



Research report

Cool and independent or foolish and undisciplined? Adolescents' prototypes of (un)healthy eaters and their association with eating behaviour

Joanne H. Gerrits^a, Denise T.D. de Ridder^{a,*}, John B.F. de Wit^a, Roeline G. Kuijer^b^a Department of Clinical and Health Psychology, Utrecht University, P.O. Box 80140, 3508 TC Utrecht, The Netherlands^b University of Canterbury, New Zealand

ARTICLE INFO

Article history:

Received 25 March 2009

Received in revised form 12 August 2009

Accepted 19 August 2009

Keywords:

Prototypes

Eating behaviour

Peers

Adolescents

Social image

ABSTRACT

Purpose: The Prototype/Willingness model states that adolescents' willingness to engage in health-related behaviours is determined by the favourability of prototypes of persons engaging in this behaviour. The objective of the present study is to systematically investigate the content and evaluation of adolescents' prototypes of (un)healthy eaters and examine their associations with eating behaviour. **Methods:** Four studies (including a pilot study) were conducted that addressed the salience ($N = 79$), the characteristics ($N = 287$), and the evaluation ($N = 167$) of eater prototypes, and their association with eating behaviour ($N = 97$), respectively. **Results:** These studies revealed that (1) adolescents hold salient and distinct images of typical (un)healthy eaters; (2) the healthy eater prototype mostly consists of positive traits whereas the unhealthy eater prototype reflects mostly negative traits; (3) eater-specific prototypes are distinct from generic risk prototypes and unrelated to age, bodyweight, and social desirability; and (4) unhealthy eater prototypes are significantly associated with unhealthy eating behaviour. **Conclusion:** Adolescents hold relatively unfavourable social images of unhealthy eaters and relatively favourable images of healthy eaters. Only unhealthy eater prototypes are associated with actual food consumption, suggesting that addressing unhealthy eater prototypes may be an important and novel ingredient of interventions aimed at changing adolescents' unhealthy eating habits.

© 2009 Elsevier Ltd. All rights reserved.

There is a worldwide increase in unhealthy eating behaviours amongst adolescents (Bauer, Larson, Nelson, Story, & Neumark-Sztainer, 2009; Larson, Neumark-Sztainer, Hannan, & Story, 2007). Poor eating habits established during adolescence can have long-term costs for health in terms of obesity, growth problems, bone disease, and increased risk of heart disease (Lytle et al., 2003; Wahl, 1999). As most adolescents have good knowledge of what unhealthy eating entails (e.g., high-fat intake, low fruit and vegetable intake, low fibre intake, skipping breakfast, frequent snacking; Croll, Neumark-Sztainer, & Story, 2001; Kooten, De Ridder, Vollebergh, & Dorsselaer, 2007; Niemeier, Raynor, Lloyd-Richardson, Rogers, and Wing, 2006; Sebastian, Cleveland, & Goldman, 2008; Vereecken, de Henauw, & Maes, 2005) and are also aware of the risks associated with unhealthy eating (Croll et al., 2001), the important issue is to understand why they engage in this behaviour.

Of particular interest, and the focus of the present study, is how adolescents perceive their peers who engage in unhealthy or, conversely, healthy eating behaviour. Are unhealthy eaters seen as cool and independent or rather as foolish and undisciplined? These

social perceptions are important because they can guide adolescents' own behaviour. This idea has been conceptualized in the Prototype/Willingness model proposed by Gibbons and Gerrard (1995). Social acceptance is of great importance to adolescents and their engagement in potentially risky behaviours may be thought of as a reaction to social circumstances rather than a planned event. The main assumption of the Prototype/Willingness model is that adolescents' behaviour is influenced by their willingness to engage in potentially risky acts when the opportunity arises. Willingness, in turn, is considered to be influenced by the favourability of adolescents' prototypes of persons who engage in this behaviour. A prototype refers to "an individual's image of the typical person who belongs to a group or engages in a certain behaviour" (Ouellette, Hessling, Gibbons, Reis-Bergan, & Gerrard, 2005, p. 610). The Prototype/Willingness model has been used to explain various risky and protective health-related behaviours amongst adolescents, such as drinking alcohol (Gerrard et al., 2002; Gibbons & Gerrard, 1995), smoking (Gibbons, Gerrard, Blanton, & Russell, 1998), engaging in safe sex (Blanton et al., 2001; Gibbons, Gerrard, & Boney McCoy, 1995), and exercising (Ouellette et al., 2005).

Thus far, empirical studies on the role of prototypes in adolescent eating behaviour are lacking. However, as eating behaviour is often a social event peer influence may be an important factor in explaining

* Corresponding author.

E-mail address: d.t.d.deridder@uu.nl (Denise T.D. de Ridder).

adolescents' food choices. Also, this influence may be indirect rather than direct (Story, Neumark-Sztainer, & French, 2002), emphasizing the potential importance of behavioural prototypes. For instance, if adolescents hold negative judgments about peers who eat unhealthy foods, this may reduce their tendency to eat unhealthily because of the possibility that they will be perceived in a similar negative manner when they eat unhealthy themselves. In a similar vein, holding positive judgments about people who eat healthy foods could promote healthy eating.

