Improving present practices in the visual display of interactions. *Advances in Methods and Practices in Psychological Science*, 1(2), 147–165. <https://doi.org/10.1177/2515245917746792>.
- McHale, S. M., Crouter, A. C., McGuire, S. A., & Updegraff, K. A. (1995). Congruence between mothers’ and fathers’ differential treatment of siblings: Links with family relations and children’s well-being. *Child Development*, 66(1), 116–128. <https://doi.org/10.1111/j.1467-8624.1995.tb00859.x>.
- McHale, S. M., Updegraff, K. A., Jackson-Newsom, J., Tucker, C. J., & Crouter, A. C. (2000). When does parents’ differential treatment have negative implications for siblings? *Social Development*, 9(2), 149–172. <https://doi.org/10.1111/1467-9507.00117>.
- McHale, S. M., Updegraff, K. A., Shanahan, L., Crouter, A. C., & Killoren, S. E. (2005). Siblings’ differential treatment in Mexican American families. *Journal of Marriage and Family*, 67(5), 1259–1274. <https://doi.org/10.1111/j.1741-3737.2005.00215.x>.
- McHale, S. M., Updegraff, K., & Whiteman, S. D. (2012). Sibling relationships and influences in childhood and adolescence.

- Journal of Marriage and Family*, 74(5), 913–930. <https://doi.org/10.1111/j.1741-3737.2012.01011.x>.
- Melby, J., Conger, R., Book, R., Rueter, M., Lucy, L., Repinski, D., & Scaramella, L. (1998). *The Iowa Family Interaction Rating Scales* (5th ed.). Unpublished document, Iowa State University, Institute for Social and Behavioral Research.
- Meunier, J. C., Roskam, I., Stievenart, M., De Moortele, G. V., Browne, D. T., & Wade, M. (2012). Parental differential treatment, child's externalizing behavior and sibling relationships: Bridging links with child's perception of favoritism and personality, and parents' self-efficacy. *Journal of Social and Personal Relationships*, 29(5), 612–638. <https://doi.org/10.1177/0265407512443419>.
- Milevsky, A., Smoot, K., Leh, M., & Ruppe, A. (2005). Familial and contextual variables and the nature of sibling relationships in emerging adulthood. *Marriage & Family Review*, 37(4), 123–141. https://doi.org/10.1300/J002v37n04_07.
- O'Connor, T., Hetherington, E., & Reiss, D. (1998). Family systems and adolescent development: Shared and nonshared risk and protective factors in nondivorced and remarried families. *Development and Psychopathology*, 10(2), 353–375. <https://doi.org/10.1017/S0954579498001643>.
- Padilla, J., McHale, S. M., Rovine, M. J., Updegraff, K. A., & Umaña-Taylor, A. J. (2016). Parent-youth differences in familism values from adolescence into young adulthood: Developmental course and links with parent-youth conflict. *Journal of Youth and Adolescence*, 45(12), 2417–2430. <https://doi.org/10.1007/s10964-016-0518-y>.
- Padilla, J., McHale, S. M., Updegraff, K., & Umaña-Taylor, A. J. (2016). Mexican-origin parents' differential treatment and siblings' adjustment from adolescence to young adulthood. *Journal of Family Psychology*, 30(8), 955–965. <https://doi.org/10.1037/fam0000229>.
- R Core Team (2020). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.
- Richmond, M. K., Stocker, C. M., & Rienks, S. L. (2005). Longitudinal associations between sibling relationship quality, parental differential treatment, and children's adjustment. *Journal of Family Psychology*, 19(4), 550–559. <https://doi.org/10.1037/0893-3200.19.4.550>.
- Rogers, C. R., Guyer, A. E., Nishina, A., & Conger, K. J. (2018). Developmental change in sibling support and school commitment across adolescence. *Journal of Research on Adolescence*, 28(4), 858–874. <https://doi.org/10.1111/jora.12370>.
- Rogers, C. R., McCormick, E. M., van Hoorn, J., Ivory, S. L., & Telzer, E. H. (2018). Neural correlates of sibling closeness and association with externalizing behavior in adolescence. *Social Cognitive and Affective Neuroscience*, 13(9), 977–988. <https://doi.org/10.1093/scan/nsy063>.
