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Development and Application of a Framework to Assess Community Nutritionists' Use of Environmental Strategies to Prevent Obesity

Angela H. Lu, PhD, RD,
Cornell University

Katherine Dickin, PhD, and
Cornell University

Jamie Dollahite, PhD, RD
Cornell University

Abstract

Objective—To develop and apply a framework exploring the extent of involvement in promoting environmental changes to prevent obesity by a group of nutrition educators (NE)

Design—Cross-sectional, mixed methods: qualitative interviews informed framework development; survey applied framework to describe NE's involvement in environmental changes.

Setting—Cooperative Extension in New York State

Participants—Interviewees (n=7) selected to vary in environmental change activities and rural/urban location. Survey response rate was 100% (n=58).

Phenomenon of Interest/Variables Measured—Dimensions and degree of NE's involvement in promoting environmental change.

Analysis—Thematic analysis of qualitative data, triangulated with descriptive analyses of NE's performance of tasks in various settings.

Results—NE's promotion of environmental changes was characterized using framework based on *settings* and *tasks*, dimensions that emerged from qualitative analysis. NE's actions varied across these dimensions and ranged from low to high intensity of collaboration and leadership for environmental change. Most NE surveyed reported actions limited to providing information and

Corresponding author: Name: Angela H. Lu, PhD, RD, Address: 12F.-3, No.57, Fuxing N. Rd., Songshan Dist., Taipei City 105, Taiwan (ROC), Phone: +886 2 2776-6133 Fax: +886 2 2751-3606, ahl27@cornell.edu.

Where work was conducted: 309 MVR Hall, Cornell University, Ithaca NY, 14850

Notes
This study was approved by the Cornell University Institutional Review Board.

recommendations on healthy eating and physical activity. Few reported intensive engagement in developing, implementing, and evaluating plans to change environments for obesity prevention.

Conclusions and Implications—Framework identifies the levels of engagement in promoting environmental changes and supports future research and practice of community nutrition professionals by providing a roadmap for assessing their involvement on multiple levels to prevent obesity.

Keywords

socio-ecological model; environmental change; obesity prevention; community nutrition

INTRODUCTION

To combat the rise of obesity, researchers and practitioners have increasingly applied a socio-ecological perspective that emphasizes the impact of the *environment* (i.e. context external to the individual) at multiple levels—interpersonal, organizational, community, and society—on individuals' behaviors and well-being.[1–4] Community-based strategies that target multiple environments through collaboration have the potential to prevent weight gain in the targeted population.[5,6] This includes a spectrum of strategies such as making school menus healthier, establishing wellness policies in organizations, and increasing access to healthful foods and physical activity in communities.[5,6] While staff of public health and service agencies are familiar with working on the individual and interpersonal levels involving families,[7,8] they are being urged to mobilize their resources to promote changes on the organizational and community levels that can support healthy eating and physical activity to prevent obesity.[9–12] This study focused on actions to effect environmental changes, meaning changes that modify any contexts external to the individual, in *organizations*, e.g. schools, workplaces, and foodservice/retail establishments[2] and in the *community*, meaning the system of organizations within a geographic region.[4]

However, the application of the socio-ecological perspective to obesity prevention was not widespread until the early 2000's[13] and this is still a new concept for many in public health[7] and community service work. For example, staff of the California public health system reported a lack of knowledge and skills to participate in environmental change work.[7] Gantner and Olson identified a need for public health staff to have skills and knowledge to work beyond their traditional role of providing direct service and education, and to collaborate with partners with dissimilar goals, for example, local businesses and government officials,[8] who are in a position to effect environmental changes. Researchers have found that even when nutrition professionals believed that environment was heavily responsible for the rise in obesity, they still suggested direct nutrition education or methods aimed at changing individual-level behaviors as solutions.[14]

The shift toward more comprehensive obesity prevention approaches that encompass environmental changes *and* direct education is clear in recent research and programmatic guidance, e.g. Expanded Food and Nutrition Education Program (EFNEP),[15] Supplemental Nutrition Assistance Program–Education (SNAP-Ed),[16] and Dietary Guidelines for Americans,[2] and has affected the work of nutrition educators (NE) in Cooperative Extension

nationwide. Traditionally, EFNEP and SNAP-Ed provided direct nutrition education to low-income individuals and families. However, because these individuals are disproportionately affected by the obesity epidemic[17,18] and tend to live in neighborhoods with limited availability of healthful affordable foods[19] and resources for physical activity,[20,21] NE have found ways to work with collaborators within their communities, promoting environmental changes on all levels of the socio-ecological continuum[22] to address these disparities.