Prototypes are assessed by asking participants to evaluate a typical person their age who engages in the behaviour under study (e.g., who smokes), using a series of adjectives depicting personal characteristics. In research using the Prototype/Willingness model, the content of these adjectives emphasizes the favourability of health-related behaviours. This measure has been employed with different types of behaviours (Blanton, Gibbons, Gerrard, Conger, & Smith, 1997; Gerrard et al., 2002; Gibbons et al., 1995, 1998; Ouellette, Gerrard, Gibbons, & Reis-Bergan, 1999; Thornton, Gibbons, & Gerrard, 2002), suggesting that it could be used as a generic measure for behavioural prototypes. More recently, however, prototypes have also been assessed by using measures developed especially for the behaviour under study (Spijkerman, Van Den Eijnden, & Engels, 2005; Spijkerman, Van Den Eijnden, Vitale, & Engels, 2004). Accordingly, we suggest that when examining eater prototypes it is important to focus on content that is specifically related to eating behaviour.

Although adolescents experiment with food choices as they would do with other behaviours (Cohen, Brownell, & Felix, 1990), eating behaviour is only weakly related to other potentially risky health behaviours performed by adolescents (Kooten et al., 2007). Subsequently, the content of the eater prototypes that adolescents hold may differ substantially from the generic risk prototype. Therefore, the objective of this study is to systematically explore the characteristics that are specifically associated with typical (un)healthy eaters and to examine the evaluation of these eater prototypes.

Four studies (including a pilot study) were conducted to examine the content and evaluation of the prototypes of (un)healthy eaters that adolescents hold. Each study was conducted in a new sample. Adolescents were recruited from different high schools, situated in both urban and rural areas of The Netherlands, and for each study the sample included both male and female adolescents from different school levels and age groups.

After having provided informed consent, participants filled out a self-report questionnaire in the classroom setting (pilot study, studies 1 and 2) or via a secure website (study 3). The pilot study was performed to determine the salience of eater images in comparison to social images of other health risk behaviours. Study 1 was designed to examine the content of eater prototypes and consisted of two phases. One sample of participants was asked to freely list characteristics of a healthy or unhealthy eater their age. Another sample subsequently rated these characteristics on their relevance for the description of the typical (un)healthy eater. Study 2 aimed to examine adolescents' evaluations of (un)healthy eater prototypes and to determine associations of prototype evaluations with evaluator characteristics (such as age, gender, and weight status). Study 3 was designed to examine the association of eater prototypes with actual food consumption. At the start of each study, participants were briefly explained about the concept of (un)healthy eating in terms of widely available nutritional guidelines with 'healthy eating' referring to, for example, sufficient fruit, vegetables, and fibres and 'unhealthy eating' referring to, for example, fatty foods and soft drinks. It was also explained that dieting in terms of rigorously restricting food intake was not equivalent to a healthy eating pattern.

Pilot study

For social images to have an impact on behaviour, these images must be clear and salient. Because no previous studies have examined the social images that adolescents hold of healthy and unhealthy eaters, a pilot study was conducted to examine this assumption. Following Ouellette et al. (2005), a sample of 79 adolescents (59 female, M age = 16.2 years, SD = 1.50) were asked to indicate how vivid and clear their image was of someone their age who (1) exercises frequently, (2) does not exercise, (3) smokes, (4) does not smoke, (5) drinks alcohol, (6) does not drink alcohol, (7) eats healthily, and (8) eats unhealthily (presented in random order) on a 7-point scale (1 = *not at all clear or vivid* to 7 = *very clear or vivid*). Results showed that adolescents had a fairly vivid image of both the healthy eater (M = 4.63) and the unhealthy eater (M = 4.18) with average scores above the midpoint of the scale. Of the four healthy images, the exerciser image was the only image that was rated as more vivid than the healthy eater image (p < .05). The other healthy images did not differ significantly from one another. Of the four unhealthy images, the smoker image was the only image that was rated as more vivid than the unhealthy eater image (p < .05). The other unhealthy images did not significantly differ from one another. Thus, adolescents hold a reasonably vivid image of a typical healthy and unhealthy eater and the vividness of these images is comparable to that of social images of other health-related behaviours.

Study 1: content of eater prototypes

The purpose of this study was to examine the content of eater prototypes. The study consisted of two phases. Based on a method described by Fehr (1988), one sample of adolescents was asked to freely list all the characteristics that, according to them, described the typical healthy or unhealthy eater their age. A second sample of adolescents was then asked to evaluate these characteristics in terms of their relevance for the description of a typical (un)healthy eater.

Method

Seventy-seven adolescents (35 female) recruited at one high school, aged 15–18 years old (M = 16.3 years, SD = .75) participated in phase 1 of the study. A new sample of 210 (100 female) adolescents recruited at two other high schools, aged 15–19 years old (M = 16.3 years, SD = .95), participated in phase 2 of the study.

