

Sibling Influences on Adolescents' Weight and Health Attitudes

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Abstract

This study examined the association between adolescent siblings' weight and health attitudes. One parent and two adolescent siblings between the ages of 12 and 19 from 326 families participated in the study. Older siblings' weight and health attitudes predicted younger siblings' weight and attitudes towards health after controlling for personal characteristics, parents' health attitudes, and aspects of the parent-adolescent relationship. Furthermore, sibling relationship qualities were predictive of younger siblings' health attitudes and behaviors. Sibling intimacy was associated with better health and eating attitudes and better exercise behaviors. Sibling conflict was associated with higher probability of being overweight.

Introduction

- A growing body of research indicates that siblings influence each others' behaviors and activities, including alcohol and other substance use (e.g., Fagan & Najman, 2005; Slomkowski et al., 2005; Windle, 2000) and sexual practices (e.g., East et al., 1993; McHale et al., 2009).

- Extant work highlights that in addition to serving as models and companions, siblings may also influence each other through the nature of their relationship.

- Warmth and conflict in the sibling relationship have been linked to peer competence (Kim et al, 2007), delinquent behaviors (Criss & Shaw, 2005), and depression (McHale et al., 2009) during adolescence.

- With few exceptions, little research has examined how siblings may influence adolescents' eating behaviors and attitudes.

- The present study explored the effects of sibling relationship quality and older siblings' weight, exercise behaviors, and health attitudes on younger siblings' weight, exercise behaviors, and health attitudes.

Research Questions

- Do older siblings' attitudes about eating and exercise predict younger siblings' attitudes above and beyond personal characteristics and parents' attitudes towards health?
- Do sibling relationship qualities (conflict and intimacy) further predict younger siblings' health attitudes?
- Does older siblings' body weight predict younger siblings' body weight beyond control variables?
- Do sibling relationship qualities further predict younger sibling's body weight?

Methods

Participants

- Participants included one parent and two-adolescent age siblings ($M = 17.17$, $SD = .94$ years for earlier-born siblings and $M = 14.52$, $SD = 1.27$ years for later-born siblings) from 326 families.
- Families were of diverse backgrounds (71% White; 23% African American; 6% other ethnic groups).
- 54% of the adolescents were females.

Procedures

- Data were collected via telephone interviews with one parent and two adolescent offspring. Interviews were conducted separately and privately and lasted approximately 30-45 minutes.
- All respondents reported on their own physical attributes, eating behaviors, and health attitudes. Adolescents also reported about the degree of intimacy and negativity in their sibling relationship and the parent-child relationship.

Measures

Sibling Relationship Qualities: Sibling intimacy was measured using an 8-item questionnaire (Blyth & Thiel, 1982) and sibling negativity was measured using a 5-item subscale of Network of Relationship Index (Furman & Buhrmester, 1985).

Health Behaviors: 16 items assessed parents' and siblings' health, exercise, and eating habits. Exploratory factor analysis established a four factor structure: (a) *Health and Eating* (7 items), (b) *Exercise* (2 items), (c) *Sleep* (2 items), and (d) *Physical Appearance* (5 items). Only the health and eating and exercise subscales were used in the present study.

Weight group: Siblings reported on their height and weight, which was used to calculate their body mass index (BMI; CDC, 2000). BMI percentile curves adjusted for age and gender were used to categorize adolescents as normal, underweight, overweight, and obese. The obese ($n = 51$) and overweight ($n = 45$) groups were combined to create an overweight group and the underweight adolescents ($n = 7$) were omitted from the analyses.

Control Variables: Family income, gender, ethnicity, adolescent perseverance, mother's work status, and parent-child relationship quality were controlled for in all analyses.

