Research report

Social modeling of food purchases at supermarkets in teenage girls

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ABSTRACT

Ample experimental research has demonstrated the impact of peer influence on food intake in adolescents and adults. However, none of these studies focused social modeling effects on food purchases in supermarkets. This study investigated whether the food purchase behavior of a confederate peer would be adopted by the participant. Teenage girls (N = 89) were asked to perform a shopping task in a local supermarket. They had to shop with a same-sex confederate peer who had been instructed earlier to purchase either five low-kilocaloric food products, five average-kilocaloric or five high-kilocaloric food products. Significant main effects for the experimental purchase condition and hunger were found on the amount of kilocalories of the purchased food products. Teenage girls who shopped with a peer in the high-kilocaloric condition purchased higher kilocaloric food products relative to the girls who shopped with a peer in the low-kilocaloric condition. In addition, girls who reported to be hungy purchased higher kilocaloric food products in general. These findings might imply that teenage girls follow unhealthy food purchases of a peer during shopping. Health promotion might benefit from our findings by also focusing on food purchases and not only food intake.

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Introduction

In the last decade, the prevalence of children and teenagers being overweight or obese has doubled in the Netherlands (Rijks Instituut voor Volksgezondheid en Milieuhygiëne [RIVM], 2010). Since the 1980s, the prevalence of being overweight or obese in girls (7.2% and 0.5%, respectively) has been higher than in boys (5.1% and 0.3%, respectively) and is still rising for both girls (14.9% and 2.2%, respectively) and boys (13.3% and 1.8%, respectively) at present (Nederlandse organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek [TNO], 2010). Childhood obesity leads to a higher risk of adult obesity, increasing the probability of health problems such as diabetes and cardiovascular disease (Dietz, 1998; Reilly et al., 2003). Ample research has been conducted on genetic, environmental and social factors related to people's food intake. However, less is known about predictors of food purchases in food stores before consumption. In the U.S., it appears that people who live in close proximity to convenience stores are more likely to be overweight than those who live near supermarkets that offer a greater variety of products (Morland, Diez Roux, & Wing, 2006). Furthermore, parents shopping with their children influence the brand choice of their children and children shopping with their parents influence the amount and type of food products purchased (Bearden & Etzel, 1982; Childers & Rao, 1992). Although people often shop together (Mangleburg, Doney, & Bristol, 2004), the research area of peer influence on the purchase of (un)healthy food products has been left untouched. To our knowledge, this is the first experimental study that investigated peer influence on food purchase at the supermarket.

At a young age, children are able to make purchases on their own and are acknowledged as autonomous consumers (Cook, 2000; Valkenburg & Cantor, 2001). The context in which children acquire financial knowledge, skills, beliefs and attitudes is influenced by family, mass media and peers (Alhabeeb, 1996). This consumer socialization process starts when children accompany their parents during shopping and develops when they shop with friends as teenagers (Mangleburg et al., 2004; Valkenburg & Cantor, 2001). As an important social event, teenagers meet each other in shopping areas to socialize during and after school hours (Mangleburg et al., 2004; Matthews, Taylor, Percy-Smith, & Limb, 2000). Most high schools in the Netherlands (75%) are located near shopping places such as supermarkets, snack bars, or petrol stations functioning as little convenience stores (Middelbeek et al., 2007). Teenagers are allowed to leave the schoolyard during school hours and have access to these food facilities (Middelbeek et al., 2007). They are considered important consumers because they do not have substantial fixed expenses (e.g. costs for housing) and they receive income through family allowances, part-time employment and gifts from relatives (Alhabeeb, 1996). Young teenagers, in particular, are found to spend their money on food and snacks; however, this behavior declines as clothing and entertainment products become more important at older age.
(Alhabeeb, 1996). Girls spend more time on shopping and meal preparation than boys (Mauldin & Meeks, 1990). Boys like to congregate in shopping areas in groups of five or six whereas girls go shopping in smaller groups of two or three (Matthews et al., 2000; Mortelmans, Van Assche, & Ottoy, 2002; Tootelian & Gaedeke, 1992). In general, girls are found to be more strongly influenced by the opinion of their peers than boys (Eagly, 1983). Therefore, this study focused on teenage girls.