All participants first read the following instruction: "When trying to describe someone, people generally use characteristics of that person. For example, if you describe someone your age who always gets good marks, you might say that this person is *smart*, *serious* and *bookish*. Now, if we would ask you to describe a healthy (an unhealthy) eater your age, which characteristics would you use?" Half of the participants who participated in phase 1 of the study were then asked to freely list as many characteristics of a healthy eater as they could think of. The other half was asked to do the same for an unhealthy eater.

After reading the instruction, participants in phase 2 of the study were given a list of 50 characteristics derived from phase 1 of the study. Half of the participants were asked to rate these characteristics on their descriptiveness for a typical healthy eater their age (ranging from 1 = *not at all* to 7 = *very much so*), whilst the other half was asked to do the same for an unhealthy eater.

Results and discussion

In phase 1 of the study, the healthy eater yielded 105 different responses whereas the unhealthy eater yielded 87 different

Table 1
Mean scores (and SD) for the items with highest and lowest applicability rating.

	Healthy eater prototype (N = 106)		Unhealthy eater prototype (N = 104)	
	M	SD	M	SD
Thinks body is important	5.85	1.25	Fat	5.06 1.33
Wise	5.48	1.32	Foolish	5.01 1.61
Self-confident	5.40	1.28	Lazy	4.77 1.50
Responsible	5.04	1.50	Chubby	4.56 1.60
Sporty	5.00	1.47	Sociable	4.50 1.28
Active	4.94	1.35	Not sporty	4.36 1.63
Disciplined	4.90	1.36	Unkempt	4.30 1.65
Meticulous	4.70	1.51	Insecure	4.28 1.62
Slim	4.70	1.47	Dissatisfied	3.87 1.69
Focused on future	4.57	1.66	Compliant	3.81 1.35

responses. After removing synonyms and responses unrelated to characteristics of (un)healthy eaters (such as descriptions of foods and eating practices) a list of 50 characteristics, combined for the healthy and the unhealthy eater, remained.

In phase 2 of the study, mean descriptiveness scores were obtained for all characteristics. Participants questioned about a healthy eater rated ‘foolish’ as least descriptive ($M = 2.04, SD = 1.23$), whereas ‘thinks body is important’ was rated as most descriptive ($M = 5.85, SD = 1.25$). Participants questioned about an unhealthy eater judged ‘thinks body is important’ as the least descriptive characteristic ($M = 1.99, SD = 1.02$) and ‘fat’ as most characteristic for an unhealthy eater ($M = 5.06, SD = 1.33$). The items that were rated as being most descriptive were considered to be the most relevant for the assessment of the content of eater prototypes. The 10 items with the highest means on either image are shown in Table 1 and illustrate that the characteristics considered most relevant for the unhealthy eater were mostly negative, whilst the most relevant descriptors of the healthy eater were predominantly positive. We found no evidence for a gender effect in the evaluation of characteristics that could be considered as typical male or female issues such as ‘fat’ or ‘slim’. In conclusion, study 1 provides a listing of characteristics that are considered relevant by adolescents for describing their peers who eat (un)healthily.

Study 2: evaluation of eater prototypes

A second study was undertaken again in a new sample of adolescents to determine how they evaluate eater prototypes. The

generic prototype scale (Gibbons et al., 1995) was used as a comparison measure of the behaviour-specific instrument. In addition, we examined whether evaluations of eater prototypes were related to social desirability, gender, age, and weight status of the evaluator.

Method

Participants were 167 adolescents (89 female) from two different high schools. Adolescents’ age ranged from 14 to 19 years with a mean age of 16.5 years ($SD = 1.00$).

Eater prototypes

Since about half of the characteristics found in study 1 were antonyms, one set of bipolar items was created to measure both healthy and unhealthy eater prototypes. Whilst for some items the antonym was already present in the original 20 items (e.g., *insecure* and *self-confident*), antonyms were added for the remaining items. The antonyms for *fat* (*-thin*) and *slim* (*-chubby*) resulted in two somewhat similar bipolar items that initially were both included. This resulted in 15 bipolar item pairs (see Table 2). Participants were given a brief instruction (see study 1) and then asked to evaluate a typical (un)healthy eater their age using the 15 items. Answers could be given on a 7-point scale (1 = *not at all* to 7 = *extremely*).

Generic prototype measure

Participants were asked to evaluate a typical (un)healthy eater their age using the 12 adjectives (smart, confused, popular, immature, cool, self-confident, independent, careless, unattractive, dull, considerate, self-centred) of the Gibbons and Gerrard prototype measure (Gibbons et al., 1998). Adjectives were rated on a 7-point scale ranging from 1 = *not at all* to 7 = *extremely*. The reliability was .72 for the generic prototype measure applied to the healthy eater and .69 when applied to the unhealthy eater.

Social desirability

To examine whether social desirable responding influenced participants’ ratings of eater images, the Marlowe–Crowne Social Desirability Scale was employed (Crowne & Marlowe, 1960). Participants completed 14 items using a *true/false* response scale. The reliability of the scale was adequate ($\alpha = .68$).

Table 2
Mean scores for (deleted) items in the eater prototypes measure.

