

Factors related to fruit, vegetable and traditional food consumption which may affect health among Alaska Native People in Western Alaska

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Objectives: Determine intake of fruits, vegetables and traditional foods (TF), availability of foods, and attitudes towards increasing their consumption.

Study design: Establish community baseline through a cross-sectional sample of residents who were weighed, measured and interviewed. Village stores were surveyed for food availability, price and quality.

Methods: Eighty-eight respondents self-identified as the household member primarily responsible for food shopping and cooking were surveyed in 3 Western Alaska Native villages using a food frequency questionnaire, and village stores were evaluated using food environment surveys.

Results: Overweight (BMI[kg/m²] > 25) was present in 68% of participants. Fruit and vegetable intake (3.3 median servings/day) was low in comparison to recommended intakes of 5–9 servings/d. Seventy-two per cent were eating less than 5 servings/d of fruits and vegetables combined. Thirty-four per cent of respondents were trying to eat more vegetables; 41% were trying to eat more fruits. The median number of servings of TF was 3.2/d (mean 4.3/d). Seventy-seven per cent of respondents reported that they ate enough TF.

Conclusion: Recommendations to continue use of TF and increase intake of fruits and vegetables are consistent with local attitudes. Our findings indicate that increasing the availability of fruits and vegetables would be well received. Information from this study provides a basis for nutrition education and food supplement programs that is responsive to the needs and perceptions of the residents. Continued TF intake and increased fruit and vegetable intake have the potential to benefit the health of rural residents.

Keywords: *Alaska Native; traditional foods; fruits; vegetables; FDPiR.*

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The leading causes of death among Alaska Native people (AN) are diet-related health problems of cancer (1) and heart disease (2). Diabetes has been increasing rapidly among AN (3,4). Overweight (defined as a body mass index (BMI) of 25.0–29.9 kg/m²) in Western Alaska Native women is reported for 1987–1988 to be 56% (4). Obesity (defined as a BMI over 30 kg/m²) increased from 18 to 30% from 1987 until the 1990s (4,5).

Food and nutrition environments are believed to contribute to obesity and chronic disease (6). Because rural Alaska has a very complex food environment, with plant, fish and animal traditional foods (TF), as well as commercial foods available; interventions developed for other areas and other ethnic groups cannot simply be transplanted to rural Alaska and expected to work in a similar manner.

Several investigations about nutrient and food intakes among AN have been published (7–11). However, information about attitudes towards changing dietary practices is less documented (12). The Transtheoretical Model of Change proposes that health behaviour change involves progress through 6 stages of change: pre-contemplation, contemplation, preparation, action, maintenance, and termination (13). This is now one of the most widely used models of health behaviour. The Stages of Change model is the central organizing construct of the Transtheoretical Model of Change. The potential value of this model for increasing fruit and vegetable intake is documented among Japanese women, where researchers used 5 stages culminating in the maintenance stage (14).

Eating more fruits and vegetables is associated with lower LDL-cholesterol levels (15), is an important part of a weight management strategy (16), and is recommended to reduce the risk of cancer (17). The high fibre and water content of fruits and vegetables also contributes to feelings of satiety (16). Consuming more fruits and vegetables has been shown to reduce long term risk of obesity and weight gain among middle-aged women in the United States (US) (18).

Surveys on traditional foods, diets and health in Western Alaska have found that TF use has been associated with better health outcomes, including better glucose tolerance levels (19), better lipid profiles (20) and less obesity (21). Western Alaska Native residents maintain many aspects of their traditional lifestyle including much of the traditional diet. TF, also called subsistence or Native foods, eaten in the Western region include meat, blubber and oil of seals, walrus and whales; salmon and other fish; large land mammals such as caribou and moose, birds including ducks, geese, swans, and cranes; wild greens and berries (22).

The transition to store-bought foods is associated with less hunting, fishing, and physical activity. Commercial (non-traditional) foods can account for 76% or more of the kilocalorie intake for some people in Western Alaska (7). However, food selection in small village stores is limited. Groceries arrive via small plane, and the variety of food available can change from day to day.

