Contents lists available at ScienceDirect

# Appetite

journal homepage: www.elsevier.com/locate/appet

# Research report

# Who diets? Most people and especially when they worry about food



Appetite

# Denise de Ridder\*, Marieke Adriaanse, Catharine Evers, Aukje Verhoeven

Department of Clinical and Health Psychology, Utrecht University, PO Box 80140, 3508 TC Utrecht, The Netherlands

# ARTICLE INFO

Article history: Received 4 October 2013 Received in revised form 29 April 2014 Accepted 6 May 2014 Available online 15 May 2014

Keywords: Dieting Restraint Food concerns Community sample

# ABSTRACT

Dieting is generally not effective in establishing weight loss and research has focused on documenting these negative consequences of dieting. Much less is known about why people diet. The present study employed a large and representative community sample to determine the demographic and psychological correlates of dieting and to examine the hypothesis that food concerns are associated with considering oneself a dieter. Participants from a community sample (n = 1113) completed an internet survey on dieting (restraint scale of the DEBQ) and its demographic and psychological correlates, with a specific focus on food concerns. In addition, they completed a 7-day snack diary to determine their food intake. According to sex-specific norm scores, 63.2% of the men and 62.7% of the women qualified as a dieter, defined as having elevated scores on the DEBQ restraint scale. Women and older people more often reported to diet, as did people with higher weights. In line with our hypothesis, food concerns (weight concerns and concerns about the diet-health link) were most strongly associated with dieting. Considering oneself as a dieter was weakly related to actual snack consumption whereas food concerns were unrelated to the consumption of snacks. Considering oneself as a dieter in terms of endorsing items on a restraint scale is an expression of food concerns that is virtually unaccompanied by changes in food intake. These findings suggest a reinterpretation of the dieting concept in terms of a strategy for coping with food concerns which need consideration in future research.

© 2014 Elsevier Ltd. All rights reserved.

#### Introduction

Dieting is generally defined as 'the intentional and sustained restriction of caloric intake for the purpose of weight loss or weight maintenance' (Herman & Mack, 1975). While there is evidence that in some cases dieting leads to successful attempts at weight loss (e.g., Wadden, Foster, & Letizia, 1994), the majority of studies show that dieting is often ineffective in the long term (Heatherton, Mahemedi, Striepe, Field, & McGree, 1997; Mann et al., 2007) and may even lead to maladaptive eating patterns such as binge eating or eating pathology (Stice, Presnell, Groesz, & Shaw, 2005). As a result, dieting has become a controversial construct (Lowe & Timko, 2004; Polivy & Herman, 1992). While debate tends to focus on what the concept of dieting entails and why it produces negative effects on eating behavior, much less is known about why people engage in practices that most of the time are not to their benefit.

It has been suggested that the maladaptive consequences of dieting directly result from attempts to 'counter regulate' the restriction of food intake (Polivy & Herman, 1992). However, recent findings suggest that the absence of weight loss that is generally observed in dieters is not necessarily the result of counter-regulating previous restriction. In fact, there is now increasing evidence that

\* Corresponding author. *E-mail address*: d.t.d.deridder@uu.nl (D. de Ridder). dieting as assessed by dietary scales is not associated with actual restriction of food intake, as demonstrated by objective behavioral and biological measures in both laboratory and naturalistic settings (Stice, Cooper, Schoeller, Tappe, & Lowe, 2007). Rather than counter-regulating previous restriction dieters appear not to regulate their food intake at all. This leads to new questions about the concept of dieting: if dieting is not a valid measure of actual restriction, what does it mean when people endorse items on a dieting scale? We propose that the self-proclaimed status of being a dieter may be an expression of concerns about one's food intake rather than a self-reported description of restricted food consumption.