No.		Unhealthy eater prototype		Healthy eater prototype		t-Values
		M	SD	M	SD	
1	Foolish–wise	3.00	1.36	5.28*	1.40	13.10
2	Irresponsible–responsible	3.13	1.30	5.69*	1.10	16.95
3	Undisciplined–disciplined	3.05	1.24	5.41*	1.23	14.82
4	Focused on present–focused on future	2.88	1.44	5.02*	1.36	12.73
5	Dissatisfied–satisfied	3.78	1.41	4.96*	1.31	7.19
6	Insecure–self-confident	3.49	1.27	4.95*	1.38	9.36
7	Sloppy–Meticulous	3.34	1.17	4.74*	1.18	9.95
8	Unkempt–well-groomed	3.39	1.21	5.30*	1.21	12.78
9	Chubby–slim	2.74	1.25	5.10*	1.23	15.05
10	Thinks body is unimportant–important	3.13	1.50	5.71*	1.45	15.34
11	Not sporty–sporty	2.82	1.15	5.44*	1.19	17.06
12	Lazy–active	2.86	1.35	5.50*	1.24	16.22
<i>Deleted from scale</i>						
13	Unsociable–sociable	4.55	1.24	4.49	1.23	–.25
14	Stubborn–compliant	3.96	1.64	4.17	1.27	1.30
15	Fat–thin	2.75	1.26	4.92*	1.07	14.74

* Means differ significantly at $p < .001$.

Self-report body mass index

Participants were asked to report their weight in kilograms and their height in centimetres to calculate Body Mass Index (weight/height × height), where age and sex specific cut-off points were used (Cole, Bellizzi, Flegal, & Dietz, 2000). Eleven percent of the adolescents were found to be overweight, which is in accordance with the prevalence of overweight in Dutch adolescents (Lobstein & Frelut, 2003; Schokker, Visscher, Nooyens, Van Baak, & Seidell, 2006).

Results and discussion

Eater prototypes

The internal consistency of the 15 bipolar items was good for ratings of the unhealthy eater prototype (Cronbach's $\alpha = .81$). However, the corrected item-total correlations were very low for the items *stubborn-compliant* and *unsociable-sociable* (.18 and .12, respectively). Measurement of the healthy eater prototype equally showed good internal consistency (Cronbach's $\alpha = .84$), but also revealed low corrected item-total correlations for these two items. Furthermore, the mean scores of the items *stubborn-complaint* and *unsociable-sociable* did not differentiate between healthy and unhealthy eaters (see Table 2), and it was decided to remove these two items from the subsequent analyses. Mean scores of the items *fat-thin* and *chubby-slim* were similar for the healthy as well as unhealthy eater prototype and the item *fat-thin* was eliminated because the item *chubby-slim* showed greater variance. Alpha coefficients for the unhealthy and healthy eater prototype remained adequate when these three items were removed ($\alpha = .81$ and $\alpha = .84$, respectively). Thus, 12 items were used to assess (un)healthy eater prototypes and all items differentiated significantly between images of healthy and unhealthy eaters.

Evaluation of eater prototypes and generic prototypes

Table 2 shows that participants rated the healthy eater as significantly different from the unhealthy eater; the summary scores of these items differed significantly, $t(166) = 20.89$, $p < .001$. Whilst the healthy eater was rated fairly positively, the unhealthy eater image yielded a relatively negative evaluation. Moreover, the evaluation of the healthy eater prototype ($M = 5.25$, $SD = .77$) was considerably more positive than the evaluation by the generic prototype measure applied to healthy eaters ($M = 4.71$, $SD = .70$), $t(166) = -9.66$, $p < .001$. In a similar vein, the evaluation of the unhealthy eater prototype ($M = 3.13$, $SD = .74$) was more negative than the evaluation by the generic prototype measure applied to unhealthy eaters ($M = 3.88$, $SD = .64$), $t(166) = 12.47$, $p < .001$.

Associations with gender, age and BMI

The literature shows that females are more concerned about their weight and body image (e.g., Conner, Johnson, & Grogan, 2004) and this may result in more positive ratings of healthy eater images and more negative ratings of unhealthy eater images by women compared to men. Significant gender differences were found in ratings of the healthy eater prototype. An independent samples *t*-test showed that female adolescents had a slightly more positive image of the healthy eater ($M = 5.40$, $SD = .71$) than males ($M = 5.10$, $SD = .74$); $t(165) = -2.51$, $p < .05$. No significant difference in the evaluation of the unhealthy eater prototype was found between males ($M = 3.22$, $SD = .82$) and females ($M = 3.05$, $SD = .62$); $t(165) = 1.46$, *ns*). There also was no significant association of age with the evaluation of a typical healthy ($r = -.01$), or unhealthy eater ($r = -.03$). Adolescents' ratings of eater images were also not associated with their self-reported BMI (healthy eater image; $r = .04$, unhealthy eater image; $r = -.05$), regardless whether it concerned

male or female adolescents. For socially desirable responding ($M = .58$, $SD = .21$) also no significant correlations were found with the healthy eater prototype ($r = .00$) or the unhealthy eater prototype ($r = -.01$). In conclusion, these findings demonstrate that the typical healthy eater is assigned with mostly positive traits, with women differentiating more than men. The typical unhealthy eater is evaluated as having more negative traits and no gender difference was found in this evaluation. Eater-specific evaluations are distinct from evaluations assessed by generic prototypes and unrelated to age, BMI, and social desirability.

