

Registered Dietitian Nutritionists' Perspectives on Integrating Food and Water System Issues into Professional Practice



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ABSTRACT

Background Sustainable agriculture encompasses economic, environmental, and social aspects of the food system. Members of the Academy of Nutrition and Dietetics (Academy) play an important role in promoting sustainable agriculture because they work in areas where they can influence the food purchasing decisions of foodservice operations and the public.

Objective To investigate behavior of registered dietitian nutritionists (RDNs) toward incorporating sustainable agriculture principles into professional practice using the Theory of Planned Behavior.

Design This cross-sectional study surveyed RDNs nationwide about their perspectives on incorporating sustainable agriculture issues into practice. The survey questions were based on a survey originally administered to Minnesota RDNs during 2002.

Participants and setting The sample (N=626) was drawn from a randomly selected, national sample of Academy members.

Statistical analyses performed Data were analyzed using descriptive statistics, independent *t* tests, Pearson correlations, and stepwise regression.

Results The sample was mostly white, female, and the average age was 45.4±12.2 years. Almost half of Academy RDNs (47%) reported incorporating environmental issues into their practice. All four Theory of Planned Behavior variables (intention, attitude, perceived behavior control, and subjective norm) were predictive of behavior to include sustainable agriculture issues into practice. Barriers to incorporating this topic into practice included lack of knowledge, ability, time, and employer support.

Conclusions This study found that most of the RDN respondents had heard of sustainable agriculture and nearly half reported including this topic in their professional practice. To integrate this topic into practice more consistently, RDNs need more knowledge, time, and employer support.

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THE ACADEMY OF NUTRITION AND DIETETICS (Academy) has called for registered dietitian nutritionists (RDNs) and food and nutrition practitioners to promote ecologic practices that support a sustainable food system for the future.¹ Food and nutrition practitioners and RDNs work in environments where they make decisions about food purchases and educate consumers about their food and beverage decisions; thus, they play an important role in influencing the food system.¹⁻³ RDNs' role in promoting sustainability through research and professional practice has been referred to as civic dietetics.^{3,4} Civic dietetics assumes that sustainable agriculture and nutrient quality are of equal importance when making food choices. To better educate RDNs about issues related to sustainable agriculture and to be better equipped to help consumers make environmentally responsible food choices, the Academy created the Hunger and Environmental Nutrition dietetic

practice group⁵ and publishes the *Journal of Hunger and Environmental Nutrition*.⁶

The term *sustainable agriculture* refers to economic, environmental, and social sustainability of the food system. According to the Farm Bill, the goal of sustainable agriculture is to meet human dietary needs while preserving the natural and nonrenewable resources needed for food production, supporting local farmers, advancing the quality of the community, and improving food security.^{7,8} Research has shown that consumers are interested in purchasing sustainably produced foods, but may have difficulty differentiating between sustainable and conventional agriculture.⁹⁻¹¹ Robinson and colleagues¹⁰ conducted an 8-week intervention to improve consumer awareness of sustainably produced foods at a grocery store and found consumers (N=550) were interested in sustainably produced foods and the intervention was effective. Food and nutrition practitioners and RDNs

can use their expertise to educate consumers about ways to support a sustainable food system, including partnering with farmers' markets, purchasing a share in community-supported agriculture, choosing organically produced products, and purchasing foods from food cooperatives.

Research regarding RDN beliefs and behaviors about incorporating food and water issues into professional practice is limited. Robinson and Smith¹² conducted a survey with RDNs (N=147) in Minnesota and found 43% of RDNs had heard of sustainable agriculture, but only 13% incorporated this topic into their professional practice. Hawkins and colleagues¹³ used a survey to assess the attitudes and practice-related behaviors related to climate change among RDNs (N=570) in the United States and found that only 38% engaged in activities that promoted diet as a factor affecting climate change. Using qualitative research methodology, Hawkins and colleagues¹⁴ explored how RDNs (N=17) made the connections between diet, environment health, and climate change and researchers concluded that there is a need to support proenvironment self-efficacy among RDNs.¹⁴ The results of the available literature support the need for further research into the factors that influence RDN perspectives about incorporating sustainable agriculture into their professional practice because, overall, a majority of RDNs are not doing so on a regular basis.