A series of recent studies gives credit to this novel view of dieting. For example, it has been demonstrated that while dieters do not eat less than nonrestrained eaters they experience food-related guilt that is unrelated to their actual consumption (De Witt Huberts, Evers, & De Ridder, 2013). This finding suggests that dieting is an expression of a troubled relationship with eating and food rather than the intention to eat less. This notion is supported by the observation that in societies with a strong emphasis on weight management, such as modern food-replete environments (Hill & Peters, 1998), attitudes to food and eating are more negative than in societies that do not assign high value to weight, body shape, and appearance. Such concerns about body weight, calories and the proper diet to achieve or maintain a desired weight seem to result in more stress and less pleasure in eating (Rozin, Fischler, Imada, Sarubin, & Wrzesniewski, 1999). To illustrate, in a large study among 2200 American under-



graduates it was shown that a substantial proportion of female students reported to have major concerns about eating with respect to both weight and health and associated food with worry rather than pleasure (Rozin, Bauer, & Catanese, 2003). It thus seems that food concerns – concerns about the perceived impact of food and eating on weight, health, and appearance – are a prevalent phenomenon in Western countries (Adriaanse, De Ridder, & Evers, 2011; Rozin et al., 1999; Steptoe & Wardle, 1992). However, so far it has not been investigated whether food concerns are associated with dieting and specifically, whether this association applies to a community sample.

Most studies on dieting have been conducted in selective samples of females, mostly young female students with normal weight. The relatively rare studies on dieting in community samples estimate that about 13–44% of men and about 25–65% of women diet (Andreyeva, Long, Henderson, & Grode, 2010; Weiss, Galuska, Khan, & Serdula, 2006). These widely varying prevalence rates may result from time of study as there is an increasing trend in dieting over the past decade (Andreyeva et al., 2010) but also from the one item questions that are typically used to assess dieting in these epidemiological studies (e.g., 'During the past 12 months, have you tried to lose weight?'; Weiss et al., 2006). The only consistent finding so far is that women are more likely to diet than men (e.g., Andreyeva et al., 2010) and for appearance related reasons rather than health reasons (Pollard, Steptoe, & Wardle, 1998).

In view of the observed high prevalence of dieting that generally does not lead to maintained weight loss (Mann et al., 2007) and acknowledging the fact that the concept of dieting is poorly understood (Lowe & Timko, 2004), it is important to know what reasons people hold to engage in dieting practices. The present study seeks to provide an answer to this question by examining the demographic and psychological correlates of dieting in a large and representative community sample, highlighting the role of food concerns. We hypothesize that in view of recent observations that people may feel overwhelmed by the obesogenic environment (Lowe et al., 2009) food concerns are strongly associated with calling oneself a dieter irrespective of one's actual eating behavior or weight status.

#### Method

## Participants

This study draws on data of the Longitudinal Internet Studies for Social Sciences panel of CentERdata, a true probability sample of 8000 individuals drawn from the population register by Statistics Netherlands (De Vos, 2010): 2021 panel members were randomly selected and invited to participate in the study comprising a questionnaire and a 1-week snack diary and 1383 members (68.4%) completed the study, defined as filling out at least 4 days of the snack diary (see Measures for details). The snack diary was included to determine the actual caloric intake of participants and verify participants' self-reported dieting score. A series of analyses of variance (ANOVAs) indicated that participants who did not complete at least four entries of the diary scored significantly higher on intention to eat healthily and lower on restraint eating (p's < .05). They were also less frequently married, younger, and had a lower education compared with participants who completed the four required entries of the diary. The magnitude of these differences was small (all  $p\eta^2$ 's  $\leq .01$ ).

Of these 1383 participants, 43 participants included meals in the diary and 48 participants had extreme scores > 3 *SD* on (un)healthy snack intake; and were subsequently excluded from all analyses. Participants with a BMI below 18.5 (n = 19) or a BMI higher than 40 (n = 16) were also excluded because these extremely low or high weights may indicate eating pathology (WHO, 2003). In addition, people older than 70 years (n = 147) were excluded because BMI

scores are not reliable for this age group (Netherlands Nutrition Centre, 2010). This resulted in a final sample of 1113 participants (44.6% male) with an average age of 48.10 years (SD = 14.67) and a mean BMI of 25.39 (SD = 3.96). Running the analyses including older participants and participants with extremely low or high body weights yielded similar results. For reasons of clarity of interpretation, we report the results of the more homogeneous sample.