- Rolan, E., & Marceau, K. (2018). Individual and sibling characteristics: Parental differential treatment and adolescent externalizing behaviors. *Journal of Youth and Adolescence*, 47(12), 2535–2553. <https://doi.org/10.1007/s10964-018-0892-8>.
- Shanahan, L., McHale, S. M., Crouter, A. C., & Osgood, D. W. (2008). Linkages between parents' differential treatment, youth depressive symptoms, and sibling relationships. *Journal of Marriage and Family*, 70(2), 480–494. <https://doi.org/10.1111/j.1741-3737.2008.00495.x>.
- Stocker, C. M., Burwell, R. A., & Briggs, M. L. (2002). Sibling conflict in middle childhood predicts children's adjustment in early adolescence. *Journal of Family Psychology*, 16(1), 50–57. <https://doi.org/10.1037//0893-3200.16.1.50>.
- Stocker, C. M., & Youngblade, L. (1999). Marital conflict and parental hostility: Links with children's sibling and peer relationships. *Journal of Family Psychology*, 13(4), 598–609. <https://doi.org/10.1037/0893-3200.13.4.598>.
- Telzer, E. H., & Fuligni, A. J. (2009). Daily family assistance and the psychological well-being of adolescents from Latin American, Asian, and European backgrounds. *Developmental Psychology*, 45(4), 1177–1189. <https://doi.org/10.1037/a0014728>.
- Telzer, E. H., Tsai, K. M., Gonzales, N., & Fuligni, A. J. (2015). Mexican American adolescents' family obligation values and behaviors: Links to internalizing symptoms across time and context. *Developmental Psychology*, 51(1), 75–86. <https://doi.org/10.1037/a0038434>.
- Tsai, K. M., Nguyen, H., Weiss, B., Ngo, V. K., & Lau, A. S. (2020). Effects of family obligation values and autonomy support on internalizing symptoms of Vietnamese-American and European-American adolescents. *Journal of child and family studies*, 29, 1136–1146. <https://doi.org/10.1007/s10826-019-01584-5>.
- Tsai, K. M., Telzer, E. H., Gonzales, N. A., & Fuligni, A. J. (2015). Parental cultural socialization of Mexican-American adolescents' family obligation values and behaviors. *Child Development*, 86(4), 1241–1252. <https://doi.org/10.1111/cdev.12358>.
- Updegraff, K. A., Thayer, S. M., Whiteman, S. D., Denning, D. J., & McHale, S. M. (2005). Relational aggression in adolescents' sibling relationships: Links to sibling and parent-adolescent relationship quality. *Family Relations*, 54(3), 373–385. <https://doi.org/10.1111/j.1741-3729.2005.00324.x>.
- United States Census Bureau. (2024). Explore Census Data. data.census.gov/. Accessed 28 Jan. 2024.
- Volling, B. L., & Belsky, J. (1992). The contribution of mother-child and father-child relationships to the quality of sibling interaction: A longitudinal study. *Child Development*, 63(5), 1209–1222. <https://doi.org/10.1111/j.1467-8624.1992.tb01690.x>.
- Waldinger, R. J., Vaillant, G. E., & Orav, E. J. (2007). Childhood sibling relationships as a predictor of major depression in adulthood: A 30-year prospective study. *American Journal of Psychiatry*, 164(6), 949–954. <https://doi.org/10.1176/ajp.2007.164.6.949>.
- Yan, J., Hou, Y., Shen, Y., & Kim, S. Y. (2021). Family obligation, parenting, and adolescent outcomes among Mexican American families. *The Journal of Early Adolescence*, 42(1), 58–88. <https://doi.org/10.1177/02724316211016064>.
- Yau, J. P., Tasopoulos-Chan, M., & Smetana, J. G. (2009). Disclosure to parents about everyday activities among American adolescents from Mexican, Chinese, and European backgrounds. *Child Development*, 80(5), 1481–1498. <https://doi.org/10.1111/j.1467-8624.2009.01346.x>.