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Extension Education About Healthy Weight: A Case Study Emphasizes Need to Find the Target Audience

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Extension Education About Healthy Weight: A Case Study Emphasizes Need to Find the Target Audience

Abstract

Developing educational materials about weight management requires accurate content and sound phrasing. However, our recent experience with healthy weight education using traditional Extension recruitment strategies revealed that attention to reaching the target audience is vital when resource management and educational impact are considered. Delivery of a theory-based healthy weight educational program that missed its mark (reaching fewer than 30% of the intended learners) for Extension audiences serves as a basis to call for examining Extension recruitment practices and allocation of program resources for weight education.

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Strategic Planning for 2004-2009 activities of CSREES include actionable strategies to decrease obesity, including sponsoring education and Extension programs. Extension educators recognize a critical gap "in understanding the factors that affect behavior and lead to obesity and in finding ways to intervene to change those factors to prevent obesity." Extension education is cited as a vehicle to begin closing this gap because it "reaches across the country with county-based programs focusing on individuals and communities to promote behaviors that support physical fitness and healthy weight." (United States Department of Agriculture)

History suggests that reaching the intended audience for education on weight management will be problematic because, in general, emphasis on reaching an intended audience has been a recurring struggle for Extension professionals. For example, researchers have appealed to educators to focus on reach for Extension programming directed toward "non-traditional" (Bairstow, Berry, & Driscoll, 2002), "at-risk" (Klemme, Hausafus, & Shirer, 2005), and "culturally diverse" (Robinson, Anding, Garza, & Hinojosa, 2003; Woodson & Sgamma, 1997) audiences. In addition, Extension has been encouraged to target programming to address public health concerns such as Sudden Infant Death Syndrome (Jouridine & Green, 2001) and diet-related risk for chronic disease (Snow & Benedict, 2003).

As a case in point, we present our work with Weigh to Diet, a carefully developed, theoretically based, and traditionally implemented intervention, to show that current Extension nutrition education strategies may not be reaching the audience most in need of weight-related behavior change. Following a description of the intervention and implementation outcomes, we present strategies for improving reach of Extension-based weight management education.

A Case Study of Reaching Intended Audiences: Weigh to Diet Intervention

Weigh to Diet (WTD) employed a newsletter approach and was designed for persons contemplating

or preparing to adopt a more healthful lifestyle and prevent weight gain. Six topics were addressed: 1) measurements to determine a healthy body size (body mass index and waist circumference), 2) healthy weight defined with a focus on size acceptance and eating competence, 3) specific eating plans including low carbohydrate and DASH diets (National Heart, Lung, and Blood Institute, 2006), 4) food guide pyramids, 5) physiology of appetite control, and 6) tips for being physically active including stretching exercises.

Each topic included items eliciting reflection and content summation as well as Web-based sources for additional information (Lohse, 2003a). Extension agents, high school teachers, school nurses, and community group leaders were targeted as the instructors or presenters. An accompanying leader's guide provided lesson objectives, educational theory base, implementation instructions, community awareness activities, references, and a participant evaluation (Lohse, 2003b). County Extension and community educators were invited to a regional training workshop that included WTD training.

Weigh to Diet was included in the work plan of Family and Consumer Science Agents, Kansas State Research and Extension. Extension educators followed usual and customary procedures for participant recruitment and program delivery, including newsletter and newspaper announcements, combinations with other educational opportunities, and small group, classroom, and neighborhood approaches.

As directed in the leader's guide, after the intervention, educators administered and then collected and mailed evaluations to the primary author. The two-page participant evaluations solicited comments and ascertained newsletter sections studied and food preference, which served as a proxy for dietary intake (Drewnowski & Hann, 1999).

Pre- and post-education knowledge of body mass index (BMI) and readiness for health oriented lifestyle change were assessed using a retrospective pre-assessment approach. Healthy lifestyle, defined as "having a lifestyle that supports a healthy weight," was examined using a stage of change (SOC) algorithm for self-perceived readiness to adopt a healthy lifestyle. This algorithm is based on a previously validated algorithm for a specific dietary behavior (Ma, Betts, Horacek, Georgiou, White, & Nitzke, 2002). Weigh to Diet was directed to persons in contemplation and preparation stages. Additional information on SOC may be found at <<http://www.uri.edu/research/cprc/transtheoretical.htm>>.)

Surveys were deemed usable if responses were legible and complete, and directions were followed. Occasional item non-response was present for some surveys, but appeared to be randomly distributed; pair wise removal was applied to missing values. Prior to analysis, stages of change were collapsed in to pre- and post-action groups, and BMI status was dichotomized based on Center for Disease Control and Prevention criteria of normal weight (BMI < 25) and overweight (BMI ≥ 25). Group differences were compared using 2-tailed independent t-tests. Means were presented as ± standard deviation. A probability value < 0.05 was considered significant. Data were analyzed using Statistical Package for the Social Sciences (version 13.0 for Windows, 2004, SPSS, Inc., Chicago, IL).

Surveys (n=415) were returned from 35 geo-diverse locations. The majority of subjects were in action/maintenance SOC for healthy lifestyle as shown in Table 1; only 28.6% were in our targeted contemplation/preparation stages.