About half of the participants (52.6%) reported normal weights (BMI 18.5–25), 34.1% reported to be overweight (BMI 25–30) and 13.4% reported to be obese (BMI 30–40). These figures are in line with recent data on weight status in the Dutch population (RIVM [Netherlands Institute for Public Health and the Environment], 2013). Regarding education level, 34.4% of the participants reported a low level (elementary school or lower general secondary education), 32.9% had completed a middle level of education (intermediate vocational education or higher general secondary education), and 32.8% held a diploma in higher education (higher vocational education or university). Most participants were married (58%); 29.6% had never been married, and 12.4% was a widow(er) or divorced. The majority of participants (56.3%) was employed; the others (43.7%) were students, homemakers or retired, or were involved in job searching.

# Procedure

Participants who agreed to participate, filled out questionnaires online, which were part of a larger survey on eating behavior (data from this study that are unrelated to dieting have been reported elsewhere; Verhoeven, Adriaanse, Evers, & De Ridder, 2012). One month after administering the questionnaires, participants were requested to keep an online snack diary for 7 days.

#### Measures

#### Demographic variables

Data on gender, age, weight, height, education level, marital status, and employment status were provided by CentERdata. Weight and height were used to compute BMI (weight/height × height).

#### Restraint eating

The Restraint Eating Scale (10 items, e.g., "Do you keep track of how much you eat"; Cronbach's  $\alpha = .92$ ) from the Dutch Eating Behavior Questionnaire (Van Strien, Frijters, Bergers, & Defares, 1986) was used to assess dieting as the main dependent variable. Items were rated on 5-point scales ranging from 1 (never) to 5 (always). We use norm scores to report on the dieting status of the sample. All other analyses employed the continuous scale.

#### Purchase of diet book

To corroborate whether participants had made an attempt to diet, we employed the purchase of a dieting book in the past 12 months (yes or no) as an additional measure of dieting.

#### Intention

The intention to eat more healthily was measured by two items ('I want to/plan to eat more healthily'; r = .79, P < .001), on 5-point scales from 1 (totally disagree) to 5 (totally agree).

#### Power of food

Participants filled out the Power of Food Scale (Lowe et al., 2009) to assess their sensitivity to today's food-abundant environment with 15 items (e.g., 'If I see or smell a food I like, I get a powerful urge to have some'; Cronbach's  $\alpha$  = .89). Participants rated their answers on 5-point scales from 1 (totally disagree) to 5 (totally agree).

# Food concerns

An abbreviated version of the Food-Life questionnaire (Rozin et al., 2003) was employed to assess food concerns. The original questionnaire comprises 65 questions that probe the most salient ways of thinking about food-related matters and represents six factors: weight concern, diet-health orientation, diet-health link, food negativity, eating-disordered characteristics, and natural/vegetarian. For the present study, we selected items from three scales that were considered most relevant as predictors of dieting: weight concern (five items), diet-health link (four items), and food negativity (six items) resulting in a set of 15 items. A factor analysis with varimax rotation revealed five factors with an eigenvalue > 1, explaining 50.95% of the variance. Examination of the scree plot resulted in the identification of three factors that were in close resemblance with the original scales: Weight Concern, Food Negativity, and Diet Health link. Weight Concern comprises an index of three items (Cronbach's alpha = .45) assessing the extent that people worry about their weight (e.g., 'I am concerned about my weight and how it will affect my appearance'). Food Negativity is an index of four items (Cronbach's alpha = .50) assessing how people think about food (e.g., 'Enjoying food is one of the most important pleasures in my life'; reverse scored). For both scales, participants rated whether or not they agreed with the statement (1 = no, 2 = ves); a sum score of scales was computed in such a way that higher scores represent more weight concerns (range: 3-6) or more negative food attitudes (range: 4-8) respectively. Cronbach's alphas of about .50 are considered appropriate given the low number of dichotomous items. The Diet Health link subscale consisted of three items ('To what extent do you think eating habits have consequences for heart and vascular diseases/obesity/cancer?' Cronbach's  $\alpha = .74$ ). Participants indicated their response on 4-point scales ranging from 1 (no influence) to 4 (a strong influence).