The Supplemental Nutrition Assistance Program (SNAP, a federally funded United State (US) government program formerly known as the Food Stamp Program), provides financial assistance for low income families to obtain food. SNAP provides a voucher card, which can be used at stores to purchase the foods of the user's choice. SNAP is the primary federal food assistance program in the US and an important supplement for food purchasing in rural Alaskan villages. For the first

time, an alternate program, FDPIR, (the Food Distribution Program on Indian Reservations) (23) is being offered in rural Alaska. The foods provided come from all food groups. The free FDPIR food shipments have the potential to impact village residents in several ways. They may increase the amount and variety of food including fruits and vegetables that a family can access. They may also reduce the consumption of TF, alter the local food purchasing economy, and contribute to obesity by increasing intake.

Our effort is to describe food availability, consumption of fruits, vegetables and TF, participation in some TF practices, and willingness to change consumption practices. The information will be used to focus future efforts aimed at evaluating the introduction of the FDPIR program to Alaska and promoting health, by the "Helping Ourselves to Health" project.

Materials and methods

Study population

Three of the 13 pilot villages of the FDPIR program were surveyed. These villages were invited to participate because they were all in the Yukon-Kuskokwim region of western Alaska, and therefore could be considered to be more similar to each other than to villages from other regions. Village populations were 367, 411 and 663; the number of households were 70, 76 and 160 (24), (Fig. 1). The villages are geographically remote, accessible only by small plane, boat or snow machine in the winter. Each community had no more than 3 small stores for food purchases. Field visits were conducted in 2007.

The goals of the study were presented to each of the 3 village tribal councils; each council provided written approval. A village liaison was employed and trained to assist with contacting potential participants. The project was reviewed and approved by the Alaska Area Institu-



Fig. 1. Yukon-Kuskokwim Region of Alaska.

tional Review Board, and the Yukon Kuskokwim Health Corporation. Participants provided written consent.

Within each village, households were selected for contact using village housing maps to ensure there was participation from all geographic areas of the village. For the third village, a random numbers list was used to select households. The goal was to interview 30 individuals per village, ≥ 18 years of age, 1 per household, who were self-identified to be the main cook/food shopper in the household. Individuals were contacted by phone and invited to be interviewed. The interview took about 60 minutes and a remuneration of \$30 was provided. Less than half of those contacted refused to participate. Those who did and did not participate were similar in geographic region, ethnicity and socio-economic status.

Data collection

Weight and height measures were collected by 2 interviewers using standardized techniques. Each participant was weighed to the nearest 0.1 lb wearing indoor clothing (Tanita digital scale BWP800/BWP627A; Tanita Corporation of America Inc., Arlington Heights, Illinois). Heights were measured using a portable stadiometer (Road Rod Stadiometer; Seca, Hamburg, Germany). Two height and weight measurements were taken and the average of the 2 measurements was recorded. The BMI was calculated (kg/m^2) to define overweight (25–29.9) and obesity (≥ 30).

Each respondent's usual food intake during the last year was recorded using an 84-item food frequency questionnaire (FFQ) previously validated in the region (25). The food list was chosen to reflect 85% of the food sources (previously reported on 24 hour recalls) for 15 nutrients (25). The FFQ included 6 fruits (blueberries, salmonberries, other berries, bananas, canned peaches and 100% fruit juice) and 9 vegetables (wild greens, mixed vegetables, carrots, potatoes, corn, peas, cabbage, broccoli, and green beans). Additional fruits, vegetables or TF reported by respondents were elicited and recorded. To aid in identifying portion size, participants were shown standard three-dimensional visual aids including meat models (Nasco Co. Modesto, CA), bowl, drinking cup, coffee cup, cup measure, teaspoon and tablespoon.

Food environment regarding fruits and vegetables available for purchase in the villages was measured using 2 tools, the Food Cost Survey (26) and the Nutrition Environment Measure Survey in Stores (NEMS-S) (6). The Food Cost Survey (26) is a nationally standardized survey available for use by state university based organizations such as the Cooperative Extension Service. The survey documented availability and cost for a market basket of foods, including 17 vegetables: fresh, French fried and instant mashed potatoes; cabbage, carrots, onions, lettuce, celery, cucumbers, and tomatoes; canned corn, green beans, dark leafy greens, peas, tomatoes,

beets, and tomato juice; and 16 fruits: apples, bananas, cantaloupe, grapefruit and oranges; frozen strawberries, canned applesauce, fruit cocktail, peaches, and pears; and canned and frozen juices (apple, grape, grapefruit, and orange). The NEMS-S was designed to measure consumer food environment at retail food outlets, including availability, cost, and condition of healthy food choices. The NEMS-S, a national survey developed by Emory University, documented the availability and condition of 10 fresh fruits (bananas, apples, oranges, grapes, cantaloupe, peaches, strawberries, honeydew melon, watermelon, and pears) and 10 fresh vegetables (carrots, tomatoes, sweet peppers, broccoli, lettuce, corn, celery, cucumbers, cabbage, and cauliflower).