Publications from federal[2,9–11,16] and state governments[12] emphasize the importance of community collaborations and outline numerous environmental strategies for professionals in diverse organizations to use for obesity prevention. Although comprehensive, the suggested strategies are often written as simple directives without regard for the inherent complexity of implementing the multiple components and sequential activities. The socio-ecological approach represents an expansion of perspectives and activities for many community health professionals,[7,8] and there is currently no framework to assess the extent practitioners are engaged in actions promoting environmental change for obesity prevention. A systematic method to understand the nature of environmental change-related tasks, monitor and assess their performance, and ultimately provide tools and support that facilitate professionals' transition to performing the tasks is needed. For example, Swinburn and colleagues devised the ANGELO (ANalysis Grid for Environments Linked to Obesity) framework for systematically understanding the multiple dimensions of environments, including *types* and *settings* such as schools, workplaces, and community organizations.[23] This paper reports formative research to develop a framework and tool to assess professionals' performance of environmental tasks. The work illustrates how a general socio-ecological model can be translated into a context-specific framework describing the range of environmental tasks performed by nutrition professionals in a community program. The resultant framework provides a basis assessing progress toward implementing a socio-ecological approach to change environments for obesity prevention.

METHODS

In this cross-sectional, mixed methods study, in-depth interviews were used to identify actions NE performed to promote environmental changes in organizations and communities to support healthy eating and physical activity to prevent obesity. A quantitative survey was developed, based on qualitative results, to assess the extent of NE's involvement in making environmental changes in various settings. Informed consent was obtained from NE prior to the interviews conducted between June, 2008 and January, 2009 and survey distributed in November, 2009. This study was approved by the Cornell University Institutional Review Board.

Qualitative Sample Selection and Interviews

Seven NE were selected purposefully from 58 NE in Cornell Cooperative Extension to maximize variation[24] in their performance of tasks to promote environmental changes and in rural or urban location. Four NE were more involved in environmental change on the organizational and community levels to prevent obesity; two each were from urban and rural areas. Three were more involved in direct nutrition education programming, one in urban

and two in rural settings. Two in-depth, semi-structured interviews (developed from programmatic work and pilot data) were conducted in person with each NE. Each interview lasted about 1.5 hours and was recorded and transcribed verbatim. The first interview was exploratory. Respondents were asked to describe their work in general, including open-ended questions such as, "What do you think about the obesity issue?" and "What are you currently doing to address obesity?" and the facilitating factors and challenges associated with their work. Second interviews probed for more details about NE's specific involvement on the environmental level. Additional job-related information (e.g. tenure in current position, programs managed) was gathered.

Credibility of data was verified through peer-debriefing[25] with the authors' research group and through member checks[26] with interviewees. Findings were triangulated by gathering data from brief interviews with NE's immediate supervisors regarding NE's work content, reviewing relevant documents (e.g. NE's position descriptions) and observing selected staff meetings and committee/coalition meetings (n=7) in which respondents were involved.