Study 3: eater prototypes and eating behaviour

A fourth study was conducted in a further sample of adolescents to determine how prototypes of healthy and unhealthy eaters were related to actual eating behaviours.

Method

Participants

Initially 152 participants were recruited from three different high schools. Before the start of the study two adolescents were not granted permission by their parents to participate and another 14 adolescents withdrew before the start of the study. This resulted in 136 participants who filled out the first questionnaire online and subsequently kept an electronic diary about their eating behaviour (see procedure for details). However, 39 of the participants were excluded from data-analysis because of incomplete data, related to either a high level of incomplete entries (24), illness (4), technical difficulties (10) or family circumstances (1). This resulted in a final sample of 97 participants (64 female) whose age ranged from 14 to 19 years with a mean age of 15.9 years ($SD = 1.15$). Their average self-reported BMI corrected for age and gender was 20.40 ($SD = 2.51$).

Procedure

The study was presented as a study about adolescent lifestyles. Participants completed an online questionnaire about, amongst other scales, their perceptions of healthy and unhealthy eaters. One week after filling out this questionnaire, they received an electronic diary (Palm Tungsten E2) with detailed instructions provided in person. During six consecutive days participants carried the electronic diary with them and reported their eating behaviour five times a day when a randomly programmed alarm went off (between 8 am and 9.45 pm). The diaries were programmed in such a way that alarms would not ring during class. Data were only used when complete data for a minimum of four days were available.

Measures

Eater Prototypes were measured by the 12 bipolar items used in study 2 (see Table 2).

Eating behaviour. Every time the alarm went off, participants were asked whether or not they had consumed since the previous diary entry food from a list of 24 items. If they had, they were asked how much they consumed to assess portion size (e.g., number of cookies, handful of crisps). The list of 24 food items consisted of healthy foods (12 items, including bread, fruits and vegetables) and unhealthy foods (12 items, including soft drinks, candy, crisps, snack foods), which were derived from the guidelines of the Dutch Nutrition Council. In addition, they were asked whether they had consumed a regular meal (breakfast, lunch, dinner). The collected data were used to compute the average amount of unhealthy and healthy food items, in general and the average amount of fatty foods, fruits and vegetables, and soft drinks in particular. The coding system was validated by a professional dietician. A similar

Table 3
Associations of (un)healthy eater prototypes with eating behaviour.

	Healthy eater prototype	Unhealthy eater prototype
Average amount of overall healthy foods	-.01	-.02
Average amount of fruit and vegetables	.04	-.14
Average amount of unhealthy foods	-.10	.32***
Average amount of fatty foods	-.15	.24**
Average amount of soft drinks	.04	.30**

** $p < .01$.

*** $p < .001$.

coding system has been used in a study by Verplanken and Faes (1999).

Results and discussion

Similar to the results of study 2, the evaluation of the healthy eater prototype ($M = 5.26$, $SD = .65$) was more favourable than the evaluation of the unhealthy eater prototype ($M = 3.15$, $SD = .82$), $t(96) = 17.07$, $p < .000$. Somewhat in contrast to the results of study 2, an independent samples t -test showed that female adolescents had a similar positive image of the healthy eater ($M = 5.30$, $SD = .62$) as males ($M = 5.25$, $SD = .72$); $t(95) = .35$, ns; although the reported means were fairly similar to those observed in study 2. A marginally significant difference in the evaluation of the unhealthy eater prototype was found between males ($M = 3.36$, $SD = .90$) and females ($M = 3.00$, $SD = .76$); $t(95) = 1.88$, $p = .064$. Overall, the adolescents in this sample consumed relatively few healthy foods and a relatively large amount of unhealthy food products. Applying the criteria of the Dutch Nutrition Council for adolescents only 13% met the criteria for adequate fruit and vegetable consumption whereas 78% consumed more than three portions of snack foods and/or high-caloric foods on a daily basis. As Table 3 shows, favourable prototypes of healthy eaters were unrelated to actual consumption of both healthy and unhealthy foods (separate analyses for male and female adolescents showed similar results). In contrast, favourable images of unhealthy eaters were associated with a higher consumption of unhealthy foods in general and fatty foods and soft drinks in particular. Gender-specific analyses showed that girls with favourable images of unhealthy eaters were more inclined to consume fatty foods than boys ($r = .28$, $p < .05$ for girls and $r = .09$, ns for boys) whereas boys reported a greater tendency to engage in soft drink consumption ($r = .37$, $p < .05$ for boys and $r = .13$, ns for girls). The consumption of healthy foods was unrelated to evaluations of unhealthy eater prototypes. Overall, then, these findings demonstrate that evaluations of unhealthy (but not healthy) eater prototypes are associated with adolescents' food choices on a daily basis insofar that more favourable unhealthy prototypes make them more likely to actually engage in the consumption of unhealthy foods.