The purpose of our research was to investigate RDN behavior toward incorporating issues relating to sustainable agriculture into professional practice using the Theory of Planned Behavior (TPB).¹⁵ The survey questions used for this study were previously administered to RDNs in Minnesota,¹³ but this study was administered to a nationwide sample of RDNs in the United States to gather information on their perspectives about sustainable agriculture in their dietetics practice. The survey¹³ was used to test the hypotheses that attitude, perceived behavioral control (PBC), subjective norms, and intention correlate with behavior to include environment-related issues into professional practice.

MATERIALS AND METHODS

Subjects

The survey was sent electronically to a randomly selected sample of Academy members (N=4,800) whose mailing addresses were equally distributed across four regions of the United States (Northeast, Midwest, South, and West), using e-mail lists provided by the Commission for Dietetic Registration. The survey was administered and data were collected and managed using the RedCap software system¹⁶ hosted at the Clinical and Translational Science Institute at Children's National Medical Center, a partnership with The George Washington University.¹⁷ The institutional review boards at both universities approved this research protocol. Informed consent was obtained from participants before beginning the survey, and participation was encouraged by entering survey respondents in a drawing for a Kindle Fire HD (Amazon.com, Inc).

Survey Design

The survey used for this cross-sectional study was created to identify RDN perspectives on incorporating sustainable agriculture issues into their practice using the TPB as the theoretical framework and was originally developed,

administered, and validated in 2002 with members of the Minnesota Dietetic Association (n=147).¹² Developed by Azjen,¹⁵ TPB states that intention is the major determinant of behavior, with subjective norms, PBC, and attitude influencing intention. This theory has previously been applied to research on food choice, dietary behavior, and RDN behavior.¹⁸⁻²¹

The survey included scaled variables based on the TPB (attitude, PBC, subjective norm, intention, and behavior). All variables were scored from -3 to +3, with -3 representing the most negative score and +3 representing the most positive score. Participants were also asked to provide data on demographic factors, including age, sex, race/ethnicity, education level, years in dietetics practice, political affiliation, professional affiliations, and area of dietetics practice.

To develop the original survey, an elicitation survey was sent to a sample (n=19) of Minnesota Dietetic Association members who were all RDNs.¹² This information was used to create a preliminary survey that was completed by 20 RDNs in Minnesota to evaluate the content validity, readability, understandability, and ease of completion. Based on the pilot test data, Cronbach α values for the variables ranged from .69 to .93,¹² and these values are interpreted as "substantial" (.61 to .80) to "almost perfect" (.81 to 1.0).²² A second pilot survey was sent to a different sample of RDNs (n=19) throughout the United States in 2012 to assess the internal reliability and the Cronbach α scores (.67 to 1.0) were similar to the first pilot. The Cronbach α scores for internal reliability from the 2013 survey (n=626) are presented here.

The attitude variable examined the perception each RDN had about incorporating sustainable agriculture into professional practice and whether he or she had a positive or negative opinion about the belief. Ten questions measured attitude: likelihood for the RDN to improve client knowledge; likelihood of being viewed as unconventional by colleagues; educating about foods that may be healthier, too costly, difficult to access, or not clearly labeled; and educating about issues that coincided with their personal values, issues that were not based on science, were outside their personal scope of work, or with which they were not in agreement. Participants rated their belief about the possible outcomes for each belief (behavioral belief) as they related to integrating sustainable agriculture into practice and participants evaluated each outcome (outcome evaluation). Scores were calculated by multiplying the behavior-related belief with the corresponding outcome evaluation, then summed. Internal reliability was 0.73.

PBC (control belief) reflected the RDNs' subjective belief about their control over whether or not they taught clients about sustainable agriculture. This variable was measured on nine conditions: personal interest, appropriateness, adequate budget, employer support, knowledge level, ability, time, level of interest, and clients' ability to understand sustainable agriculture and related issues. All scores were summed and the internal reliability was 0.90.

Subjective norms examined RDN beliefs about eight sources of influence (ie, employer, colleagues, RDNs, food industry, corporate executives, clients/patients, the Academy, and the Society of Nutrition Education and Behavior) and whether each group would expect RDNs to teach about sustainable agriculture (normative belief). This variable also measured the RDNs' motivation to comply with each referent

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