People need purchase pals (i.e. people who shop together) to reduce their uncertainty about expenditures via the pal's expert knowledge or for support in decision making through social comparison in which they use significant others as a reference group (Bearden & Etzel, 1982; Kiecker & Hartman, 1994). Peer influence has been investigated in social modeling studies with regard to eating behavior and social norms (Bevelander, Anschütz, & Engels, 2011; Herman, Roth, & Polivy, 2003; Hermans, Larsen, Herman, & Engels, 2008). Modeling studies examine whether naive participants adapt to the behavior of remote or real instructed confederates. In the presence of others, people consume more or less than when eating alone to conform to, impress or avoid judgments of others (de Castro, 1994; de Castro & Brewer, 1991; Salvy, Romero, Paluch, & Epstein, 2007). In general, adolescents and adults adapt their intake to the intake of others regardless of hunger, satiety, diet, or weight status (Herman & Polivy, 2005) or palatability of the food (Hermans, Larsen, Herman, & Engels, 2009).

This adaptation is also found in young children (Bevelander et al., 2011). To our knowledge, no research has been conducted on peer influences on food purchase choices at the supermarket in teenage girls. Therefore, the present modeling study focused on the food purchase of young teenage girls in the supermarket. Based on the above mentioned modeling studies, we expected that the product choice would strongly depend on the confederate's type of food choice.

Methods

Design

A between-participants design with three experimental conditions in which the participants were exposed to confederates who were instructed to buy five low-kilocaloric food products (low-kcal purchase condition), five average-kilocaloric food products (middle-kcal purchase condition) or five high-kilocaloric food products (high-kcal purchase condition) was used. (see Appendix A for the caloric values of the food purchase of the confederate for the three different conditions) the caloric values of the food purchase of the confederate for the three different conditions. To rule out modeling behavior triggered by familiarity of the peer, the researchers ensured that the participants did not attend the same school or, at least, were not classmates. Children have been found to model food intake of familiar peers more often than that of strangers (de Castro, 1994; Salvy, Vartanian, Coelho, Jarrin, & Pliner, 2008), but one problem with using familiar peers is that peer selection processes cannot be ruled out as an explanation for similarities in food choice. To avoid this confederate effect, each same-sex confederate was coupled only once with a participant. The couples were randomly assigned to one of the three conditions.

Participants and confederates

The Ethics Committee of the Faculty of Social Sciences, Radboud University Nijmegen approved the present study. The participants and confederates were recruited by an active consent procedure. Each child engaged in the study only once, as participant or as confederate. The sample consisted of 206 teenage girls who acted as a participant or a confederate in this study. Fourteen couples were excluded from analyses because the confederate did not follow the instructions (e.g., purchased other or more food products than assigned). The final sample consisted of 89 participants of which 3.4% were underweight, 91% were normal weight and 5.6% were overweight or obese (see body mass index (BMI) classifications below). The mean (±SD) age of the girls in grade 5 (n = 50) was 10.48 (±.54) years and in grade 6 (n = 39) 11.36 (±.58) years.

Procedure

Detailed informed consent forms were distributed to the girl's parents/guardians by the teachers at one of the 18 participating primary schools in November and December 2009. The parents/guardians who gave permission to include their child in our study were asked to provide their telephone number on the consent form. The experimenter contacted the parents/guardians and their daughter to make an appointment in the supermarket. The girls were paired with girls from the same school but another class or from a different school in the proximity of the supermarket. From January until June 2010, the experimental sessions were conducted at eight supermarkets near the children's primary schools.

