

Integrating Behavioral Economics into Nutrition Education Research and Practice

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ABSTRACT

Nutrition education has a long history of being informed by economic thinking, with the earliest nutrition education guides incorporating household food budgeting into nutrition advice. Behavioral economics research goes beyond that traditional role to provide new insights into how consumers make choices. These insights have numerous potential applications for nutrition interventions to promote healthy food choices consistent with the US Dietary Guidelines for Americans. Research to test the value of such applications can contribute to the development of evidence-based nutrition education practice called for in federal nutrition education programs.

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INTRODUCTION

Nutrition education has a long history of being informed by economic thinking. Its early beginnings in home economics integrated nutrition information and household budgeting to offer practical guidance that assisted consumers in purchasing nutritious foods at a price they could afford. Indeed, federal nutritionists have provided nutrition guidance on purchasing healthy, economical foods since 1894. Development of food plans that meet federal dietary guidance at different cost levels is still a major federal nutrition guidance activity.¹

More broadly, nutrition education fits well with the economic concept of a rational consumer who seeks to maximize his or her well-being and will do so if provided with adequate information. Consumers rely on nutrition educators for science-based dietary guidance such as food guides; this role is considered so essential to consumer welfare that federal law² requires the government to provide the public with up-to-date di-

etary advice (the Dietary Guidelines for Americans³) based on recommendations of nutrition experts. As the food system became more complicated, with greater reliance on packaged foods, nutrition education policy expanded to address what economists term the problem of information asymmetry—that is, suppliers knowing more about a product's characteristics than consumers do.⁴ The Nutrition Labeling and Education Act addressed this problem by requiring that nutrition information be labeled on packaged foods. With restaurant, fast food, and takeout food a ubiquitous part of the American diet, new regulations will soon require calorie information to be provided by chain restaurants and other sources of food prepared away from home, which can help consumers to make more informed choices in those settings as well.⁵

Today, nutritionists are going beyond providing information to stress behavior change, as witnessed by the 2002 change in name of this journal from the *Journal of Nutrition Education* to

the *Journal of Nutrition Education and Behavior*. Acting on the realization that although information is necessary it is often not sufficient, nutritionists have incorporated behavior change strategies drawn from social marketing and health communication into nutrition programs and messaging.^{6,7}

With its traditional emphasis on a rational consumer, economics may not seem helpful to such efforts. However, recent research investigating consumer behavior and decision making has yielded findings that challenge economists' assumptions of rationality. This new research area, dubbed behavioral economics, integrates research on cognitive, social, and emotional influences on economic behavior.⁸ It uses experimental methods to develop new insights into decision making.⁸ These insights, which both accept and understand the ways in which people are all sometimes less than rational, may help to generate new strategies for behavior change that can be added to the nutrition educator's arsenal.

DISCUSSION

The information-driven approach to influencing consumer choices has many positives: It shows a basic respect for the consumer and her or his ability to make the final decision regarding what is best. It respects personal autonomy and freedom of choice; it can be empowering.⁹ However, behavioral economics

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research has uncovered several cognitive biases that may limit the effectiveness of reason-based approaches. Several writers^{8,10,11} have summarized these findings elsewhere; this article highlights some findings that are particularly relevant to food consumption and discusses their potential application to nutrition education and behavior change strategies.

Foods have numerous characteristics that consumers value, ranging from the immediate pleasures of taste to practical factors such as price and convenience, to nutritional characteristics that contribute to long-term health goals. All of these characteristics can influence consumer choices. Traditionally, economic theory has assumed that consumers are consistent in their preferences and priorities so that if consumers learn to value health more, that can be reliably expected to guide their choices. Behavioral economics found that consumers are not so consistent. More realistically, they have competing preferences, and the value they place on these preferences can vary from moment-to-moment, depending on numerous factors. Temporal factors have a key role. Some food characteristics such as taste and convenience offer immediate rewards, whereas for others the reward is more distant. Individuals tend to discount the value of far-off rewards, so that even the most health-conscious consumer likely experiences conflict between a healthy food choice and the long-term benefits it promises vs the short-term pleasure of a tastier but less healthy choice.¹² When the choice is immediate, as with a tempting dessert tray presented to a diner, short-term preferences are especially likely to trump the long term.^{13,14}

When individuals respond impulsively to immediate stimuli, this is often referred to as a hot state of thinking, compared with cold state thinking, which places a higher priority on long-term payoffs such as health. Individuals have been found to underestimate the effects of such immediate stimuli, a finding referred to as the hot-cold empathy gap.¹⁵ This leads individuals to overestimate their ability to withstand immediate temptations and to find themselves giving in to them.