Qualitative Data Analysis

Transcript data were managed using ATLAS.ti (version 5.2, Scientific Software Development, Berlin, Germany, 2006) and analyzed by the first author throughout data collection. Informed by programmatic experiences and literature,[9–12,23] open coding[27] was used to code segments of text focusing on emergent themes, such as perceptions expressed when NE described their work to prevent obesity. Codes were developed to categorize the variety of agencies worked with (i.e. settings), content of environmental change work (e.g. changing menus to provide healthier choices), tasks performed to promote environmental change (e.g. developing action plans), and supporting factors and challenges in the work. The constant comparative method[27] was used throughout, comparing segments in one interview with previous categories to determine whether to apply the same code or rename it to maintain consistency of its meaning.[27]

Contents of coded text segments were extracted and displayed in a role-ordered matrix[26] (codes in rows and NE in columns) to allow comparison across NE and identify patterns in their involvement in making environmental changes. Similarities and differences were highlighted along a continuum of NE considered to be more vs. less engaged in environmental work.

Survey Development and Distribution

A framework and survey (276 items total) to assess NE's involvement in making environmental changes for obesity prevention were constructed using data from interviews. The framework describes four *settings* that NE identified in the interviews as most relevant to their environmental work and three general *tasks* they performed in each setting (see Results). The tasks represented increasing levels in intensity of engagement and collaboration with partners or leadership toward environmental goals. For example, lower intensity tasks are similar to traditional NE educational roles, whereas tasks scored as higher in intensity include greater collaboration among partners. For each of the four settings, three items elicited the frequency of NE's performance of three general tasks. These items were

assessed on a 5-point scale (“almost never,” “seldom,” “sometimes,” “often,” and “almost always”).

NE’s overall involvement in promoting environmental change to prevent obesity was calculated by first assigning a weighted score of one point for task 1, two for task 2, and three for task 3, reflecting the increasing degree to which these tasks embodied environmental strategies within each setting. The weighted scores were multiplied by NE’s reported frequency of performing each task, one to five (“almost never” to “almost always”). Scores for all settings were summed to create an overall score for involvement in promoting environmental change.

$$\begin{aligned}&\text{Setting 1: } [(\text{Task 1 frequency} \times 1) + (\text{Task 2 frequency} \times 2) + (\text{Task 3 frequency} \times 3)] + \\ &\text{Setting 2: } [(\text{Task 1 frequency} \times 1) + (\text{Task 2 frequency} \times 2) + (\text{Task 3 frequency} \times 3)] + \\ &\text{Setting 3: } [(\text{Task 1 frequency} \times 1) + (\text{Task 2 frequency} \times 2) + (\text{Task 3 frequency} \times 3)] + \\ &\text{Setting 4: } [(\text{Task 1 frequency} \times 1) + (\text{Task 2 frequency} \times 2) + (\text{Task 3 frequency} \times 3)] \\ &= \text{Involvement in promoting environmental change}\end{aligned}$$

The possible range of score is 24–120. NE’s scores vary depending on their frequency of performing the different tasks in any of the four settings, for example, a score of 24 means the NE is almost never involved in making environmental change with their partners in any setting. NE who almost always perform only task 1 in all settings would have a score of 40. In addition to almost always performing task 1 in all settings, an NE who often performs task 2 in two settings would score 52 and extending this work to performing task 3 in the two settings would result in a score of 76. Further, NE who almost always perform all three tasks in one, two, three, and four settings would score 48, 72, 102, and 120, respectively.

Additional questions were used to collect demographic information and the amount of time NE spent each week on tasks aimed at environmental changes. Content validity was established based on review by the authors’ research team which had experiential and technical expertise relevant to the topics and NE’s roles. Three former NE pilot tested the draft survey, recording time needed to complete it and commenting on item clarity, conciseness,[28] and ease or difficulty of completion. Minor revisions in wording were made to reduce ambiguity.

Fifty-eight surveys were distributed to all NE in Cornell Cooperative Extension: 50 were completed at a statewide conference and eight were mailed in by non-attendees.

Quantitative Data Analysis

Descriptive analyses (SPSS version 14.0.2, SPSS Inc., Chicago IL, 2006) were performed to assess the extent of NE’s overall involvement in making environmental changes and their performance of specific tasks in various settings to prevent obesity.

RESULTS

All 58 NE responded to the survey resulting in a 100% response rate. Table 1 displays the characteristics of the NE who were interviewed and surveyed. Those interviewed (n=7) were

also surveyed. Nearly all NE were female; most held a master's degree and spent one to five hours each week on tasks related to making environmental changes to prevent obesity.