General discussion

The purpose of this series of studies was to systematically examine the content and evaluation of healthy and unhealthy eater prototypes and to provide initial data that link these prototypes to adolescents' eating behaviour. Results show that adolescents can picture a typical healthy or unhealthy eater their age when questioned. Also, eater images are similar in vividness to social images of other health risk behaviours and to images of health-enhancing behaviours. When examined in detail, eater prototypes reveal a rather negative representation of a typical unhealthy eater and a very positive representation of a healthy eater, whilst finding no evidence for responding in a socially desirable manner.

These findings are similar to what has been found in previous research on eater images of adults and also show that people are more likely to assign negative characteristics to persons who eat unhealthily (Barker, Tandy, & Stookey, 1999; Fries & Croyle, 1993; Oakes & Slotterback, 2005; Stein & Nemeroff, 1995). The predominantly negative evaluation of the unhealthy eater prototype is also in accordance with findings from research conducted on other prototypes, that found that participants had a more negative image of people who engaged in unsafe sex than of people who engaged in safe sex (Blanton et al., 2001). Also, evaluations of the typical drinker were significantly less favourable than those of the typical non-drinker (Gerrard et al., 2002). However, the specific characteristics that were associated with healthy and unhealthy eaters in the present study were different in content from the Gibbons and Gerrard generic measure. Characteristics such as being cool, popular or immature do not seem to be relevant in describing (un)healthy eaters. Rather, having (or lacking) self-control (being responsible, disciplined, and wise) is important in shaping these images. Furthermore, there is more emphasis on physical appearance (being slim and well-groomed) and on being active and sporty. Interestingly, the greater emphasis on physical appearance (compared with generic prototype measures) does not imply that the contents of eater prototypes is entirely determined by body size and/or appearance. In a recent study (Gerrits et al., in press) we examined the effects of body size and eating style separately and found that eating style predicts peer evaluations independently from body size, stressing the importance of the influence of actual behaviour in evaluations of (un)healthy eating peers and suggesting that adolescents are less tolerant of unhealthy eating behaviour in terms of type of foods and the amount of intake. Interestingly, the latter study also demonstrated that the effect of body size on peer evaluation was mostly qualified by boys (Gerrits et al., in press). Girls made no distinction in the evaluation of normal weight and overweight girls and appear to be able to distinguish between eating behaviour and body size, at least when they evaluate others. However, prototypes that are specifically related to body size (fat vs. thin) – but not to eating behaviour – have been shown to predict dieting behaviour for the purpose of weight loss (Dalley & Buunk, 2009). Our study also shows that the eater-specific prototype differentiated more between healthy and unhealthy eaters than the generic measure of behavioural prototypes. Of particular interest is the finding that more favourable images of unhealthy eaters were associated with higher consumption of unhealthy foods in general and soft drinks and fatty foods in particular. These findings are in line with the main assumption of the Prototype/Willingness model (Gibbons & Gerrard, 1995) that favourable prototypes of health risk behaviour increase adolescents' willingness to engage in a potentially risky behaviour when the opportunity arises. Indeed, it has been argued that negative, unhealthy images have a greater impact on adolescents' behaviour because they are more salient and more vivid compared to more positive, healthy images (Blanton et al., 2001). At any rate, it is intriguing that peers with an unhealthy eating pattern are evaluated so negatively, whilst it has been demonstrated that it is exactly this type of behaviour that is increasingly put into practice by adolescents (Wahl, 1999; Zizza, Siega-Riz, & Popkin, 2001). Favourable images of healthy eaters were not related to higher consumption of healthy foods, however, and it has been questioned whether positive images of adolescents engaging in protective health behaviour even exist (Gibbons & Gerrard, 1997). Nevertheless, recent studies have suggested that healthy behaviour prototypes can inhibit risky behaviour through a more contemplative route (Gerrard et al., 2002) and found that positive evaluations of healthy prototypes are related to stronger intentions to perform these healthy behaviours (Hukkelberg & Dykstra, 2009; Ravis, Sheeran, & Armitage, 2006). The findings of

the present study do not lend support to this assumption as the very positive evaluations of healthy eaters found in this study were unrelated to actual food practices. Therefore, it is questionable whether positive images of healthy eaters are relevant for developing interventions that promote healthy food practices amongst adolescents. It appears that addressing peer norms regarding whether it is appropriate or wise to engage in an unhealthy eating patterns holds greater promise for changing adolescents' unhealthy eating styles. In any case, avoiding unhealthy eating may be of greater relevance for preventing weight gain than promoting healthy eating. Notwithstanding this, it may be relevant to examine the extent to which adolescents are more concerned with avoiding an unfavourable identity than with approaching a favourable identity. Future research should examine in what way these peer norms can be addressed in healthy eating campaigns.