Participants were asked to rate themselves on a 4 category scale describing their readiness to consume more fruits, vegetables and TF. Participants were asked which statement best fitted them: "I am eating enough fruit every day", "I am trying to eat more fruit every day", "I am thinking about trying to eat more fruit every day", "I don't eat much fruit and I am not planning to try to eat more", or "Don't know". Similar statements were presented about vegetables and TF. The scale was adapted from the 6 categories of the transtheoretical model for change (13), and pilot tested with ANs outside the survey region. Respondents were also asked 7 questions about their participation in obtaining and preparing TF.

Data were entered in Microsoft Access 2003 (Bellingham, WA). Statistics were generated using SAS, version 9.1.3 (Cary, NC, USA). Descriptive analysis methods were applied using calculated Chi-Square values to identify significant associations among categorical variables. Differences between group means were determined by t-test. Logistic regression methods were utilized to determine if selected criteria were significant in predicting recommended levels for fruit/vegetable consumption.

Results

Eighty-eight participants were surveyed in 3 villages; 86 were women; 87 were AN. They represented 43, 40 and 18% of households in villages 1, 2 and 3, respectively. The majority of participants were overweight (25%) or obese (43%) (Table I). Most people reported participating in 1 or more of the 7 TF-related activities listed; hunting (35%), fishing (69%), gathering (88%), preparing (94%), cleaning (94%), storing (99%), and cooking (100%). Respondents also mentioned sharing (29%), cutting fish, making strips, drying meats, egg hunting, picking greens, going out on tundra to pick, and canning/jarring fish (1–2% reported each of these activities).

When comparing fruit consumption by village, mean servings/d ranged from 1.1 to 2.1. Mean daily servings of vegetables ranged from 1.9–3.7 among the villages. When fruit and vegetable servings were combined, mean

Table I. Prevalence of overweight and obesity in Alaska Native women in 3 Western Alaska villages compared with other surveys, 2007

| Study | Year | N | Method | Overweight*% | Obese*% | Combined% |
|--|-----------|-------|-------------|--------------|---------|-----------|
| Current study | 2007 | 86 | Measured | 25 | 43 | 68 |
| BRFSS for Females, Western Alaska (34) | 2007 | 2,875 | Self report | 28 | 46 | 73 |
| Earth Study, Western Alaska (35) | 2004–2006 | 1,252 | Measured | 33 | 43 | 76 |
| NHANES, women (36) | 2003–2004 | 2,194 | Measured | 29 | 33 | 62 |
| Bering Straits Region (37) | 1994 | 238 | Measured | 28 | 33 | 61 |

*BMI parameters: overweight = 25.0–29.9; obese \geq 30.

consumption by village ranged from 3.0 to 5.8 servings/d (Table II).

When asked about readiness to change their fruit consumption practices 41% reported “trying to eat more” (Table III). The people who were trying to eat more fruit were eating the same number of servings as those who said they don’t eat much (2 mean servings/d). When asked about vegetable intake, equal numbers of people reported that they are “eating enough” or are “trying to eat more” (35 and 34%). In contrast only 10% reported eating enough fruit, while 35% reported eating enough vegetables. Those “thinking about” eating more vegetables were consuming less than those who were “trying”. Eleven per cent overall reported that they didn’t eat many vegetables and weren’t planning to eat more, whereas 16% reported that they didn’t eat many fruits and didn’t plan to increase their intake. Cells became too small to express the data by village.

The villages were not statistically different ($p < 0.05$) in meeting the daily recommendation for fruit (2 or more servings), or vegetables (3 or more servings) (data not shown). Readiness to change fruit and vegetable intakes was compared among villages and no significant differences were observed (data not shown).

Most respondents reported that they were “eating enough” TF (77%, Table III). Mean daily per person

consumption of TF ranged from 3.9–4.5 servings among villages (Table II). The FFQ listed 27 TF. The open-ended question elicited 26 additional TF (data not shown). Most commonly reported TF included several species of fresh, frozen, smoked or dried fish, moose soup, bird soup, seal oil, moose and seal.

