RESEARCH BRIEF

Discrepancy between Snack Choice Intentions and Behavior

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ABSTRACT

Objective: To investigate dietary constructs that affect the discrepancy between intentioned and actual snack choice.

Design: Participants indicated their intentioned snack choice from a set of 4 snacks (2 healthful, 2 unhealthful). One week later, they actually chose a snack from the same set. Within 1 week after the actual choice, they completed a questionnaire that evaluated several dietary constructs.

Setting: Worksite cafeterias.

Participants: Office employees in the Netherlands (N = 585, 65% male, mean age 39.6 years [standard deviation = 9.2], 83% highly educated).

Main Outcome Measures: Snack choice intentions and actual snack choices (healthful vs unhealthful). Demographic and dietary constructs.

Analysis: Student *t* tests, chi-square tests, and logistic regression ($P < .05$).

Results: Forty-nine percent of the participants (n = 285) intended to choose a healthful snack. Of this group, 27% (n = 78) chose an unhealthful snack instead. Ninety-two percent (n = 276) of the unhealthful intenders did indeed choose an unhealthful snack. None of the dietary constructs significantly predicted the failure to enact a healthful snack choice intention.

Conclusions and Implications: Although a substantial discrepancy between healthful intentions and actual snack choice was demonstrated, the evaluated constructs do not adequately measure the psychological process by which intention is converted into practice. Further studies are required to further investigate this process.

Key Words: intention, behavior, snacks, food attitudes, personality

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INTRODUCTION

Individuals who intend to change to a healthful diet often perceive difficulties in converting their intention into practice. In spite of this fact, studies that applied the Theory of Planned Behavior (TPB)[1] to predict dietary behavior found that a considerable proportion of the behavior variance (18% to 39%) could be explained by the intention to perform the behavior.[2-7] However, in all these studies, behavior was self-reported, and in most of them,[2,5-7] intentions and behavior were measured simultaneously. These 2 factors may have contributed to an overestimation of the consistency between intentions and actual dietary behavior. A study that measured dietary behavior 6 years after having measured intentions found that intentions predicted only 9% of the behavior variance.[8]

The inconsistency between intentioned and actual health behavior is frequently reported[9] and may result from the fact that intentions are usually under cognitive control,[10] whereas actual choices are often made rather impulsively and even unconsciously.[11] When decisions are under cognitive control, the desirability of delayed rewards, such as healthy aging, is high. On the other hand, when decisions are under impulse control, the desirability of immediate rewards, such as enjoyment, is high.[12] The inconsistency between intentioned and actual food choice may vary among individuals and among situations.

A strong positive attitude toward healthful eating, a high level of dietary restraint, and a high normal use frequency of healthful foods could increase the healthful intention–behavior consistency. A strong positive attitude toward healthful eating may enhance the healthful intention–behavior consistency, as it reflects a high cogni-

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tive involvement with the healthfulness of food choices, which has been shown to lead to decisions with delayed rewards.[13] Dietary restraint, as measured by the Dutch Eating Behavior Questionnaire (DEBQ),[14] may enhance the healthful intention–behavior consistency, as it negatively correlates to self-reported food intake.[15,16] Dietary restraint is thus a measure of self-control. A high normal use frequency of healthful foods may enhance the healthful intention–behavior consistency, as habitual behavior is performed more or less automatically and therefore requires little effort.[17]

A hungry state at the time of actual choice, a high enjoyment of unhealthful food, and high levels of emotional and external eating behavior could decrease the healthful intention–behavior consistency. When people are hungry, virtually their only goal is to remove themselves from this state, which may make them "forget" delayed rewards.[18] The possibility to choose highly enjoyable food items, which are often energy dense, may be a temptation that distracts individuals from enacting their intentions with delayed rewards. People who are sensitive to external eating cues, which reflects sensitivity to prompts such as seeing or smelling desired food,[19] or who are sensitive to emotional eating, which is a tendency to respond to arousal by excessive eating,[20] might likewise be tempted to deviate from their healthful intention when exposed to attractive unhealthful foods.

The present study was designed to investigate the influence of the dietary constructs cited above on the discrepancy between healthful intentions and behavior in snack choice. More insight into constructs that affect this discrepancy may contribute to the development of new approaches that can foster long-term changes in eating behavior and thereby reduce overweight.

DESCRIPTION OF THE STUDY

Study Design

The study consisted of 2 choice tasks separated by 1 week. During the *intentioned* choice, participants indicated on a paper that listed 4 snacks (2 healthful and 2 unhealthful snacks, but not labeled as such) which one they would choose if they had the choice. They were told that they would receive that particular snack 1 week later. The choice was completed immediately after lunch, when participants were expected to be satiated. One week later, participants made an *actual* choice out of the same 4 snacks, which were displayed on trays. At the time of the actual choice, the investigators emphasized that the participants could choose any snack, regardless of the snack choice that they had indicated a week before. The actual choice was completed either directly after lunch (n = 329, 57%) or between 2:00 and 4:00 PM, when participants were presumed to be more hungry (n = 256, 43%).

Within 1 week after the actual choice, participants completed a Web-based questionnaire in which they were first asked demographic information. Next, their health attitude was assessed using the "general health interest" subscale of the Health and Taste Attitude Scales,[21] and the extent of the participants' dietary restraint and their emotional and external eating behavior was measured by the DEBQ.[14] As the classification of the scores on these 3 scales depends on an individual's gender and body mass index (BMI), the scale scores, which were measured in 5 categories, were classified into 7 classes according to the norm tables of the DEBQ. These classes range from "very low" to "very high."[14] Use frequency of the snacks offered in the choice task was measured using 6 categories, from "never" to "5 times a week or more." Pleasantness of the snacks was rated on a 9-point scale, anchored from "not at all pleasant" to "extremely pleasant." For data analysis, the pleasantness ratings of the 2 healthful snacks and the 2 unhealthful snacks, respectively, were averaged, as they did not significantly differ from one other. Reported use frequency of the healthful and unhealthful snacks, respectively, was classified into 2 categories: frequent users (use frequency of any of the [un]healthful snacks $\geq$ 1/week) and infrequent users (use frequency of both [un]healthful snacks $<$ 1/week). Subjects who completed the study were rewarded with a lottery ticket. The study was exempt from review by the Medical Ethical Committee of Wageningen University, The Netherlands.

Data Analysis

Statistical analyses were performed using Statistical Package for the Social Sciences, version 12.01, SPSS Inc., (SPSS, Chicago, Ill; 2004). To compare the evaluated constructs between participants with a healthful and an unhealthful snack choice, given their intended choice (healthful or unhealthful), chi-square tests were conducted for the dichotomous constructs, and unpaired Student *t* tests were conducted for the constructs that were measured with interval scales. To investigate whether the evaluated constructs would moderate the association between healthful intentions and behavior, a logistic regression model was constructed. In this model, actual choice was the dependent variable, whereas intentioned choice and the interactions between intentioned choice and each of the constructs were the independent variables (backward logistic regression). When a *P* value of .05 was used as the cutoff point for removing the nonsignificant constructs from the model, only intentioned choice was retained in the model. A *P* value of .10 was also used as the cutoff point to assess any trends in the relationship among the constructs.

Products

Products were 4 snacks: apple, banana, molasses waffle (Kanjers, Van der Breggen BV, The Netherlands), and a candy bar (Snickers, Masterfoods, The Netherlands). The snacks were chosen on the basis of a pilot study question-