We used a cover story to avoid effects that might be triggered by the girls' suspicions about the research topic. Both participants and confederates were told that the experimenters were interested in changes in food purchase over time in which purchase information of three generations was examined. The experimenters explained that the girls' grandmothers and mothers probably purchased different products than they would do at present. Each confederate was scheduled to arrive 10 min before the participant came to the supermarket. The confederate was asked to participate in a memory game that had to remain a secret from the participant. The confederate was instructed to remember to purchase exclusively five food products. The food products were pointed out by the experimenter while walking through the supermarket aisles, which the confederate also had to walk with the participant. The confederate was asked to remember the products out loud to confirm her understanding of the request. Confederates were instructed to buy the same products per kcal purchase condition (see Appendix A). When the participant arrived at the supermarket, the participant and confederate were instructed together to shop for food products for lunch and snacks because they were about to go on a school trip. The experimenter explained that there were no money limitations. The girls were instructed to put each of their products in their own shopping basket and they were not allowed to share food products. After the girls finished shopping, the participant was questioned individually to provide details of her purchase (e.g., how many slices from a loaf of bread, the number of tangerines from a net, or the number of glasses of milk from the carton she would consume on the school trip). After the supermarket sessions, the experimenter came to the girls’ primary school to measure weight and height and to conduct a final questionnaire. The participants and confederates were debriefed after data collection was finished at their school.

Measures

Body weight

Body weight and height were measured individually by the experimenter according to standard procedures (without shoes but fully clothed) at the primary schools. Weight and height were measured to the nearest of 0.1 kg and 0.5 cm, respectively. The body mass index for each child was calculated using the formula: weight [kg]/height² [m]. We determined whether the children were underweight, normal weight, overweight or

**Food purchase**

The participants’ specified food purchases were calculated into total kilocalories (kcal) according to their food labels, which were used as dependent variables for the analyses.

**Food match**

We registered which products the participants purchased and examined how many of the food products exactly matched the product type of the confederate.

**Number of products**

Participants were free to purchase as many food products of any kind as they wanted. We counted the products and controlled for the number of food products since this might affect the total amount of kcal of their purchase or the food match.

**Questionnaire measurements**

**Hunger**

We controlled for the state of hunger since this might influence the participant’s food purchase. After the shopping task, the participants had to indicate their hunger on a Visual Analogue Scale (VAS): 0 mm ‘not hungry at all’ through 150 mm ‘very hungry’. Visual Analogue Scales are proven to be as reliable as Likert scales and were used in samples with children before (Bevelander et al., 2011).

**Liking of the task**

To measure the extent to which the participants liked the task we used a VAS: 0 mm ‘do not like at all’ through 150 mm ‘like it a lot’ (Bevelander et al., 2011).

**Liking and familiarity of the confederate**

Liking and familiarity of the confederate has been found to influence food intake (Salvy et al., 2008) as well as purchase behavior (Sommer, Wynes, & Brinkley, 1992). To measure the extent to which the participants liked the confederate we used a VAS (0 mm ‘do not like at all’ through 150 mm ‘like him/her a lot’). Further, participants were asked whether they knew the confederate with answers ‘not at all’, ‘have seen him/her in the neighborhood/at school’, ‘I sometimes play with him/her’ or ‘he/she is a good friend.’ Next, they were asked to rate their familiarity with the confederate by use of VAS (0 mm ‘not at all’ through 150 mm ‘very good’).