When stages of change of fruits and vegetables were evaluated by village, the number of people in each stage was small, generally distributed in the same proportion over the entire sample, and the number of servings reported was similar (Table IV, individual village data not shown).

There were no significant differences in consumption of fruit and vegetables between the BMI categories. We conducted logistic regression analysis to determine if selected criteria were significant in meeting recommended levels for fruit/vegetable consumption. None of the predictor variables (village, BMI, readiness to change) used in our logistic regression analysis were found to be significant ($p < 0.05$) in helping to explain consumption of fruits and vegetables.

Of the 17 vegetables listed on the Food Cost Survey (26), we found that an average of 10 (59%) were available in the stores in the communities surveyed. Of the 16 fruits on the Food Cost Survey, we found that an average of 7 (44%) were available for purchase within each surveyed

Table II. Consumption of fruits, vegetables and traditional foods by Alaska Native adults living in Western Alaska, 2007, servings/person/day (95% confidence intervals) (n = 88)

| Village | Servings/person/day | | | | | | | |
|-------------|---------------------|--------|-------------------|--------|-------------------|--------|-------------------|--------|
| | Fruits | | Vegetables | | Fruits/vegetables | | Traditional food | |
| | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| 1, n = 30 | 2.0 (1.1, 3.1) | 1.5 | 3.7 (1.9, 5.5) | 2.6 | 5.8 (3.6, 8.0) | 4.5 | 4.5 (3.3, 5.7) | 3.6 |
| 2, n = 30 | 1.1 (0.8, 1.4) | 0.8 | 1.9 (1.5, 2.3) | 1.7 | 3.0 (2.3, 3.7) | 2.9 | 4.3 (2.9, 5.7) | 2.6 |
| 3, n = 28 | 2.1 (0.8, 3.4) | 0.8 | 2.4 (1.8, 3.0) | 2.1 | 4.5 (3.0, 6.0) | 3.4 | 3.9 (2.6, 5.2) | 3.1 |
| All, n = 88 | 1.7 (1.2, 2.2) | 1.0 | 2.7 (2.0, 3.4) | 2.1 | 4.4 (3.5, 5.3) | 3.3 | 4.3 (3.6, 5.0) | 3.2 |

No statistical difference is found between mean consumption of fruits, vegetables or fruits/vegetables or TF $p \leq 0.05$.

Table III. Proportion of Alaska Native adults in Western Alaska reporting each stage of readiness to change consumption of fruits, vegetables and traditional foods (mean servings/d) compared with reported consumption, 2007 (n = 88)

| Readiness to change stage | Fruits | | Vegetables | | Traditional foods | |
|-----------------------------------|--------|---------------|------------|---------------|-------------------|---------------|
| | % | Mean servings | % | Mean servings | % | Mean servings |
| Eating enough ^a | 10 | 1.3 | 35 | 3.3 | 77 | 4.5 |
| Trying to eat more | 41 | 2.0 | 34 | 2.9 | 17 | 3.6 |
| Thinking about trying to eat more | 24 | 1.4 | 17 | 1.6 | 5 | 3.6 |
| Don't eat much | 16 | 2.1 | 11 | 2.6 | 1 | 0.6 |
| Don't know | 9 | 1.5 | 2 | 0.2 | 0 | 0 |

Recommended servings/d: ≥ 2 fruits, ≥ 3 vegetables. Recommended servings of traditional food have not been quantified.

^aQuestions: Please tell me which statement best fits you: "I am eating enough fruit every day", "I am trying to eat more fruit every day", "I am thinking about trying to eat more fruit every day", "I don't eat much fruit and I am not planning to try to eat more", or "Don't know". Similar statements were presented about vegetables and TF.

village at the time of our visit. The fruits available in the stores were: apples and bananas; canned applesauce, fruit cocktail (light available in 1 store), oranges, peaches, and pears; juices, 100% apple and/or cranberry, grape, grapefruit and orange. Cantaloupe, grapes, honeydew, and watermelon were available in only 1 store which was surveyed on a day in July, the day after they received 1 of 2 annual produce shipments. The vegetables available in the stores were: carrots, celery, green leaf lettuce, iceberg lettuce, potatoes, and tomatoes; canned beets, corn, green beans, leafy dark greens, (spinach, etc), peas, tomatoes and tomato juice; frozen French fried potatoes and instant mashed potatoes. Cucumbers, onions and mixed vegetables (frozen broccoli, carrots, sugar snap peas, and water chestnuts) were available in only 1 store.