#### Snack diary

Participants monitored their snack intake by keeping a 7-day online diary. A focus on snacks rather than meals was chosen because snack intake is a major contributor to overweight and often the main target of dieting attempts (Zizza, Siega-Riz, & Popkin, 2001). Only data from participants who completed at least four entries were analyzed. The average number of completed entries was 6.14 (SD = 1.03); the number of entries was unrelated to BMI, the number of consumed calories, restraint or the three food concern scales (p's > .09). The snack diary consisted of one column with 12 options for healthy snacks and one column with 13 options for unhealthy snacks. Categories of healthy (e.g., fruits) and unhealthy snacks (e.g., chips) were

#### Table 1

Mean, standard deviations and	l correlations i	for the	variables	under	study
-------------------------------	------------------	---------	-----------	-------	-------

derived from a previous study and was validated by a registered dietician (Adriaanse, De Ridder, & De Wit, 2009). A snack was defined as any food that was consumed in between regular meals. When participants reported taking a snack, they were additionally asked to specify how much of that snack they had consumed, in appropriate units (e.g., 'pieces' for fruit or 'handful' for chips). Participants were instructed to fill out the diary every evening when they did not expect to eat anymore for that day, even if they had not consumed any snacks. The number of kCal consumed was calculated by multiplying each snack by the average amount of kCal it contains (Netherlands Nutrition Centre, 2010).

#### Results

#### Descriptives

Participants reported a moderate intention to eat healthily (M = 3.12, SD = .87) while they experienced a moderate power of food (M = 2.47, SD = .56). A minority of 8% had purchased a dieting book in the past year. Participants were well aware of the consequences that diet may have on their health, as indicated by a relatively high score on Diet–Health link (M = 3.11, SD = .58). Generally, they reported relatively low scores on Food Negativity (M = 5.11, SD = 1.04; range 4–8) and expressed considerable concerns about the impact of food on their weight (M = 4.66, SD = .99; range 3–6).

### Dieting

The mean score on the Restraint Eating scale was 2.81 (SD = .77). According to sex-specific norm scores (Van Strien et al., 1986) distinguishing seven levels of dieting (extremely low to extremely high) 63.2% of the men and 62.7% of the women would qualify as a dieter, defined as having elevated scores on the restraint scale (above average). Because norm scores are different for men and women and have been determined in a Dutch sample only, we will use the continuous scores of the Restraint scale in the remainder of the analyses. An analysis of variance revealed that, on average, females reported significantly higher scores (M = 2.99, SD = .72) than males  $(M = 2.58, SD = .76), F(1,1112) = 82.96, P < .001, p\eta^2 = .069$ . The pattern of correlations of restraint scores with demographic variables further shows that older participants and participants who were married are more inclined to diet, as are people with a higher BMI, although the correlations were modest (see Table 1). Education level and employment status were unrelated to restraint scores.

					,.										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Gender (1)	-														
Age (2)	07**	-													
Education (3)	.03	02	-												
Marital status (4)	.03	40***	.01	-											
Employment status (5)	.09**	.24***	.04	.00	-										
BMI (6)	06	.26***	04	14***	.04	-									
Intention (7)	.01	24***	.04	.13***	07*	.12***	-								
Diet book (8)	.14**	03	.02	.01	.01	.07*	05	-							
Power of food (9)	.07*	20***	.01	.14***	04	.13***	.27***	.10**	-						
Food negativity (10)	.07*	.10***	03	.02	.04	.00	.07*	.04	.25***	-					
Weight concerns (11)	.20**	.08**	02	.02	.09**	.09**	.10**	.17***	.07*	.08*	-				
Diet-health link (12)	.07*	.02	.01	04	06	.07*	.02	.06	.00	.00	.29***	-			
Healthy snack intake (kCal) (13)	.09**	.12***	.14***	.01	.06	.05	.04	02	.08*	.00	.06*	.01	-		
Unhealthy snack intake (kCal) (14)	08**	03	.01	01	.00	.03	.09**	02	.15***	06*	.05	.01	.01	-	
Dieting (15)	.26**	.12***	01	08**	.03	.16***	.02	22***	.09**	.03	.37***	.24***	.08*	08**	-
Μ	-	48.10	-	-	-	25.39	3.12	-	2.47	5.11	4.66	3.11	274	3.26	2.81
SD	-	14.67	-	-	-	3.96	.87	-	.56	1.04	.99	.58	267	227	.77

Legend: Gender: 1 = male, 2 = female; Marital status: 1 = married, 2 = unmarried; Employment status: 1 = Employed, 2 = Unemployed; Diet book: 1 = Not bought, 2 = Bought. \* P<.05; \*\* P<.01; \*\*\* P<.001.