**Analytical strategy**

First, we used regression analyses to investigate whether the purchase of extra food products would influence product matching or the amount of kcal per purchase condition. Second, we checked whether randomization across the various purchase conditions was successful using one-factor analyses of variance on grade, z-BMI, hunger, liking of the task, liking of and familiarity with the confederate, and the number of extra food products purchased. Third, and for our main research question with regard to social modeling behavior, we performed analyses of covariance to examine the main effects of purchase condition on the total caloric food purchase. In line with previous studies (Bevelander et al., 2011; Hermans et al., 2008), if significantly correlated with food purchase, hunger, purchase of extra food products, liking of the task, and liking of or familiarity with the confederate were entered in the model as covariates. Cohen’s $f^2$ effects size was calculated to assess the effect size over the three conditions (Cohen, 1988). Cohen’s $f^2$ is used for three or more groups and effect sizes 0.02, 0.15, and 0.35 are termed small, medium, and large, respectively. Pairwise comparisons with Bonferroni correction were carried out to measure the different significance levels between the three purchase conditions. Effect sizes between different conditions were calculated with Hedges' g, which takes into account sample size and adjusts to the overall effect size (Hedges & Olkin, 1985). Effect sizes 0.20, 0.50 and 0.80 are termed small, medium and large, respectively.

**Results**

**Descriptive data on food match**

We examined whether the amount and kind of the participant’s food products exactly matched the confederate’s food products. Only 20.2% of teenage girls purchased the same number of food products as the confederate, whereas 76.4% bought more than five food products. Only 3.4% of teenage girls did not match the purchased food products of the confederate at all and 12.4% purchased one similar food product. The majority of the participants made purchases that exactly matched two, three or four food products (29.2%, 27.0%, and 16.9%, respectively) of the confederate. 11.2% of teenage girls purchased the five food products identical to those of the confederate.

The two types of snacks matched the most (60.7%; 76.4%), followed by drinks (55.1%), the type of bread (46.1%) and the type of sandwich filling (37.1%). To rule out the possibility that product matching was caused by the amount of food products or the purchase condition, we carried out a multiple regression analysis predicting the food match by the number of purchased food products and purchase condition. The product match was not related to the amount of food products purchased ($b = .01$, $p = .23$), or to the purchase condition ($b = .13$, $p = .95$).

**Randomization checks**

We checked for differences between the purchase conditions on school grade, z-BMI, hunger, liking of the task, liking of and familiarity with the confederate, and the number of extra food products purchased. Table 1 summarizes the means and standard deviations (SDs) for all variables across each condition. No differences ($p > .10$) were found between the conditions which indicated that randomization was successful.

**Food purchase**

Pearson’s correlations among model variables are shown in Table 2. Hunger and the number of extra food products purchased were related to the total kcal food purchase and entered in the model as covariates.

**Main analysis**

The main focus of our study was to test whether the participant was affected by the food purchase of the confederate. There was a significant main effect of both covariates, hunger $F(1,84) = 10.65$, $p < .01$, Cohen’s $f^2 = 0.33$ and the amount of food products purchased $F(1,84) = 29.88$, $p < .001$, Cohen’s $f^2 = 0.57$, on the amount of kcal of the participant’s food purchase. Moreover, the results showed a significant main effect for purchase condition on the amount of kcal of the purchased food products $F(2,84) = 4.11$, $p = .02$, Cohen’s $f^2 = 0.26$. The model explained 42.2% of the variance in food purchase. Pairwise comparisons with Bonferroni correction revealed significant differences in food purchase between the low
but argued that there was no reason for social conformity because
did not find this effect in food choices among female adolescents
conform to choices made by other children who were present in
of choosing their preferred food, children altered their choice to
et al., 2011; Hermans et al., 2008, 2009; Salvy et al., 2007). In
peer in a way that is similar to eating behavior being affected by a
norm that has been established by peers (Herman & Polivy, 2005).
Purchase behavior in the supermarket seems to be affected by a
food choice is affected by a peer. Teenage girls follow their
experiment in a supermarket. Our findings showed that a girl’s
food purchases in teenage girls by conducting a social modeling
Discussion

Table 2
Randomization checks of variables across each purchase condition measured by condition.a