The NEMS-S (6) documented availability of fresh produce only. Stores in 1 community had an average of 4 of the fruits (40%) and 2 of the vegetables (20%) available; stores in the other community had an average of 2 of the fruits (20%) and 3 of the vegetables (30%) available. Condition of this produce was rated as "unacceptable" for 1 out of the 4 fruits and both of the vegetables in the first community; condition was also unacceptable for half of the fruits available in the second community, and 2 out of 3 vegetables.

When results from both store survey instruments were combined from both villages surveyed we found that of the foods available in both villages, 57% were less expensive in 1 village than in the other. However there was a greater variety of foods in the stores of the village having higher costs.

Discussion

The overweight and obesity rates, the 1 physical health indicator that we documented, were high, but comparable to those in other studies. Fruits and vegetables can play an important role in health by replacing energy-dense, nutrient-poor foods with comparatively low-energy, nutrient-rich foods.

Although mean intake of 2 servings of fruit and 3 servings of vegetables daily is consistent with some recommendations (27), the intakes fall short of other recommendations to consume 9 servings (four and one-half cups) of fruits and vegetables a day for the reference 8,368-kJ (2,000-calorie) level, and up to 13 servings for those consuming 13,389 kJ (3,200 calories)/d (28). However, 74% of the respondents ate less than 2 servings of fruit; 69% ate less than 3 servings of vegetables; and 72% were eating less than 5 servings of fruits and vegetables combined/d. In comparison, among the general

Table IV. Readiness to change consumption of vegetables and fruits by 88 Alaska Native adults in 3 Western Alaska villages, 2007

| Frequency | Eating enough | Trying to eat more | Thinking about trying to eat more | Don't eat much | Don't know |
|--------------------------|---------------|--------------------|-----------------------------------|----------------|------------|
| <i>Vegetables, total</i> | | | | | |
| n | 31 | 30 | 15 | 10 | 2 |
| % | 35.2 | 34.1 | 17.1 | 11.4 | 2.3 |
| <i>Fruit, total</i> | | | | | |
| n | 9 | 26 | 21 | 14 | 8 |
| % | 10.2 | 40.9 | 23.9 | 15.9 | 9.1 |

For vegetables, $p = 0.95$ (excludes "Don't know" responses) using contingency table randomization analysis.

For fruit, $p = 0.87$ (excludes "Don't know" responses) using contingency table randomization analysis.

US population 51–62% of women consume less than 5 servings of fruits and vegetables/d (29).

This study and others (7–9, 30) have documented the shift in diet, with store foods now contributing most of the energy. It is necessary to recognize and respond to the diet that people eat by using appropriate recommendations. Thus, Western-diet recommendations can be appropriate. However, because some Alaska Native people consume a large proportion of their diet from TF, recommendations that acknowledge this are also important. For example, eating more fruits and vegetables, such as local berries and greens, can be recommended. Also, educational efforts can highlight alternate sources of nutrients, such as Vitamin A from seal oil and fish livers instead of from fruits and vegetables. The traditional diet that is high in animal source foods is healthy and is repeatedly advocated (7,19,20,31).

It appears that respondents will be receptive to increasing fruit and vegetable intake. The fact that there were people at all stages of readiness to change suggests that educational messages can be targeted to the general population but additional messages may be targeted to sub-groups. For example, among those reporting that they “eat enough” fruit, their mean intake (1 serving/person/d) is below general recommendations (27).

Ways to increase purchased fruit and vegetable consumption include assuring that healthy food is available, economically accessible and acceptable in quality. The surveys of stores found that fruits and vegetables were available but limited in both quality and quantity. Foods purchased in the village are considerably more expensive than when purchased in larger communities. The same foods for a family of 4 that cost \$236 in one of the villages would cost \$123 if purchased in Anchorage and \$101 in Portland, OR (26). The availability of SNAP for lower income residents helps to make foods economically available. However, small stores in villages where residents can use SNAP do not stock a variety of fruits and vegetables. The FDPIR may provide an alternative by shipping foods to qualifying residents.