Hierarchical multi	iple regression	analysis for	dieting.

	β1	β2	$\beta_{final}$	$\Delta F$	$AR^{2}(\Delta R^{2})$
Step 1				22.26***	.09
Sex	.28***	.25***	.20***		
Age	.13***	.10**	.10**		
Marital status	04	04	03		
Employment status	03	02	.02		
Education level	03	01	01		
Step 2				17.72***	.15 (.06)
BMI		.14***	.17***		
Intention		.01	03		
Purchase of diet book		17***	12***		
Power of food		.06*	.05		
Step 3				59.42***	.27 (.12)
Food negativity			.01		
Weight concerns			.29**		
Diet-health link			.14**		

\* *P* < .05; \*\* *P* < .01; \*\*\* *P* < .001.

#### Predicting dieting status

A hierarchical multiple regression analysis was conducted with dieting as the dependent variable, demographic variables (sex, age, education level, marital status, and employment status) as predictors in the first step, diet-relevant variables (BMI, intention to eat healthily, purchase of a diet book, and Power of Food) in the second step, and food concerns (Weight Concern, Food Negativity, and Diet-Health link) in the third step (see Table 2). The first step was significant, F(5, 1112) = 22.26, P < .001, with sex and age as significant predictors. The second step significantly improved the model, F(9, 1112) = 20.98, P < .001, with BMI, purchase of a diet book, and Power of Food as significant predictors, as did the third step comprising three types of food concerns. In the final model, F(12,1112) = 33.09, *P* < .001, predicting 27% of the variance in dieting, sex, age, BMI, purchase of a diet book, Weight Concerns, and Diet-Health link were significant predictors. Women ( $\beta$  = .20), people who were older ( $\beta$  = .10) or more overweight ( $\beta$  = .17) reported to consider themselves as a dieter more often. In contrast, people who had purchased a diet book in the past year reported to diet less often ( $\beta$  = -.12). The strongest predictor of dieting, however, was the extent to which people were concerned about their weight  $(\beta = .29)$  or about the health consequences of their dietary practices ( $\beta$  = .14). Food Negativity was not a significant predictor of dieting.

# Dieting, food concerns, and snack consumption

Participants consumed an average of 274 kCal (SD = 267) on healthy snacks per day, and 326 kCal (SD = 227) on unhealthy snacks. There was a weak but significant association of dieting with the consumption of (un)healthy snacks: participants with higher restraint scores ate more healthy snacks (r = .077, P < .05) and fewer unhealthy snacks (r = -.080, P < .001). Healthy snack consumption was unrelated to Food Negativity and Diet-Health link scales (p's > .75) and weakly related to Weight Concern (r = .06, P < .05); participants who were concerned about their weight, were slightly more inclined to consume healthy snacks. Unhealthy snack consumption was unrelated to Diet-Health link (P=.70)and Weight Concern (P=.074) and weakly related to Food Negativity (r = .06, P < .05), indicating that participants with negative attitudes about food were slightly more inclined to eat unhealthy snacks. However, the magnitude of these associations is small (Cohen, 1992).