Interviews did not reveal practice differences among NE according to whether they worked in rural or urban areas. However, the degree to which NE were involved in making environmental changes to prevent obesity differed across *settings* in which they worked and the *tasks* they performed with each partner. Some NE worked in a wide variety of contexts, with multiple organizations with different missions and target populations; others' partnerships were more limited. Some were loosely involved with partners in environmental changes; others were more intensely engaged. Therefore, the framework developed to assess NE's involvement in environmental work is represented by a matrix of three levels of *tasks* that occur in four categories of *settings*. The two dimensions (tasks and settings) of the framework are described below using qualitative data from interviews, followed by results of the quantitative survey.

Settings of Environmental Change

In addition to working within their own organization to promote environmental changes to support healthy eating and exercise, NE mentioned collaborating with various agencies when promoting environmental change. These agencies fell into categories or types of settings. Collaborating organizations serving adults included faith-based organizations, physicians' offices, community centers, career centers, drug treatment facilities, transitional homeless housing, adult education centers, and for-profit businesses. Youth-serving agencies (YSAs) included Head Start, WIC (Women, Infants, and Children), schools, child daycare centers, after-school programs, recreation centers, summer youth programs, 4-H, and Boys and Girls Clubs. NE often belonged to community committees or coalitions with programs focusing on environmental change such as Steps to a HealthierNY,[30] and obesity task forces that promoted population wellness through healthy eating and physical activity. Four categories of settings were identified.

Setting 1: NE's own workplaces—Most NE mentioned their role as experts within their own organization, providing healthy nutrition guidelines for meetings, and offering wellness promoting activities to colleagues. One NE organized sessions with food-tasting and relevant films to increase staff's awareness of current challenges in the environment and approaches to consider for wellness promotion. Another received instrumental support from management to form a wellness committee which successfully conducted a workplace assessment and implemented wellness guidelines for nutrition and physical activity. These changes improved foods in vending machines, at meetings, and in program sessions with target audiences.

Setting 2: Organizations serving adults—Interviews revealed that NE less frequently promoted environmental changes with other organizations serving adults. Of those who did, one delivered repeated nutrition education sessions with staff in food pantries to prepare healthier foods for clients. Another collaborated with health care providers to stop handing out formula gift packs to women post-partum, and with local businesses to establish worksite breastfeeding facilities. NE also educated agencies on implementing worksite

wellness/walking programs. However, some agencies such as community recreation centers and drug rehabilitation centers were unwilling to take action despite education provided by the NE.

Setting 3: Schools and/or youth-serving agencies—NE more often reported making environmental changes with organizations that served children. They assisted schools/YSAs to review, revise, and approve menus by replacing snack items high in fat and sugar and adding more fruit, vegetables, and whole grain products to meals and snacks. One NE worked with staff at the YMCA and after-school programs to increase physical activity sessions, to avoid using foods as rewards and in fundraising events, and to promote the use of locally grown produce. Some NE collaborated with organizations to develop comprehensive plans and to make the environmental changes more sustainable by formalizing them into wellness policies.

Setting 4: Community committees and/or coalitions—Nearly all NE worked collaboratively in community groups for obesity prevention, which ranged from serving as nutrition experts, making recommendations and supporting other members' projects, leading projects that aimed to make community-level environmental changes. Supporting others' work, i.e. projects initiated and delivered by another community organization, included involvement in projects to develop a walk to school program, sidewalk/crosswalk planning, trail maintenance, opening school gym after hours for residents to exercise, and newly-developed coalitions to coordinate community-level obesity prevention efforts. In leadership roles, NE were responsible for conducting a community assessment of local context and needs in order to develop an obesity prevention plan, coordinating a "TV turn-off challenge" to reduce school children's screen time, and collaborating with farmers to develop farmers' market and community supported agriculture programs.