<table>
<thead>
<tr>
<th>Variables participants</th>
<th>Low kcal (n = 31)</th>
<th>Middle kcal (n = 30)</th>
<th>High kcal (n = 28)</th>
<th>Total (N = 89)</th>
<th>P valueb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade (5/6) (n/m)</td>
<td>18/13</td>
<td>15/15</td>
<td>17/11</td>
<td>50/39</td>
<td>.912</td>
</tr>
<tr>
<td>z-BMI</td>
<td>0.27 ± 0.82</td>
<td>−0.15 ± 1.27</td>
<td>0.09 ± 1.15</td>
<td>0.08 ± 1.09</td>
<td>.311</td>
</tr>
<tr>
<td>Liking of taskc</td>
<td>11.32 ± 1.76</td>
<td>11.80 ± 2.42</td>
<td>11.90 ± 1.97</td>
<td>11.68 ± 2.06</td>
<td>.495</td>
</tr>
<tr>
<td>Liking confederated</td>
<td>12.58 ± 2.45</td>
<td>13.27 ± 2.02</td>
<td>12.80 ± 2.73</td>
<td>12.86 ± 2.41</td>
<td>.512</td>
</tr>
<tr>
<td>Familiarity confedered</td>
<td>6.73 ± 5.05</td>
<td>6.96 ± 4.23</td>
<td>6.85 ± 4.86</td>
<td>6.89 ± 4.70</td>
<td>.982</td>
</tr>
<tr>
<td>Hunger</td>
<td>4.09 ± 3.41</td>
<td>3.06 ± 2.41</td>
<td>4.60 ± 4.42</td>
<td>3.98 ± 3.49</td>
<td>.221</td>
</tr>
<tr>
<td>Number of extra products</td>
<td>2.41 ± 0.92</td>
<td>3.03 ± 1.30</td>
<td>2.82 ± 1.57</td>
<td>2.44 ± 1.44</td>
<td>.169</td>
</tr>
<tr>
<td>Age confederates</td>
<td>11.05 ± 0.72</td>
<td>10.89 ± 0.76</td>
<td>10.95 ± 0.69</td>
<td>10.98 ± 0.72</td>
<td>.481</td>
</tr>
<tr>
<td>z-BMI confederates</td>
<td>0.22 ± 1.00</td>
<td>0.33 ± 1.63</td>
<td>0.17 ± 1.63</td>
<td>0.24 ± 1.38</td>
<td>.982</td>
</tr>
</tbody>
</table>

Table 2
Pearson’s correlations of model variables.

<table>
<thead>
<tr>
<th>Grade</th>
<th>z-BMI</th>
<th>Liking task</th>
<th>Liking confederate</th>
<th>Familiarity confederate</th>
<th>Hunger</th>
<th>No. of extra products</th>
<th>Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>z-BMI</td>
<td>−.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liking task</td>
<td>−.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liking confederate</td>
<td>−.02</td>
<td>.05</td>
<td>.23***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Familiarity confederate</td>
<td>−.08</td>
<td>−.03</td>
<td>.05</td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hunger</td>
<td>−.16</td>
<td>−.02</td>
<td>.00</td>
<td>−.17</td>
<td>.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of extra products</td>
<td>.11</td>
<td>.05</td>
<td>.08</td>
<td>−.14</td>
<td>−.18</td>
<td>.14</td>
<td>.14</td>
</tr>
<tr>
<td>Match</td>
<td>.10</td>
<td>.02</td>
<td>.06</td>
<td>.12</td>
<td>−.11</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>kcal food purchase</td>
<td>−.09</td>
<td>.07</td>
<td>−.03</td>
<td>−.15</td>
<td>−.15</td>
<td>.36**</td>
<td>.53**</td>
</tr>
</tbody>
</table>

*M = 945.88 kcal ± SEM 90.54 and high (M = 1314.52 kcal ± SEM 95.63) kcal-purchase condition (p = .019, g = .72), but not between the low and middle (M = 1046.30 kcal ± SEM 95.63) purchase condition (p = ns, g = .20), or the middle and high purchase condition (p = ns, g = .52). We also tested whether z-BMI and school grade affected the main findings but this was not the case.