# Discussion

The current study set out to examine the prevalence of dieting in a large and representative community sample and to determine why people may engage in dieting. We demonstrated that high restraint scores are not only found in young females as is often assumed but are actually present in large numbers of the general population; about 63% of the participants, both men and women, in this large and representative sample qualified as a dieter according to sex-specific norm scores. Dieting is thus a prevalent phenomenon in large parts of the population, including both males and females, young and old people, and well or less educated. Notwithstanding this widespread prevalence, we found that females are more often found to diet when taking their absolute restraint scores into account. Although there were also differences in restraint scores according to age, marital status and weight status, the magnitude of these differences was small. In line with previous findings (Stice et al., 2007), the self-proclaimed status as a dieter bears few implications for actual consumption. While there were significant associations of dieting with the consumption of (un)healthy snacks, these associations were of a modest magnitude. Notwithstanding these weak associations, it is promising that dieting is to some extent related to actual food consumption, showing that people who diet eat slightly less unhealthy snacks and slightly more healthy snacks than their nondieting counterparts.

Importantly, and in line with our hypothesis, high restraint scores were strongly associated with food concerns, weight concerns in particular and, to a lesser extent, concerns about the perceived health consequences of one's dietary habits (Diet-Health link). After controlling for demographic and psychological correlates, food concerns explained an additional amount of 12% of the variance in dieting. In contrast with the strong associations of concerns about weight and health with dieting, concerns were only weakly related to actual consumption of snacks, demonstrating that concerns generally do not translate into actual eating practices. This pattern of correlations suggests that dieting and concerns go hand in hand while both leave actual consumption largely unaffected. These findings are even more speaking when considering that none of the other psychological variables (intention to eat healthily, power of food) reached significance in their association with dieting, demonstrating that good intentions are not sufficient for putting one's plans into practice (Webb & Sheeran, 2006) and that feeling intimidated by the obesogenic environment does not lead to attempts to withstand the power of food by dieting. The only other variable that was significantly associated with dieting beyond food concerns and demographics was the purchase of a diet book which was considered a proxy for dieting. Surprisingly, however, participants who had bought a diet book reported lower, rather than higher, dieting scores, suggesting that they considered having fulfilled their intention by having a diet book available (Wilcox, Vallen, Block, & Fitzsimons, 2009).

It thus seems that considering oneself a dieter, in terms of endorsing items on the restraint scale, basically is an expression of concerns about consequences of food for weight and health. Such concerns have been reported to be prevalent in American and European samples (e.g., Rozin et al., 1999). However, to date such concerns have not been explicitly linked to dieting. Still, this link is not unexpected. Rozin and Singh (1999) have suggested that public moralization of unhealthy behavior such as smoking or unhealthy diet may lead to an internalization of this public condemnation in terms of private concerns. In response to public discussion about the obesogenic environment (De Ridder, De Vet, Stok, Adriaanse, & De Wit, 2013) people may become obsessed with regulating their eating behavior without having the actual intent or the skills to do something about it, which confronts them with a dilemma that can be resolved by considering oneself as a dieter. This interpretation aligns with the literature on worrying that suggests two main reasons for being concerned (Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994). People may either worry because they believe that worrying helps to find solutions for difficult problems or because they believe that worrying decreases feelings of guilt about not having done anything to avoid negative events. Given the virtually absent relation of dieting with actual snack consumption, it seems that worrying about food corresponds with the latter reason.

#### Strengths and limitations

As with all nonexperimental studies, caution is warranted in drawing causal inferences from the current results as the crosssectional nature of the study renders it impossible to determine whether concerns precede dieting rather than that concerns result from dieting. It is indeed possible that dieting, especially when unsuccessful in establishing maintained weight loss, produces a troubled attitude to food. Future research should examine whether food concerns are more prevalent in unsuccessful dieters than in dieters who manage to lose weight in the long term (Meule, Papies, & Kübler, 2012). However, in the present sample weight status was only weakly associated with dieting, suggesting that people also engage in dieting when their weight is (still) unproblematic. Another limitation concerns the time lag between the assessment of dieting status and filling out the snack diary 1 month later. During this time, dieting status may have changed, which may account for the absent relationship between dieting and snack consumption. A final limitation relates to the self-report nature of the data, which makes responses to these sensitive issues vulnerable to socially desirable responding. Notwithstanding these limitations, our study also has important strengths. Besides employing a large and representative community sample we used the restraint scale of the DEBQ which is generally considered a pure measure of dieting that is not confounded by tendencies of disinhibition (Williamson et al., 2007). Even though the DEBQ restraint scale was originally intended to describe actual attempts to restrict caloric intake (Van Strien et al., 1986) – while it does not (Stice et al., 2007) – it still assesses dieting in terms of a self-generated label of being a dieter in a more reliable way than one-item questions that are typically employed in large-scale epidemiological studies on dieting practices (e.g., Andreyeva et al., 2010). Another strength of our study relates to the corroboration of dieting as a label of being concerned about food that is unrelated to consumption by employing a snack consumption diary. While the assessment of actual consumption is notoriously difficult, food diaries are considered the most sophisticated measure of food intake that is currently available (De Castro, 2000).