Several limitations of the present studies should be noted. Although great care was taken to include adolescents who differed in age, educational level, gender and place of residence, studies were conducted in convenience samples. As the majority of adolescents in this study had healthy bodyweights, we cannot be certain whether adolescents with overweight would make more positive judgments of unhealthy eaters and/or more negative judgements of healthy eaters. It has been suggested that persons who eat a high-fat diet selected more positive characteristics to describe high-fat consumers, whilst respondents who eat low-fat diets used only negative characteristics (Barker et al., 1999). The present study suggests that this may not necessarily be the case. The majority of adolescents demonstrated poor eating habits, but still they were overall rather positive about healthy eaters and fairly negative about unhealthy eaters. Future research should further examine whether evaluations of eater prototypes depend on bodyweight and/or food habits of the evaluator when a greater range of bodyweight and/or food habits is taken into account and include expert independent/expert measurement of participants' Body Mass Index. Another limitation pertains to the concept of "(un)healthy eating". As previous studies indicated that adolescents have good knowledge of what (un)healthy eating entails, such as skipping breakfast and eating fatty food vs. eating regular meals and eating sufficient fruits and vegetables, we did not present the participants in our study with an elaborate definition of these concepts. However, it may be that adolescents have specific prototypes in mind when talking about certain types of unhealthy eating (e.g., skipping breakfast or eating too many junk foods) or healthy eating (e.g., eating enough fruits or watching your fibre intake). Future research should examine whether the types of (un)healthy foods matter in this respect.

Notwithstanding these limitations, the present study adds to the literature on behavioural prototypes by providing insight in the way adolescents perceive typical healthy and unhealthy eaters their age. Although the development of an eater-specific prototype measure for adolescents was not the primary objective of this study, items may be used to explore the evaluation of eater prototypes in other populations. For adolescents eater prototypes are salient and the instrument we developed clearly distinguished between healthy and unhealthy eater images. In addition, the initial evidence we have collected suggest that our measure of (un)healthy eaters provides a valuable tool for understanding the role of eater prototypes in actual eating behaviour and opens new avenues for behaviour change of unhealthy eating patterns and prevention of weight gain.

References

Barker, M. E., Tandy, M., & Stookey, J. D. (1999). How are consumers of low-fat and high-fat diets perceived by those with lower and higher fat intake? *Appetite*, 33, 309–317.

Bauer, K. W., Larson, N. I., Nelson, M. C., Story, M., & Neumark-Sztainer, D. (2009). Fast food intake among adolescents: secular and longitudinal trends from 1999 to 2004. *Preventive Medicine*, 48, 284–287.

Blanton, H., Gibbons, F. X., Gerrard, M., Conger, K. J., & Smith, G. E. (1997). Role of family and peers in the development of prototypes associated with substance use. *Journal of Family Psychology*, 11, 271–288.

Blanton, H., Van Den Eijnden, R. J. J. M., Buunk, B. P., Gibbons, F. R., Gerrard, M., & Bakker, A. (2001). Accentuate the negative: social images in the prediction and promotion of condom use. *Journal of Applied Social Psychology*, 31, 274–295.

Cohen, R. Y., Brownell, K. D., & Felix, M. R. (1990). Age and sex differences in health habits and beliefs of schoolchildren. *Health Psychology*, 9, 208–224.

Cole, T. J., Bellizzi, M. C., Flegal, K. M., & Dietz, W. H. (2000). Establishing a standard definition for child overweight and obesity worldwide: international survey. *British Medical Journal*, 320, 1240–1243.

Conner, M., Johnson, C., & Grogan, S. (2004). Gender, sexuality, body image and eating behaviours. *Journal of Health Psychology*, 9, 505–515.

Croll, J. K., Neumark-Sztainer, D., & Story, M. (2001). Healthy eating: what does it mean to adolescents? *Journal of Nutrition Education and Behavior*, 33, 193–198.

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24, 349–354.

Dalley, S. E., & Buunk, A. P. (2009). "Thinspiration" vs. "fear of fat". Using prototypes to predict frequent weight-loss dieting in females. *Appetite*, 52, 217–221.

Fehr, B. (1988). Prototype analysis of the concepts of love and commitment. *Journal of Personality and Social Psychology*, 55, 557–579.

Fries, E., & Croyle, R. T. (1993). Stereotypes associated with a low-fat diet and their relevance to nutrition education. *Journal of the American Dietetic Association*, 93, 551–555.

Gerrard, M., Gibbons, F. X., Reis-Bergan, M., Trudeau, L., Vande Lune, L. S., & Buunk, B. P. (2002). Inhibitory effects of drinker and nondrinker prototypes on adolescent alcohol consumption. *Health Psychology*, 21, 601–609.

Gerrits, J. H., De Ridder, D. T. D., De Wit, J., & Kuijper, R. G. (2009). Looking fat or being bad? Effects of body size and eating style on peer evaluation in adolescents. *Journal of Applied Social Psychology* (in press).

Gibbons, F. X., & Gerrard, M. (1995). Predicting young adults' health risk behavior. *Journal of Personality and Social Psychology*, 69(3), 505–517.

Gibbons, F. X., & Gerrard, M. (1997). Health images and their effect on health behavior. In F. R. Gibbons & B. P. Buunk (Eds.), *Health, coping and well-being: prospects from social comparison theory* (pp. 63–94). Hillsdale, NJ: Erlbaum.