Discussion

The present study was the first to investigate peer influence on food purchases in teenage girls by conducting a social modeling experiment in a supermarket. Our findings showed that a girl’s food choice is affected by a peer. Teenage girls follow their purchase pal in purchasing food products with high-kcal values compared to the girls shopping with a peer purchasing low-kcal products in the supermarket.

These findings provide new insights with regard to food shopping. Previous literature regarding social conformity or modeling (Herman et al., 2003) explained that in the presence of peers, people consume more or less due to social facilitation (de Castro & Brewer, 1991; Redd & de Castro, 1992) or impression management (Herman et al., 2003) than when eating alone. Peers serve as guides or evaluators as to how much is appropriate to eat in a given situation. Subsequently, people adhere to the social norm that has been established by peers (Herman & Polivy, 2005). Purchase behavior in the supermarket seems to be affected by a peer in a way that is similar to eating behavior being affected by a peer in previous studies, i.e., the presence of peers facilitated the amount of caloric intake in children and adolescents (Bevelander et al., 2011; Herrmans et al., 2008, 2009; Salvy et al., 2007). In addition, a study on food selection in children showed that instead of choosing their preferred food, children altered their choice to conform to choices made by other children who were present in the same room (Birch, 1980). Conversely, Pliner and Mann (2004) did not find this effect in food choices among female adolescents but argued that there was no reason for social conformity because they provided choice information from non-existent remote confederates instead of real confederates. In relation to shopping behavior, Sommer, Wynes, and Brinkley (1992) referred to social facilitation concerning the increased amount of products that had been purchased in the presence of a peer. Other studies also have shown that people conform to the opinion or choices of others with regard to product evaluations and brand choice (Burnkrant & Cousineau, 1975; Childers & Rao, 1992). The current study showed that the presence of peers during shopping affects the caloric value of product purchases as well, which had never been tested before. This might imply that teenage girls are easier influenced to purchase less healthy food products compared to low or middle caloric food choices. Perhaps this is due to our sample in which teenage girls were not inclined to watch their caloric food purchases. This might be different for girls who are on a diet or overweight teenagers. Further research is needed to investigate whether peers influence individuals to shop for (un)healthier food than when they shop alone. This might provide implications for the use of shopping pals (e.g., in weight loss interventions). We also encourage the investigation of individual characteristics such as weight status, self-esteem, impulsiveness, or dieting status to demonstrate whether they affect the extent to which individuals follow a peer in consumer behavior.

Furthermore, our study showed that an increased state of hunger in young teenage girls resulted in the purchase of higher total caloric amounts, regardless of the purchase pal’s behavior or the amount of food products purchased. This supports the common assumption that people should avoid shopping when hungry to prevent purchasing more than they planned. A study by Nederkoorn, Guerrieri, Havermans, Roefs, and Jansen (2009), in which adolescents were asked to shop in a web-based virtual supermarket, also showed that hungry participants were vulnerable to purchasing high-calorie snack foods. In addition, other studies that examined the relation between food deprivation and food purchasing behavior in adolescents and adults by means of shopping expenditures or number of food items (Mela, Aaron, &
In conclusion, this study provided more insight into the effect of peers on food purchases and the role of hunger during shopping in teenage girls. Peers might facilitate the purchase of unhealthy food products. These findings might be of value for government, health, and school policies (e.g., by directing health education to peer groups at schools). In addition, supermarkets in close proximity to schools could be encouraged to reconsider their allocation of snack foods. For example, a community project of a local authority in the Netherlands, in which several health institutions and an insurance company are involved, made agreements with local supermarkets to put fruit and vegetable snacks at their cash registers instead of chocolate bars and other snack foods (GezondGewichtUtrecht, 2011). Hungry individuals might profit from this as well, although, it might be wise not to go shopping while hungry.