Taken together, our results indicate that considering oneself as a dieter may be an expression of concerns about food and eating rather than a commitment to change one's food intake. It may well be that this novel interpretation of the dieting concept reflects drastic changes in the food environment in the past decades that may have affected how people respond to food. According to the omnipresent availability of high caloric and cheap foods that are presented in large portions (Hill & Peters, 1998), the modern food environment is not only 'obesogenic' to the extent that it contributes to the overweight epidemic but also to the extent that it produces worries about food that people feel unable to deal with in another manner than calling themselves dieters. It may thus well be that whereas in the 1960–1970s when research on dieting initiated, dieting was a genuine expression of the desire to eat less but that this original meaning has gradually turned into a vague wish to do something in response to concerns about the consequences of food for weight, health, and appearance. Future research should corroborate this speculation about the meaning of dieting. For now, the implications of the present study for practice are that caution is warranted when people consider themselves dieters in the sense that they feel they

might be doing something about their diet while in reality the selfgenerated dieting label implies that they are voicing their worries about these dietary practices.

#### References

- Adriaanse, M. A., De Ridder, D. T. D., & De Wit, J. B. F. (2009). Finding the critical cue. Implementation intentions to change one's diet work best when tailored to personally relevant reasons for unhealthy eating. *Personality and Social Psychology Bulletin*, 35, 60–71.
- Adriaanse, M. A., De Ridder, D. T. D., & Evers, C. (2011). Emotional eating. Eating when emotional or emotional about eating? *Psychology & Health*, *26*, 23–39.
- Andreyeva, T., Long, M. W., Henderson, K. E., & Grode, G. M. (2010). Trying to lose weight. Diet strategies among Americans with overweight or obesity in 1996 and 2003. *Journal of the American Dietetic Association*, 110, 535–542.
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112, 155–159. De Castro, J. M. (2000). Eating behavior. Lessons from the real world of humans.
- Ingestive Behavior and Obesity, 16, 800–813. De Ridder, D. T. D., De Vet, E., Stok, F. M., Adriaanse, M. A., & De Wit, J. B. F. (2013). Obesity, overconsumption, and self-regulation failure. The unsung role of eating appropriateness standards. *Health Psychology Review*, 7, 146–165.
- De Vos, K. (2010). Representativeness of the LISS panel 2008, 2009, 2010. Tilburg, The Netherlands: University of Tilburg, CentERdata.
- De Witt Huberts, J. C., Evers, C., & De Ridder, D. T. D. (2013). Double trouble. Restrained eaters do not eat less and feel worse. *Psychology & Health*, 28, 686–700.
- Freeston, M. H., Rhéaume, J., Letarte, H., Dugas, M. J., & Ladouceur, R. (1994). Why do people worry? *Personality and Individual Differences*, 17, 791–802.
- Heatherton, T. F., Mahemedi, F., Striepe, M., Field, A. E., & McGree, S. T. (1997). A 10-year longitudinal study of body weight, dieting, and eating disorder symptoms. *Journal* of Abnormal Psychology, 106, 117–125.
- Herman, C. P., & Mack, D. (1975). Restrained and unrestrained eating. Journal of Personality, 43, 647–660.
- Hill, J. O., & Peters, J. C. (1998). Environmental contributions to the obesity epidemic. Science, 280, 1371–1374.
- Lowe, M. R., Butryn, M. L., Didie, E. R., Annunziator, R. A., Thomas, J. G., Crerand, C. E., et al. (2009). The power of food scale. A new measure of the psychological influence of the food environment. *Appetite*, 53, 114–118.
