

Exploring the Potential for Technology-Based Nutrition Education Among WIC Recipients in Remote Alaska Native Communities

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ABSTRACT

Objective: Estimate media technology use in Alaska Native communities to inform the feasibility of technology-based nutrition education.

Methods: A self-administered questionnaire was mailed to a random selection of about 50% of *Special Supplemental Nutrition Program for Women, Infants, and Children* (WIC) authorized representatives in remote Alaska Native communities (n = 975). Media technology use, interest in media technology-based nutrition education, and potential barriers were assessed. Chi-square tests were used to investigate associations among technology use, age, and education.

Results: Technology use was common among respondents (n = 368); use was significantly more common among younger age groups and participants with a higher level of education. Smartphone (78.8%) and Facebook (95.8%) use was comparable to national averages, but having a computer at home (38.4%) was much less likely. Less than 50% of participants have Internet access at home.

Conclusions and Implications: Findings shed light on new opportunities for WIC and other programs to deliver nutrition education to Alaska Native people in remote communities.

Key Words: nutrition education, Alaska Native, eHealth, WIC, social media (*J Nutr Educ Behav.* 2017;49:S186-S191.)

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INTRODUCTION

American Indians and Alaska Native people have the highest prevalence of diabetes and obesity compared with any other ethnic group in the US, despite a historic rarity.^{1,2} One explanation for this shift is increased consumption of highly processed, imported, market foods rather than nutrient-dense, traditional, subsistence foods.³ Another related explanation is less familiarity with healthy market foods. In Alaska Native communities, subsistence foods are steeped in rich history, connecting the traditional lifestyle to the land and wildlife both physically and socially,

and shaping the Alaska Native worldview.⁴ Imported market foods do not carry this same cultural significance,⁴ which may result in a lack of knowledge about how to make healthy food choices. Low population density in rural and remote Alaska Native communities (<1 person per square mile) combined with a lack of affordable travel between these communities makes delivering in-person nutrition education to this population prohibitively expensive.⁵ Developing and testing cost-effective public health approaches to deliver nutrition education to Alaska Native people, particularly those living in rural areas, should be prioritized

because of the significant health disparities experienced by this population.

Media technology such as the Internet and cell phones offers new ways to communicate about health issues and to promote health and well-being. According to the Pew Research Center Internet and American Life Project,⁶ 84% of American adults used the Internet in 2015 and 90% of American adults owned a cell phone in 2014.⁷ There is a growing body of evidence demonstrating that Web-based and computer-delivered interventions have the potential to improve knowledge and behavioral health outcomes such as physical activity, nutrition, tobacco use, and safe sexual behavior.⁸⁻¹¹ Text messaging has also grown in popularity as an effective platform to promote health behaviors.¹² Compared with traditional face-to-face counseling, technology-based nutrition education could reduce health service costs and reach a greater proportion of Alaska Native people living in rural communities. In addition, technology-based nutrition education tailored to the Alaska Native context and to an individual's readiness to change behaviors

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may increase the availability of acceptable materials for these communities. Evidence shows that nutrition education messages that are well tailored for the target population are more effective than nontailored materials in promoting behavior change.¹³ Because of limited access to nutrition professionals in rural Alaska, a culturally tailored technology-based approach may present the best opportunity to provide individualized nutrition education at a relatively low cost.¹⁴

Few technology-based nutrition education programs were designed for Alaska Native populations, and the extent to which Alaska Native people living in rural Alaska use media technology is unknown. To guide the development of sustainable, technology-based health interventions, the objective of this study was to assess the use of media technology among participants of the *Special Supplemental Nutrition Assistance Program for Women, Infants, and Children* (WIC) living in rural Alaska Native communities. Participants in WIC are an ideal population for this study because of the potential to reach a large number of participants and their families through WIC education.