Table 1.
Stage of Change for a Healthy Lifestyle

Stage of Change	Definition	N	%
Precontemplation	Lifestyle does not support a healthy weight and individual does not anticipate adopting behavior.	14	3.6
Contemplation/Preparation	Lifestyle does not support a healthy weight but individual anticipates adopting behavior in the future.	110	28.6
Action/Maintenance	Lifestyle supports a healthy weight.	260	67.7
Total		384	100.0

Self-reported BMIs ranged from 19 to 42, with a mean of 26.89 ± 4.36 . Overall, 68.5% were classified as overweight, with 89.3% of our target audience (i.e., contemplation/preparation SOC) having a BMI ≥ 25 . Prior to the intervention, 62% of participants did not know their BMI. Of the participants without BMI knowledge, 58% indicated knowing their BMI after the intervention. Intervention efficacy was suggested because 60% of our target group (subjects in contemplation/preparation SOC) reported post-intervention knowledge BMI.

Overall, fruit, sweets, and meat products were preferred more than vegetables and dairy products. Compared to participants in action/maintenance SOC, subjects in our target audience reported significantly higher preference for high fat dairy products, sweets, and meat and eggs, and a trend for lower preference for fruit (Table 2). Thus, our target audience not only had a high proportion of overweight individuals but also reported preferring less healthy foods.

Table 2.
Comparison of Food Preference Scores by Stage of Change for a Healthy Lifestyle

Food Group	Food Preference Score*		P-value
	Stage of Change for a Healthy Lifestyle		
	Contemplation/Preparation	Action/Maintenance	
Fruit	7.38 \pm 1.56	7.72 \pm 1.16	0.052
Vegetables	7.02 \pm 1.43	7.16 \pm 1.23	0.560
Meat and eggs	7.77 \pm 0.93	7.17 \pm 1.30	<0.001
Sweets (ice cream, pastries, pie, chocolate candy, soft drinks)	7.22 \pm 1.12	6.76 \pm 1.56	0.019
High fat dairy (butter, margarine, mayonnaise, whole milk)	6.40 \pm 1.69	5.77 \pm 1.81	0.027
Low fat dairy (cottage cheese, yogurt, skim milk)	6.50 \pm 1.84	6.27 \pm 2.02	0.379
*Mean score \pm standard deviation; food preference scores based on a 9 point Likert scale ranging from 1 = "dislike extremely" to 9= "like extremely"			

Implications of Our Reach

Our target audience demonstrated a need for this intervention by having a high proportion of overweight and a preference for less healthy foods. In addition, our intervention was shown to benefit the target audience (i.e., increased numbers reported knowing BMI after lesson). However, we were not effective in reaching our intended learners; only 28.6% were in the SOC most closely associated with openness to adopt new, needed behavior change.

Traditional Extension recruitment techniques were not specific enough to accomplish our educational objectives. Furthermore, undirected recruitment efforts resulting in inclusion of

participants who already practice desired behavior minimize the power of an intervention to demonstrate its effectiveness. Diverting resources to successful programs and removing them from ventures less likely to succeed should be key considerations in managing Extension's limited resources, including any partnerships with education-focused funding organizations.

Level of attention heretofore afforded material development must be applied to program delivery; definitive program impact requires assured delivery to the intended audience. Our effort to address the significant public health issue of obesity in Extension education has highlighted the need for Extension to focus research efforts on how to recruit intended (not just convenient) audiences, direct technology resources to securing intended learners, and develop evaluation strategies that assess whether or not intended learners were reached.

Grogan (1991) addressed the issue of Extension programming reach 15 years ago, noting that "the future success of Extension will be determined not only by the relevance of its educational programs, but by the extent to which low-income and minority group citizens participate in and consider them valuable." Today, in the climate of obesity-related public health concerns, based on our work with Weigh to Diet, we replace the words "low-income" and "minority group" with "overweight" and "obese" to echo Grogan's challenge.

Recommendations

Recommendations for National- and State-Level Extension Leaders

- Provide a national-level focus to audience reach; current efforts minimize reach, but instead target impact.
- Identify resources devoted to defining target audience and evaluating reach during Extension administration planning. Snow and Benedict (2003) explained how social marketing could be effectively used as a strategy to learn about a target audience and apply large-scale nutrition education interventions.
- Consider whether or not the intended audience has been reached in strategic planning.
- Enhance training of educational material developers to include a reach assessment component as part of material development (Bairstow, Berry, & Driscoll, 2002; Snow & Benedict, 2003).
- Broaden reach through support of multi-focal educational delivery methods to such as administering weight-based programs via Web classes, emails, podcasts, listservs, etc. (Brown & Kiernan, 1998).

Recommendations for County and Local Extension Educators

Carefully select and develop materials to match the needs of the intended audience. Brown and Kiernan (1998) employed a communication model to develop and formatively evaluate a home-based osteoporosis prevention program designed for women; this could be applied to weight-management.

- Participate in training focused on reaching target audience (Bairstow et al, 2002).
- Collect information enabling reach assessment.

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Discussion