- Lowe, M. R., & Timko, C. A. (2004). Dieting. Really harmful, merely ineffective or actually helpful? *The British Journal of Nutrition*, 92, S19–S22.
- Mann, T., Tomiyama, A. J., Westling, E., Lew, A. M., Samuels, B., & Chatman, J. (2007). Medicare's search for effective obesity treatments. Diets are not the answer. *The American Psychologist*, 62, 220–233.
- Meule, A., Papies, E. K., & Kübler, A. (2012). Differentiating between successful and unsuccessful dieters. Validity and reliability of the perceived self-regulatory success in dieting scale. *Appetite*, 58, 822–826.
- Netherlands Nutrition Centre (2010). Calorie checker.
- Polivy, J., & Herman, C. P. (1992). Undieting. A program to help people stop dieting. The International Journal of Eating Disorders, 11, 261–268.
- Pollard, T. M., Steptoe, A., & Wardle, J. (1998). Motives underlying healthy eating. Using the food choice questionnaire to explain variation in dietary intake. *Journal of Biosocial Science*, 30, 165–179.
- RIVM [Netherlands Institute for Public Health and the Environment] (2013). Nederland de maat genomen 2009–2010 [Dutch figures on overweight].
- Rozin, P., Bauer, R., & Catanese, D. (2003). Food and life, pleasure and worry, among American college students. Gender differences and regional similarities. *Journal* of Personality and Social Psychology, 85, 132–141.
- Rozin, P., Fischler, C., Imada, S., Sarubin, A., & Wrzesniewski, A. (1999). Attitudes to food and the role of food in life in the USA, Japan, Flemish Belgium and France. Possible implications for the diet-health debate. *Appetite*, 33, 163–180.
- Rozin, P., & Singh, L. (1999). The moralization of cigarette smoking in the United States. Journal of Consumer Psychology, 8, 321–337.
- Steptoe, A., & Wardle, J. (1992). Cognitive predictors of health behavior in contrasting regions of Europe. The British Journal of Clinical Psychology, 31, 485–502.
- Stice, E., Cooper, J. A., Schoeller, D. A., Tappe, K., & Lowe, M. R. (2007). Are dietary restraint scales valid measures of moderate to long-term dietary restriction? Objective biological and behavioral data suggest not. *Psychological Assessment*, 19, 339–458.
- Stice, E., Presnell, K., Groesz, L., & Shaw, H. (2005). Effects of a weight maintenance diet on bulimic pathology. An experimental test of the dietary restraint theory. *Health Psychology*, 24, 402–412.
- Van Strien, T., Frijters, J. E. R., Bergers, G. P. A., & Defares, P. B. (1986). The Dutch Eating Behavior Questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behavior. *The International Journal of Eating Disorders*, 5, 295– 315.
- Verhoeven, A. A. C., Adriaanse, M. A., Evers, C., & De Ridder, D. T. D. (2012). The power of habits. Unhealthy snacking behaviour is primarily predicted by habit strength. *British Journal of Health Psychology*, 17, 758–770.
- Wadden, T. A., Foster, G. D., & Letizia, K. A. (1994). One-year behavioral treatment of obesity. Moderate and severe caloric restriction and the effects of weight maintenance therapy. *Journal of Consulting and Clinical Psychology*, 62, 165– 171.
- Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin*, 132, 249–268.

Weiss, E. C., Galuska, D. A., Khan, L. K., & Serdula, M. K. (2006). Weight-control practices among US adults, 2001–2002. American Journal of Preventive Medicine, 31, 18–24.

WHO (2003). BMI classification.

- Wilcox, K., Vallen, B., Block, L., & Fitzsimons, G. J. (2009). Vicarious goal fulfillment. When the mere presence of a healthy option leads to an ironically indulgent decision. *The Journal of Consumer Research*, *36*, 380–393.
- Williamson, D. A., Martin, D. K., York-Crowe, E., Anton, S. D., Redman, L., Han, H., et al. (2007). Measurement of dietary restraint. Validity tests of four questionnaires. *Appetite*, 48, 183–192.
- 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.