References
Mangleburg, T. F., Doney, P. M., & Bristol, T. (2004). Shopping with friends and teens’ company are involved, made agreements with local supermarkets to put fruit and vegetable snacks at their cash registers instead of chocolate bars and other snack foods (GezondGewichtUtrecht, 2011). Hungry individuals might profit from this as well, although, it might be wise not to go shopping while hungry.

A few limitations must be considered in interpreting the findings of this study. First, this study did neither take into account the nutritive value of food such as sugar, fat or sodium content, nor did it focus on factors as convenience or taste. The study conditions were classified by low, middle and high caloric food conditions only. Although the food products in the high caloric food condition might be labeled as ‘unhealthy’, the difference between the low and middle condition is less distinct. Therefore, a generalization to ‘healthy’ or ‘unhealthy’ food products should be avoided. Future research is advised to investigate factors as convenience, taste or focus on nutritive food values. Second, this study included girls only. Although boys engage less in actual food shopping behavior (Kraak & Pelletier, 1998), we recommend investigating food purchase behavior in boys as well. A study of gender roles and consumption stereotypes found that unhealthy food products were seen as more masculine whereas healthy food products were associated with femininity (Vartanian, Herman, & Polivy, 2007). This might indicate that boys would be more affected by peers who buy high-caloric food products. As far as we know, food shopping in teenage boys has not been investigated. Third, this study was conducted in the Netherlands where food shopping in supermarkets is common whereas shopping in convenience stores or corner stores is uncommon due to their scarcity compared to e.g., the United States. Furthermore, Dutch schools do not have school cafeterias as they have in the U.S. (Kubik, Lytle, Hannan, Perry, & Story, 2003). Previous studies have shown that food choices made by peer leaders in school cafeterias had effect in making healthier food choices in the U.S. (Birnbaum, Lytle, Story, Perry, & Murray, 2002). Nevertheless, in the Netherlands, children bring their own lunch, buy their lunch in supermarkets nearby the school or spend their lunch break at home. Therefore, there might be limitations to comparing these findings across cultures. It would be interesting to replicate this study in school cafeterias or convenience stores in the U.S. Fourth, some girls were accompanied to the supermarket by one of their parents/guardians. Family members have been found to foster a sense of responsibility in comparison to peers (Borges, Chebat, & Babin, 2010). This sense of responsibility might have restricted the food purchase of the girls, although we prevented the parents/guardians from going into the supermarket while the girls were shopping. Also, we informed the girls that all purchase information would be kept confidential. Finally, the girls were paired with an unfamiliar peer whereas they often shop with a group of friends (Toetelian & Gaedeke, 1992). Further research is needed to examine the effects of peer group norms, friendship cliques, and (non-) verbal communication that could restrict or encourage shopping behavior in a peer group. In addition, the girls did not actually consume the purchased products. A longitudinal study on shopping behavior in friends in conjunction with a study of their weight would give more information about peer influence and food consumption.
Appendix A. Food purchase (kcal) of confederate by condition

<table>
<thead>
<tr>
<th></th>
<th>Low kcal-purchase</th>
<th>Average kcal-purchase</th>
<th>High kcal-purchase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lunch (2 products)</td>
<td>193</td>
<td>374</td>
<td>490</td>
</tr>
<tr>
<td>Drink (1 product)</td>
<td>0</td>
<td>190</td>
<td>117</td>
</tr>
<tr>
<td>Snacks (2 products)</td>
<td>105</td>
<td>235</td>
<td>1458</td>
</tr>
<tr>
<td>Total</td>
<td>298</td>
<td>819</td>
<td>2065</td>
</tr>
</tbody>
</table>

Low kcal condition: rice crackers, marmalade light, tangerins, gingerbread, water;
middle kcal condition: wheat bread rolls, chocolate sprinkles, yoghurt drink, banana, raisin biscuits;
high kcal condition: croissants, cheese, cola, chips, almond paste cake.