Survey data indicated NE generally promoted environmental changes in multiple settings: 57% in their own worksite, 57% with other organizations serving adults, 48% with organizations targeting children, and 78% in community committees/coalitions. Survey data showing that most promoted environmental changes working in community committees/coalitions corroborated interview data. NE who were less involved in making environmental changes in adult or child-focused settings or in their own workplaces were still engaged in obesity prevention efforts in some way by serving on community committees/coalitions.

However, while in interviews most NE reported making environmental changes in schools/YSAs, survey results indicated that NE worked with schools/YSAs less frequently than they worked with adult-focused organizations, their own workplace, and community groups. One reason reported for not working on environmental changes with schools/YSAs was that at the time of data collection, the focus of their direct education programs (EFNEP and SNAP-Ed in New York State) was on adults rather than specifically on children. Other reasons included the perception that reviewing school/YSA menus and recipes was not NE's job responsibility and that schools/YSAs, having their own nutritionists/dietitians, did not need NE's assistance. NE also claimed that schools can be too large or difficult to work with due to the intricate organizational structure or disinterest of school leaders, staff, teachers and parents.

Tasks Performed for Environmental Change

In describing their involvement in promoting environmental change to prevent obesity, NE detailed the elaborate process involved, although the sequence of tasks did not necessarily proceed linearly. The list of tasks outlined below was derived primarily from interviews with NE who had salary support and/or support from their supervisors or community partners to devote to environmental change work, allowing for more formal and comprehensive engagement.

1. NE network and build relationships with agency partners.
2. NE make recommendations and provide information to agency partners.
3. NE identify key influential people in organizations or the community.
4. NE communicate with and educate people to get buy-in.
5. NE negotiate with agency partners to establish written contracts/agreements.
6. NE collaborate to develop and implement action plans.
7. NE monitor and evaluate progress of action plans.

Out of this list, NE identified tasks 2, 6, and 7 as those that most directly embodied environmental work and clearly illustrated increasing intensity of engagement in working toward environmental change. Therefore, making recommendations and providing information to partners were categorized as low intensity, followed by collaborating with partners to develop and implement action plans; monitoring and evaluating progress of plans was categorized at the highest level. The survey encompassed these three general tasks in settings 1–3 (own workplace, organizations serving adults, and schools/YSAs). In setting 4 (community committees/coalitions), NE differentiated between tasks where they were in a supportive (task 2) or leadership role (task3), also reflecting an increase in engagement toward environmental change. Table 2 shows the survey content and resultant framework with the two dimensions of settings and tasks.

The frequency of tasks NE performed varied by setting. The Figure shows that in NE's own workplace, settings serving adults, and those serving children, more NE frequently performed task 1, making recommendations and providing information; fewer performed task 2, collaborating to develop and implement action plans, and even fewer performed task 3, evaluating action plans. In community committees/coalitions, most NE often or almost always made recommendations and provided information (task 1) and supported other partners' projects (task 2) at similar frequencies. However, few NE performed task 3. These patterns corroborated qualitative data and confirmed the design of the framework where the three tasks increased in intensity of engagement directed toward environmental change. Combining the two dimensions of the framework, i.e. considering the extent of NE's involvement in the four settings and frequency of performance of three tasks, the mean summative score for involvement in promoting environmental change was 60.2 ± 22.2 and ranged from 24 to 119 (possible range 24–120) with a mode of 36.0.

DISCUSSION

This study developed a framework for categorizing and assessing environmental work for obesity prevention based on two dimensions, settings and tasks, and illustrated its application by describing the extent of involvement of NE in Cornell Cooperative Extension. Survey data corroborated initial data from qualitative interviews, supporting the validity of the framework and indicating that most NE devoted a limited amount of their work time and engaged minimally with partners to perform environmental tasks. While direct nutrition education is still the primary focus of NE's jobs, data indicated that NE were in the early stages of shifting from more traditional direct education approaches to the inclusion of environmental change efforts.