Gibbons, F. X., Gerrard, M., Blanton, H., & Russell, D. W. (1998). Reasoned action and social reaction: willingness and intention as independent predictors of health risk. *Journal of Personality and Social Psychology*, 74, 1164–1180.

Gibbons, F. X., Gerrard, M., & Boney McCoy, S. (1995). Prototype perception predicts (lack of) pregnancy prevention. *Personality and Social Psychology Bulletin*, 21, 85–93.

Hukkelberg, S. S., & Dykstra, J. L. (2009). Using the Prototype/Willingness model to predict smoking behaviour among Norwegian adolescents. *Addictive Behaviors*, 34, 270–276.

Kooten, V. K., De Ridder, D., Vollebergh, W., & Dorselaer, v. S. (2007). What's so special about eating? Examining predictors of unhealthy diet in the context of health-related behaviours and emotional distress. *Appetite*, 48, 325–332.

Larson, N. I., Neumark-Sztainer, D., Hannan, P. J., & Story, M. (2007). Trends in adolescent fruit and vegetable consumption, 1999–2004—project EAT. *American Journal of Preventive Medicine*, 48, 284–287.

Lobstein, L., & Frelut, M.-L. (2003). Prevalence of overweight among children in Europe. *Obesity Reviews*, 4, 195–200.

Lytte, L. A., Varnell, S., Murray, D. M., Story, M., Perry, C., Birnbaum, A. S., et al. (2003). Predicting adolescent's intake of fruits and vegetables. *Journal of Nutrition Education and Behavior*, 35, 170–178.

Niemeier, H. M., Raynor, H. A., Lloyd-Richardson, E. E., Rogers, M. L., & Wing, R. R. (2006). Fast food consumption and breakfast skipping: predictors of weight gain from adolescence to adulthood in a nationally representative sample. *Journal of Adolescent Health*, 39, 842–849.

Oakes, M. E., & Slotterback, C. S. (2005). Prejudgments of those who eat a "healthy" versus an "unhealthy" food for breakfast. *Current Psychology*, 23, 267–278.

Ouellette, J. A., Gerrard, M., Gibbons, F. R., & Reis-Bergan, M. (1999). Parents, peers, and prototypes: antecedents of adolescent alcohol expectancies, alcohol consumption, and alcohol-related life problems in rural youth. *Psychology of Addictive Behaviors*, 13, 183–197.

Ouellette, J. A., Hessling, R., Gibbons, F. X., Reis-Bergan, M., & Gerrard, M. (2005). Using images to increase exercise behavior: prototypes versus possible selves. *Personality and Social Psychology Bulletin*, 31, 610–620.

Rivis, A., Sheeran, P., & Armitage, C. J. (2006). Augmenting the theory of planned behaviour with the prototype/willingness model: predictive validity of actor versus abstainer prototypes for adolescents' health-protective and health-risk intentions. *British Journal of Health Psychology*, 11, 483–500.

Schokker, D. F., Visscher, T. L. S., Nooyens, A. C. J., Van Baak, M. A., & Seidell, J. C. (2006). Prevalence of overweight and obesity in the Netherlands. *Obesity Reviews*, 8, 101–107.

Sebastian, R. S., Cleveland, L. E., & Goldman, J. D. (2008). Effect of snacking frequency on adolescents' dietary intakes and meeting national recommendations. *Journal of Adolescent Health*, 42, 503–511.

Spijkerman, R., Van Den Eijnden, R. J. J. M., & Engels, R. C. M. E. (2005). Self-comparison processes, prototypes, and smoking onset among early adolescents. *Preventive Medicine*, 40, 785–794.

Spijkerman, R., Van Den Eijnden, R. J. J. M., Vitale, S., & Engels, R. C. M. E. (2004). Explaining adolescents' smoking and drinking behavior: the concept of smoker and drinker prototypes in relation to variables of the theory of planned behavior. *Addictive Behaviors*, 29, 1615–1622.

Stein, R. I., & Nemeroff, C. J. (1995). Moral overtones of food: judgments of others based on what they eat. *Personality and Social Psychology Bulletin*, 21, 480–490.

- Story, M., Neumark-Sztainer, D., & French, S. (2002). Individual and environmental influences on adolescent eating behaviors. *Journal of the American Dietetic Association*, 102, S40–S51.
- Thornton, B., Gibbons, F. X., & Gerrard, M. (2002). Risk perception and prototype perception: independent processes predicting risk behavior. *Personality and Social Psychology Bulletin*, 28, 986–999.
- Vereecken, C. A., de Henauw, S., & Maes, L. (2005). Adolescents' food habits: results of the health behaviour in school-aged children survey. *British Journal of Nutrition*, 94, 423–431.
- Verplanken, B., & Faes, S. (1999). Good intentions, bad habits, and effects of implementation intentions on healthy eating. *European Journal of Social Psychology*, 29, 591–604.
- Wahl, R. (1999). Nutrition in the adolescent. *Pediatric Annals*, 28, 107–111.
- Zizza, C., Siega-Riz, A. M., & Popkin, B. M. (2001). Significant increase in young adults' snacking between 1977–1978 and 1994–1996 represents a cause for concern! *Preventive Medicine*, 32, 303–310.