METHODS

Sample

Using a cross-sectional study design, the researchers randomly selected 975 WIC-authorized representatives in the Yukon Kuskokwim River Delta (YKD) in southwestern Alaska (48.9%) using SPSS software (version 19.0, IBM Corporation, Armonk, NY, 2010) and mailed them a self-administered questionnaire. A WIC-authorized representative has permission to act on behalf of a WIC participant, although he or she may not be eligible for WIC benefits. The YKD is home to approximately 25,000 Alaska Native people, the majority of whom live in remote communities (population <1,000) that are accessible only by plane year round or boat in the summer.⁵ This region is predominantly Alaska Native (81.5%), and more than one third of families fall below the national poverty level. The prevalence of overweight and obesity is high (>50%), and less than 20% of the population meets daily fruit and vegetable recommenda-

tions.⁵ This study was approved by the University of Alaska Fairbanks Institutional Review Board and the Yukon-Kuskokwim Health Corporation Human Studies Committee.

Measures

The questionnaire included 19 items asking about current media technology use, barriers to media technology use, interest in media technology-based nutrition education, and potential barriers to media technology-based nutrition education. Survey questions were drawn from 2 national surveys and 1 survey designed to assess technology use among WIC participants with Internet access.¹⁵⁻¹⁷ Some study-specific questions were also added. Current practices were assessed by asking participants if they (1) owned a cell phone, smartphone, computer, DVD player, tablet, or digital camera; (2) had a text messaging plan, data plan, Internet access at home, or Internet access in their community; and (3) the frequency with which participants instant messaged, e-mailed, texted, used Facebook, used Twitter, watched videos, played games, posted videos/photos online, or participated in video calls.

Interest in media technology-based nutrition education was assessed by asking participants if they (1) thought it would be useful to obtain nutrition information on a phone or computer; (2) were interested in receiving nutrition information via e-mail, text message, Facebook, online videos, DVD/CD-ROM, online FAQs, or video chat; (3) were interested in joining an online group to talk about pregnancy, breastfeeding, parenting, fruits/vegetables, healthy beverages, picky eaters, active playtime, weight loss, or exercise; and (4) were interested in communicating with other parents about nutrition topics via e-mail, Facebook, or Twitter. A question to identify potential barriers to receiving nutrition information through media technology was included. Demographic information such as age, race, sex, education level, and participation in the *Supplemental Nutrition Assistance Program* was also collected.

The questionnaire was reviewed by the Yukon-Kuskokwim Health Corporation and the State of Alaska WIC Program to ensure that the content was appropriate for the target popula-

tion. The questionnaire was also pilot-tested with a subsample of the population for readability.

Procedures

The Tailored Design Method guided questionnaire distribution. This method emphasizes personalizing survey materials and making several contacts with participants, via mail or the Internet, to build trust with researchers and improve response rates.¹⁸ Three contacts were made to participants via mail approximately 2–3 days apart. The first contact consisted of a postcard saying that a questionnaire would arrive and stressing the importance of the addressee's response. A few days later, potential participants received the questionnaire and a stamped and addressed return envelope, along with \$2. This was followed a few days later with a thank-you postcard and reminder to return the completed questionnaire. Participants were asked to return their completed surveys within 1 month.

Data Analysis

Frequencies were calculated to determine participant demographics and response patterns. Pearson chi-square tests were used to investigate whether Internet use, access to technologies, frequency of technology use, and perceived usefulness of technology-based nutrition education differed by age group or education level (SPSS version 19; IBM Corporation, Armonk, NY; 2010).

RESULTS

Respondent Characteristics

Of the 975 randomly selected participants, 368 (37.7%) responded. [Table 1](#) reports participant demographics.

Media Technology: Use and Access

Media technology use was common. Respondents reported having access to a wide variety of media technologies such as smartphones (78.8%), tablets (44.8%), and computers (38.4%). Text messaging was the most frequently used media technology followed by Facebook ([Figure](#)). Of respondents who

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