By addressing the environment in multiple settings, NE's role as an expert in providing direct nutrition education was expanded to also include promoting environmental change in organizations and communities through collaborations with relevant partners. Of the four different settings mentioned in interviews, NE were most likely to perform tasks related to a socio-ecological approach in the context of serving on community committees or coalitions. Although less frequent, partnerships with schools, YSAs, and other organizations to promote environmental change were consistent with recommended organizational-level strategies.[9,30–33] NE's efforts were also in line with objectives in state obesity strategic plans such as "increase policy and environmental supports for physical activity and healthy eating" in New York[12] and those in *Recommended Community Strategies and Measurements to Prevent Obesity in the United States*.[9]

Broadly speaking, promoting environmental change to prevent obesity encompasses nutrition education "delivered through multiple venues" and involves activities on all levels of the socio-ecological continuum.[22] The tasks of providing information, making recommendations, developing and implementing action plans, and evaluating plans all involve instances of nutrition education where NE impart nutrition and health knowledge to their partners, including those in a position of power to make changes happen in organizations and communities. This study indicates that NE were most likely to make recommendations and provide information (task 1), consistent with the least intense task for interorganizational partnerships,[34] yet fundamental to community practitioners' jobs and regularly performed at all levels of partnerships.[35] However, information-sharing is not likely to result in environmental changes unless NE take into account their partners' priorities and perspectives on feasibility and collaborate deeply with those who have the necessary power and expertise to bring about the recommended changes.

Although assessment and development, implementation, and evaluation of action plans toward making environmental change are fundamental for interventions and projects[32,36,37,38] that engage collaborative partnerships, these have not traditionally been part of NE's jobs. These tasks were found to be less feasible without targeted funding and to demand more readiness and commitment from partners,[35,39] elements that NE often reported to be lacking.

Although the study was cross-sectional and results do not imply causality, the mixed qualitative and quantitative methods provided the opportunity to triangulate findings from the in-depth interviews with the larger survey to validate the content and extent of NE's involvement in promoting environmental change. The quantitative survey was developed from results of the interviews to ensure face validity. Credibility of qualitative analysis was ensured through member checks[26] and peer-debriefing.[25] Brief key informant interviews with NE's supervisors input from EFNEP and SNAP-Ed leadership and former managers of EFNEP/SNAP-Ed who pilot tested the draft survey. While data on NE's behaviors were self-reported, subjecting them to possible recall and estimation errors or social desirability bias, results were strengthened by the 100% response rate of the NE who managed EFNEP and/or SNAP-Ed in New York State.

This study was conducted in New York State with a specific group of nutritionists in Cooperative Extension, and generalizability to other populations of health practitioners in other settings is not known. However, the framework and assessment will likely be useful in other contexts as these professionals often face similar job conditions working with multiple community partners to prevent obesity on the environmental level. Additionally, the study was grounded in current programming and local realities, with field practitioners discussing their actual perceptions and practices related to promoting environmental change.

IMPLICATIONS FOR RESEARCH AND PRACTICE

NE are being required by funders to work in new ways, moving beyond direct nutrition education, taking a socio-ecological approach that requires collaboration with key partners to bring about environmental changes. This study resulted in the first framework that can be applied in research and practice to systematically describe and evaluate community professionals' involvement in making environmental changes to prevent obesity. Because of the complexity of obesogenic environments,[40] solutions require multisectoral partnerships. This means strong, sustainable, and highly engaged community collaborations[41] among professionals and stakeholders with diverse expertise and varying degrees of power to directly effect environmental change. The two-dimensional framework constructed in this study could be tested further with staff in other organizations or in training professionals in the skills necessary to take steps toward environmental change to prevent obesity. Further, it could be used to establish a baseline assessment of environmental change work performed in the current EFNEP/SNAP-Ed and then to evaluate practice changes longitudinally as training is provided and recent polices are implemented. Although this study identified four types of settings and three categories of tasks, the content of these two dimensions could easily be adapted to other contexts, including NE and public health professionals in other states.

