

# Similarities and reciprocal influences in eating behavior within sibling pairs: A longitudinal study

Rebecca N.H. de Leeuw<sup>\*</sup>, Harriëtte M. Snoek, Jan F.J. van Leeuwe,  
Tatjana van Strien, Rutger C.M.E. Engels

*Behavioural Science Institute, Radboud University Nijmegen, P.O. Box 9104, 6500 HE Nijmegen, The Netherlands*

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## Abstract

The present study investigated similarities and reciprocal influences in emotional, external and restrained eating in adolescent siblings, and the moderating role of sex and quality of relationship. A total of 415 sibling pairs (aged 13–16 years) participated in this two-wave one-year longitudinal study. Analyses were conducted by means of Structural Equation Modeling. Cross-sectional findings demonstrated that siblings are moderately similar in their eating behavior. Longitudinal findings showed that the younger siblings exert a small influence on the emotional and external eating behavior of the older siblings. No support was found for the older siblings affecting the younger siblings in their eating behavior. Furthermore, no sex differences were found in the associations between sibling eating behaviors within and over time. However, we did find a moderating effect for the quality of the relationship concerning similarities in emotional eating. Future research focusing on various sociocultural influences on adolescents' eating behaviors should also include younger siblings.

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## 1. Introduction

The prevalence of overweight and obesity among children and adolescents worldwide is still increasing (WHO, 2006). Insight into the etiology of eating behaviors is needed to prevent adolescents from developing unhealthy eating habits. Previous research focuses primarily on media, parents and peers as sociocultural factors which appear to be associated with adolescents' eating behavior (e.g., Levine, Smolak, Moodey, Shuman, & Hessen, 1993; Pike & Rodin, 1991; Shroff & Thompson, 2006). However, siblings seem to be relatively neglected, which is remarkable given the importance of the role of siblings on several behavioral outcomes (Brody, 1998; Bullock & Dishion, 2002; Feinberg & Hetherington, 2000; Garcia, Shaw, Winslow, & Yaggi, 2000).

Previous findings among adolescent boys indicate that siblings are perceived to have at least some influence over boys' body change methods, which includes exercise practices as well as eating habits (Ricciardelli, McCabe, & Banfield, 2000). In girls, siblings played a small role within restrained cognitions about eating (Vincent & McCabe,

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<sup>\*</sup> Corresponding author. Tel.: +31 24 361 2803; fax: +31 24 361 2776.

E-mail address: [r.deleeuw@bsi.ru.nl](mailto:r.deleeuw@bsi.ru.nl) (R.N.H. de Leeuw).

2000). In addition, siblings' weight concerns seem to be related to those of older and younger girls and boys (McHale, Corneal, Crouter, & Birch, 2001). Unfortunately, research on sibling influences on actual eating behaviors is – to our knowledge – not existing. Because of the total lack of studies on siblings we think it is important to address some of the research on peer relationships, as mechanisms in these types of relationships might be comparable with mechanisms operating in sibling relationships. Many adolescent girls discuss body weight and dieting with their friends (Desmond, Price, Gray, & O'Connell, 1986; Wertheim, Paxton, Schutz, & Muir, 1996), and exposure to peer dieting techniques significantly accounted for variance in dieting in adolescent girls (Levine et al., 1993). In addition, dieting or weight-watching together with friends seem to provide social support for adolescent girls in losing weight, just for social comparison (Wertheim et al., 1996). These findings suggest that peer concerns with weight and shape might serve as cues for adolescent girls' eating behavior. It seems plausible that sibling girls also affect each other through comparable mechanisms. However, the question arises whether adolescent boys seem to affect each others eating behavior through such processes as social comparison.

In general, girls seem to be more preoccupied with their weight (Phares, Steinberg, & Thompson, 2004) as they prefer to be thinner and were more dissatisfied with their body than boys (Furnham, Badmin, & Sneade, 2002). Ricciardelli et al. (2000) found that the majority of adolescent boys in their study were satisfied with their body, notwithstanding their attempts to increase the size of their muscles, to change their body shape or to change their body size. Due to the higher prevalence of eating-related problems among girls and women, many empirical studies have focused exclusively on female samples. In the present study, we examine similarities and reciprocal influences in eating behaviors for female and male siblings separately, as these associations may differ by sex.

Another factor which might affect influence processes between siblings is the quality of the sibling relationship. According to Brody (1998), siblings with a positive relationship will experience more opportunities to observe and to learn from each other. Through interactions and imitation, siblings might become similar in their cognitions and their subsequent behaviors. Feinberg and Hetherington (2000) reported higher homogeneity in behavioral outcomes in siblings with a high qualitative relationship than in siblings with a low qualitative relationship, implying that siblings who are warm towards each other and show empathy and companionship, tend to be more alike. Based on these research findings an effect of the sibling relationship on eating behavior outcomes might be expected. Siblings with a high qualitative relationship might be more likely to affect each other in their eating behavior than siblings with a low to moderate qualitative relationship.

In the present study we focused on three frequently examined eating behaviors, namely: emotional, external and restrained eating (e.g., Llich, Herbeth, Mejean, & Siest, 2000; Wardle et al., 1992). In several studies these eating behaviors were found to be associated with overeating (e.g., Herman & Polivy, 1980; Rodin, 1980; van Strien, Engels, van Leeuwe, & Snoek, 2005), which is a risk factor for obesity. *Emotional* eating refers to eating in response to emotional arousal, like anger, fear or anxiety, while the usual response to a state of arousal is loss of appetite (Bruch, 1973; Greeno & Wing, 1994; Kaplan & Kaplan, 1957; Schachter, Goldman, & Gordon, 1968). *External* eating is eating in response to external and food-related stimuli, like the sight and the smell of food, but also its availability (Rodin, 1980). Finally, *restrained* eating refers to eating behavior that is affected by a self-imposed resistance to physiological pressures. Sociocultural factors, especially trendy ideals of slimness and disapproval of overweight, motivate restrained food intake (Herman & Polivy 1980).

In the current longitudinal study we investigated whether adolescent siblings influence each other in their eating behaviors by means of Structural Equation Modeling, which allowed us to disentangle reciprocal influences from similarities in eating behavior. This distinction is essential, as similarities obviously do not directly implicate that siblings influence each other. The present study is the first to investigate similarities and reciprocal influences in adolescent siblings' emotional, external and restrained eating behavior.

## 2. Methods

### 2.1. Procedure

Participants of this study were Dutch families with at least two siblings aged between 13 and 16 years old (Harakeh, Scholte, de Vries, & Engels, 2005; van der Vorst, Engels, Meeus, Deković, & van Leeuwe, 2005). Families were derived from the records of 22 municipalities in the Netherlands, and recruited by means of a letter. They were told that the study was about families and health. A total of 885 families were willing to participate. In order to

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