Withstanding immediate temptations requires self-control, or as it is often termed, willpower. Self-control requires effort; research shows that the

ability to maintain the necessary level of effort can be exhausted.¹⁶ Self-control is more likely to fail when individuals are hungry, tired, stressed, or distracted.^{13,14} It is not hard to see how this adds to the challenge of weight loss efforts and any other dietary behaviors requiring self-control.

Behavioral economics research has also illuminated some of the ways in which, as individuals negotiate a complicated world, they seek to simplify decision making. These insights can be particularly applicable to nutrition, where it has been said that consumers typically make hundreds of small food-related decisions daily.¹⁷ Cumulatively, these daily decisions shape overall dietary quality, but it is probably not realistic to expect consumers to give detailed thought to every one of them.

To decrease the cognitive burden of so many decisions, consumers frequently just go along with the choice presented to them, ie, the default option.¹¹ Norms—the perception of what is the standard or usual choice—act similarly to defaults, in giving individuals an easy guide as to what decision to make. Defaults and norms can influence both choices and amounts: the standard beverage or side offered with a fast-food meal, for example, and also the standard size.

Gains in nutritional knowledge, coupled with public information such as nutrition labeling, allow consumers to access detailed information to guide decisions about what and how much to eat. Ideally, more information should lead to better choices; however, research has shown that consumers can feel overloaded by large amounts of information.^{18,19} These overloaded consumers have been found to rely on simple heuristics or rules of thumb to make dealing with information more manageable.¹⁰ For food decisions, for example, this could mean going with simple rules such as that salads are always low calorie or that the low-fat version will be the lowest-calorie one. Such simple rules of thumb make choices easier for consumers but they may not always work. To continue these examples, a salad could be made with high-calorie ingredients or a low-fat product could contain large amounts of added sugars, resulting in no reduction in total calories.

Mental accounting, another strategy to simplify decision making, can be relevant to food-purchasing deci-

sions.¹¹ Economic theory assumes that consumers will treat money as a flexible resource that can be spent in any way that best suits the individual's interest. Research discovered, however, that many consumers found it easier to categorize income for a specific purpose such as lunch money or rent money, and consumers tended to stick with spending patterns defined by such labels. This may be one reason why receipt of *Supplemental Nutrition Assistance Program* (SNAP) benefits results in more spending on food than would occur if consumers received a cash benefit. Although participants of SNAP could simply substitute their benefits for the cash they were previously spending on food, SNAP benefits tend to stick in the food spending category, resulting in an increase in total food spending.^{20,21}

Applying Behavioral Economics Insights to Nutrition Education

Reviewing all of the factors that can undermine decision making can be discouraging. The difficulty in acting on long-term goals has been demonstrated for other behaviors such as retirement savings.¹¹ It can be even more challenging for eating behavior, which is so strongly influenced by sensory and visceral stimuli such as taste and hunger. From a positive perspective, however, behavioral economics also suggests some promising strategies that can be used to nudge consumers toward choices that promote nutrition and health. Several researchers have harnessed behavioral economics findings on the effects of defaults and other presentation factors to restructure the choice environment systematically. Settings included school and workplace cafeterias^{22,23}; other possibilities include restaurants and grocery stores, as well as home environments.²⁴ Aspects of such restructuring have included the choice of healthy items as defaults²⁵ and presentation that emphasize healthy choices and deemphasize other selections via placement and attractive, attention-getting names.²⁶ Healthy norms can be suggested, for example, by describing smaller portion sizes as regular rather than small,²⁷ or by benchmarking consumer behaviors against a healthy norm. In 1 experiment, signs in grocery stores saying that the average

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