Study results suggest that working in committees/coalitions as a group to promote changes in the community for obesity prevention may be a good starting point because partnering with others is considered a core aspect of NE's job responsibilities according to NE's job descriptions. Data suggest that practitioners may find it easier to begin performing task 1, i.e. making recommendations and providing information related to promoting environmental changes to their partners across agencies and settings. Since NE frequently networked with

agencies for recruitment purposes, they could capitalize on these opportunities to share expertise with others on ways to improve food and physical activity environments, thereby increasing the capacity of community-based practitioners[32,37] to prevention obesity. In essence, exchanging professional expertise is a form of education among leaders and practitioners in the community to enhance collective capacity and consequent collaboration to change the environment. Ultimately, however, higher levels of engagement, including active participation in and leadership of coalitions with clear action plans and evaluation processes will be necessary to bring about large scale change.[41]

Practice-based evidence[42] obtained in this study illustrates the application of the socio-ecological model to understanding activities at the organizational and community levels that are important for obesity prevention, and sheds light on the process by which community-based practitioners can expand their focus and action. The framework presented provides a roadmap in research and practice for categorizing and assessing actions for promoting environmental change for obesity prevention in multiple settings.

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Practice Points

1. Federal agencies are urging nutrition educators to expand their practice to include environmental approaches to enhance effectiveness of obesity prevention. (139 characters; place near line 32.)
2. Nutrition educators need to collaborate with stakeholders who have relevant expertise and power to bring about the recommended environmental changes. (132 characters; place near line 282.)
3. This new framework can be used to assess staff needs and provide training to build expertise in collaborating with partners to make environmental changes. (133 characters; place near line 335.)

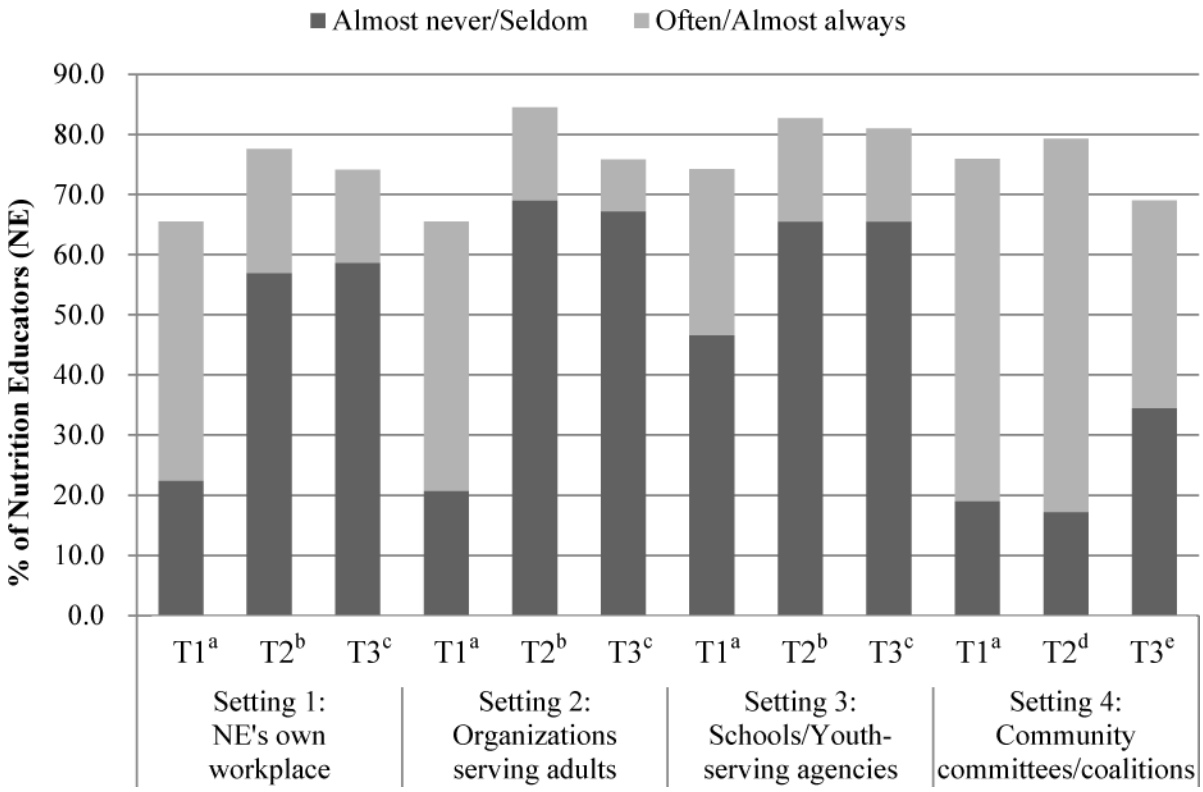

Figure.