More importantly, traditional fruits and vegetables (many kinds of berries and plants) can be promoted as a fresh, nutritionally dense, local, sustainable and good tasting alternative to canned, frozen and “fresh” fruits and vegetables transported by plane from outside Alaska.

This study and others have demonstrated the important contribution that TF make to diet quality (7,8,30,32). TF can play a role in weight control because of the additional benefit derived from increasing energy expenditure during hunting, gathering, cleaning, preserving and processing.

Current consumption levels of TF contribute to the quality of the diet, although the amount of TF consumption is decreasing (7,8,30) which is likely to have negative impacts on health (32,33). Most respondents

reported eating enough TF. We interpret this to mean that people are generally satisfied with the amount of TF they consume. Because there is no specific target for daily servings of TF, this may serve as a question for the village residents to explore.

Increasing use of traditional plant foods would assist both in increasing nutrient dense TF, and in increasing low calorie vegetables, which are locally available, fresh, and sustainable. A next step could be a program that involves the elders with tundra plant walks, looking to them to instruct the children regarding where edible plants are found and their uses.

In this initial investigation, the lack of differences in intakes and BMIs indicates that a uniform baseline exists. We observed no significant differences in intakes, stages of change or BMI between villages. Nor were we able to statistically predict fruit and vegetable intake with any of the combination of factors that we compared. This lack of documented differences will be helpful for the evaluation of future food supplement and nutrition education programs.

Limitations

The sample is small. However, participation, which represented 18–43% of the households in these 3 small villages, met our predetermined objectives. Further, by interviewing the primary food preparer in each household, we can formulate general impressions of food consumption for the entire household. While a larger sample would be desirable, limitations of willingness on the part of potential participants, costs and seasonality of travel helped to inform the sample size. All dietary recall methods rely on the respondent’s memory, and this can contribute to inaccuracy. The FFQ used, while designed for this region, was not specifically designed to measure fruit and vegetable consumption.

Although the BMI is widely used as a body weight classification system, it may overestimate the prevalence of overweight in this population (38). There has not been a study of the accuracy of the BMI specifically for the Western Alaska Native population, and this would be a useful area of future study.

This project did not attempt to measure every fruit and vegetable available in these villages. People may barter for TF from other regions, resulting in reports of foods like black muktuk from bowhead whales of the far north; they commonly travel to bigger hub communities to shop at larger stores, and they have food mailed to them via food shipping services, which accept SNAP. Government nutrition assistance programs may also be available, including school lunch, senior meals, the Supplemental Feeding Program for Women, Infants and Children (WIC), Community Supplemental Food Program (CSFP), food banks, and now FDPIR.

The NEMS-S was used because the food environment of rural Alaska has not previously been evaluated. The quality of fresh foods available is a concern in these small stores; fruits and vegetables were sometimes visibly moldy or otherwise past their prime, and dry goods were often outdated. A modified NEMS-S that reflects the brands and healthy foods available in village stores would be a better measure.

Conclusion

This study defines several factors important in future efforts to promote health among AN of Western Alaska. We documented that overweight and obesity are problems in these villages. Other studies in Alaska agree with our findings. Overall fruit and vegetable intakes are low, but more than one-third of people reported they are trying to eat more fruit or vegetables. Availability of fruits and vegetables in stores is limited. Ways to make fruits and vegetables more available and accessible might include increasing the capacity of village stores to stock and sell frozen fruits and vegetables; and to explore bulk and cooperative purchasing options. Ways to increase acceptability could include “tastings” at community gatherings; and making samples of new recipes available at stores. Most importantly, any solutions that are effective need to be identified, supported and implemented by village residents in order to create demand. Participation in TF acquisition activities is widespread and most people surveyed report that they eat enough TF. Whether this level of TF consumption is sustainable given population trends and resource availability is a topic for future investigation.

The knowledge of people’s practices and perceptions presented here will help define future intervention and evaluations in the region. It is recommended that the focus of interventions be based on input from community members. Our results will be shared with communities for their use in planning further actions. The results may also be useful to other Alaska Native communities who are considering initiating supplemental food programs such as the FDPIR. This is the first step for the “Helping Ourselves to Health” project, which is evaluating the introduction of the FDPIR program to rural Alaska, and developing an intervention to improve diet and health.

Conflict of interest

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