Analytic Strategy

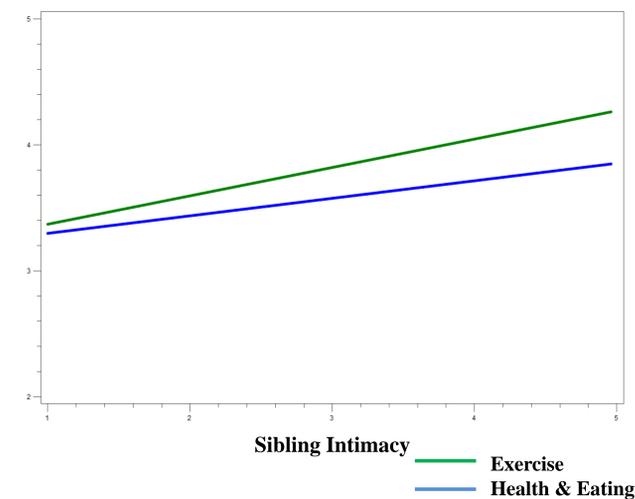
A series of OLS regressions and logistic regressions were performed to address our research questions.

Results

Sibling Influences on Health Attitudes

- Older siblings' health and eating attitudes were positively related to younger siblings' health and eating attitudes ($\beta = .22$, $p < .001$) net of parent attitudes and adolescent characteristics.
- Older siblings' attitudes about exercise were positively related to younger siblings' attitudes regarding exercise ($\beta = .17$, $p < .01$) controlling for parent attitudes and adolescent personal qualities.
- Sibling intimacy predicted younger siblings' health attitudes above and beyond sibling attitudes, parent attitudes and adolescent characteristics. Sibling conflict was not a significant predictor of health behaviors.
- Intimacy in the sibling relationship was associated with better health attitudes and eating behaviors ($\beta = .16$, $p < .01$) and with better exercise habits ($\beta = .12$, $p < .05$) in younger siblings (see Figure 1).

Figure 1: Adolescent health attitude and exercise behavior predicted by sibling intimacy.



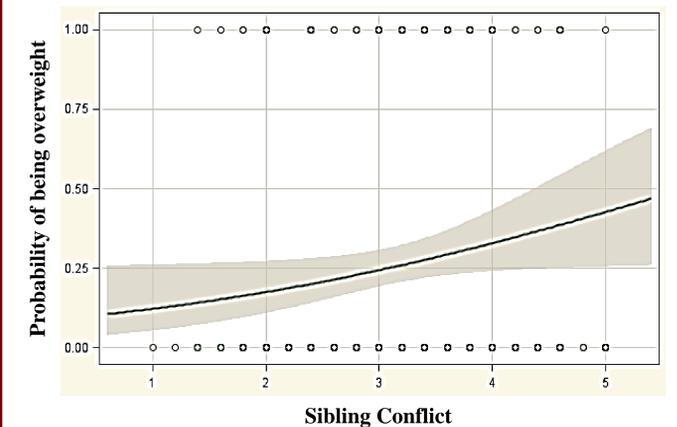
Sibling Influences on Adolescent Weight Group

- Older sibling weight group significantly predicted younger siblings' weight group after controlling for parent health behaviors and adolescent characteristics.
- Specifically, when older siblings were overweight, younger siblings were 2.66 times ($p < .01$) more likely to be overweight.

Results (Continued)

- Sibling conflict predicted adolescent weight group above and beyond that of sibling weight group and parent-child relationship characteristics.
- Specifically, a one unit increase in sibling conflict was related to 1.52 ($p < .001$) times increase in younger siblings' likelihood of being overweight (see Figure 2).
- Sibling intimacy was not a significant predictor of weight group.

Figure 2: Adolescent weight group predicted by sibling conflict



Discussion

- Consistent with extant literature on sibling influence, older siblings' attitudes and weight predicted younger siblings' health related attitudes and weight net of parent and individual characteristics.
- Sibling intimacy was associated with better health and eating attitudes and exercise behaviors in younger siblings. Because older siblings hold a position of relative power (Furman & Buhrmester, 1985), it is possible that a close relationship serves as a protective mechanism for younger siblings.
- Sibling conflict was associated with an increased risk for being overweight in younger siblings, above and beyond the effects of parent-child conflict. Previous studies suggest that high family conflict was associated with youth obesity (e.g., Zeller et al., 2007). Sibling conflict is important to consider when studying adolescent health. Research indicates that sibling conflict may influence adolescent adjustment above and beyond that of parent-child hostility and marital conflict (Stocker et al, 2002).
- Future research should focus on the mechanisms through which sibling relationship quality affects adolescent weight and health attitudes and behaviors. Additionally, future work should consider how younger siblings influence their older brothers' and sisters' health related attitudes and behaviors.

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