Proportion of Nutrition Educators and Frequency of Performing Tasks for Enhancing Environmental Supports for Obesity Prevention in Four Settings.

[a]T1 = Task 1: making recommendations and providing information

[b]T2 = Task 2: collaborating to develop and implement action plans

[c]T3 = Task 3: evaluating action plans

[d]T2 = Task 2: supporting others' environmental change projects

[e]T3 = Task 3: taking the lead on environmental change projects

TABLE 1

Respondent Characteristics and Job-Related Information for Nutrition Educators Interviewed (n=7) and Surveyed (n=58)

		Interviews (n=7) [a]	Survey (n=58)	
Variable	**Categories**	**n**	**n**	**%**
Gender	Female	6	56	97
Age (year)	35 and under 36–45 46–55 56 and over	1 2 3 1	7 13 21 17	12 23 36 29
Degree	Bachelor's Master's Doctoral Other	2 5 0 0	15 40 2 1	26 69 3 2
Registered dietitian	Yes	4	16	28
Programs managed[b]	SNAP-Ed[c] EFNEP[d] Environmental-focus	7 5 4	58 31 10	100 53 17
Hours spent on tasks toward making environmental changes each week	0 1–5 6–10 More than 11	1 4 1 1	6 36 10 6	10 62 17 10
		Mean±SD	Mean±SD	
Current tenure (year)		6.4±6.4	7.7±8.3	
Number of staff supervised		11.1±12.4	7.0±5.0	

[a] Seven interviewees were included in the survey sample of 58.

[b] Programs managed are not mutually exclusive; totals do not add to 100%

[c] Supplemental Nutrition Assistance Program–Education

[d] Expanded Food and Nutrition Education Program

TABLE 2

A Framework of Tasks by Intensity of Engagement Performed by Nutrition Educators in Various Settings*

Task Setting	1 Making recommendations	2 Implementation/supporting role	3 Evaluation/leadership role
1 Nutrition educators' own workplace	We make recommendations and provide information to our colleagues on ways to increase our staff and audience access to healthy foods and physical activity.	We work with our colleagues to develop and implement worksite wellness policies to increase our staff and audience access to healthy foods and physical activity.	We work with our colleagues to evaluate our progress in implementing worksite wellness policies to increase our staff and audience access to healthy foods and physical activity.
2 Organizations serving adults	We make recommendations and provide information on ways to increase the organizations' staff and audience access to healthy foods and physical activity.	We work with organizations to develop and implement action plans to make environmental changes to increase their staff and audience access to healthy foods and physical activity.	We follow-up with organizations to evaluate their progress in making environmental changes to increase their staff and audience access to healthy foods and physical activity.
3 Schools/Youth-serving agencies	We make recommendations and provide information to schools/agencies on ways to increase children's access to healthy foods and physical activity.	We work with schools/agencies to develop and implement action plans to make environmental changes to increase children's access to healthy foods and physical activity.	We follow-up with schools/ agencies to evaluate their progress in making environmental changes to increase children's access to healthy foods and physical activity.
4 Community committees/coalitions	In these working groups, I/my staff make recommendations and provide information on ways to increase residents' access to healthy foods and physical activity.	In these working groups, I/my staff support others' projects that make environmental changes in our community to increase residents' access to healthy foods and physical activity.	In these working groups, I/my staff take the lead to work on projects that make environmental changes in our community to increase residents' access to healthy foods and physical activity.

* Descriptions of each task by setting are paraphrases captured from a variety of nutrition educators' quotes in qualitative data. The text in the table is the same as the survey items.