

# JOURNAL

OF THE NATIONAL EXTENSION  
ASSOCIATION OF FAMILY & CONSUMER  
SCIENCES



## Volume 15, 2020



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# President's Message

It is my pleasure and honor to present to you the 2020 Journal of NEAFCS. This research based, peer-reviewed journal is one way for our members to inform others in our field, and other related fields, about the scholarly work of Family and Consumer Sciences professionals. The Journal highlights Research, Best practices, and Implications for Extension and is a valuable tool to help our members stay current with programming research and methodology that is specific to our learning and teaching environment. As you read this volume of the Journal of NEAFCS, I know you will find informative and thought provoking information in each article. As you read our journal, think about your own body of work, current issues, and future trends. Do you have something that will be of interest to readers of the journal and add to the knowledge base? Consider submitting an article as a professional goal for yourself in 2021. The deadline for submissions is April 15, 2021.

Please share the Journal with your administrators, local and state policymakers, advisory groups and peers. Since it is an online publication, you can easily forward them the link along with a personal note reflecting just a few examples of the valuable work by extension family and consumer science educators all across the nation. We have learned that no one can tell the story of the impacts our work has on our clientele and communities better than we can.

Thank you to Ashley Dixon, Dana Wright, and Rebecca Hardeman, for their hard work and dedication as our journal co-editors and co-chairs of the Journal Editorial Subcommittee. Our appreciation also goes to the members of the journal subcommittee, the peer reviewers, and to our vice president of Member Resources, Cindy Schlenker Davies, for a quality, peer-reviewed, professional publication that helps preserve our valuable research and resources for the future.

Sincerely,



Roxie Price, President (2019-2020)  
National Extension Association of Family & Consumer Sciences





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An additional thank you to  
the members of the Journal  
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*Thank You!*



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Thank you so much to all of our reviewers for their time, effort, and contribution. Not all reviewers identified themselves on the review form. If your name is not on our list, we would like to sincerely thank you for your contribution and hard work in reviewing these articles.

# From the Editors

*From barriers and motivators of physical activity for Muslim women to the validation of an older adult screening tool, this volume brings you some of the best from NEAFCS members.*



What a difficult year 2020 has been for us all! While there has been great loss for our nation as a whole and for many individuals, these trying times have also presented an opportunity for innovation and change. With this in mind, we present your 2020 edition of the Journal of National Extension Association of Family and Consumer Sciences (JNEAFCS). This year we are introducing a journal that looks a bit different from previous years but contains all the same excellent information with a collective of peer reviewed articles from Extension colleagues nationwide.

We appreciate the opportunity granted to us to edit the journal this year and continue to learn many things throughout the process. We look forward to your feedback on the new format and hope you find it easy to read and appealing to the eye. Moving forward, please consider submitting a manuscript for the 2021 edition of JNEAFCS to share your voice, spread best practices, contribute to innovation, demonstrate impact, or publicize programmatic findings to your colleagues nationally. The submission deadline is April 15, 2021.

Finally, our hearts go out to everyone that has suffered a loss in the past year, and to all that have been negatively impacted by the trials endured because of the COVID-19 pandemic. Our thoughts are with you all.

ASHLEY DIXON  
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The articles in the Journal of NEAFCS are divided into three categories.

These categories are:

### Research

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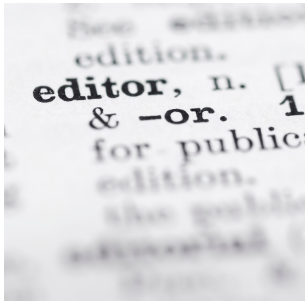
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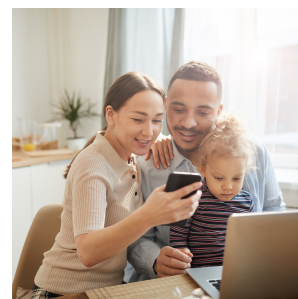
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# Exploration of High-Risk Food Coping Strategies of Maine Food Pantry Clients

Food coping strategies (FCS) are behaviors adopted by individuals to obtain adequate food. FCS were initially prioritized through a 46-item survey of food pantry clients ( $n = 566$ ). Use of expired foods was identified as the most common (62.7%) high-risk FCS. Four focus groups consisting of 59 total individuals were conducted at Maine food pantries to investigate the FCS further. Results from the focus groups identified that food safety education at the point of acquisition of perishable and non-perishable food items could assist with decision-making to reduce risk for foodborne illness and unwarranted food waste.

## RESEARCH

# *Kathryn Cutting, Kathleen A. Savoie, Mary Ellen Camire, and Kathryn Yerxa*



Many Americans struggle to provide enough food for their household. In 2017, 11.8% of U.S. households were food insecure sometime during the year, meaning that they did not have access at all times to enough food for an active, healthy life for each household member (Coleman-Jenson et al., 2018). This percentage includes 4.5% of households who were considered very low food secure, because at times one or more household members disrupted their eating patterns because of lack of money or access to food. The average prevalence of food-insecure households in Maine between 2015 and 2017 was 14.4%, which is higher than the national average (Coleman-Jenson et al., 2018).

Counties in Maine with the highest prevalence of household food insecurity in 2016 were Piscataquis, Aroostook, and

Washington counties (Feeding America, 2018).

With an increase in food insecurity, food pantries have become a necessity for some households as a resource for food throughout the month. In 2013, more than 178,000 Mainers sought assistance from local food pantries and meal sites, and about one in seven Mainers turned to their local hunger relief agency for food assistance (Good Shepherd Food Bank, 2014). The original intent of food pantries was for emergency food relief; however, now they have become a consistent source of food for many individuals. A systematic review concluded that U.S. food pantry intervention programs aided clients' nutritional knowledge and improved food security (An et al., 2019).

Food coping strategies (FCS) are behaviors executed by people to obtain enough food to feed themselves and their family. FCS can include activities during shopping such as using coupons (couponing), buying non-brand items, and shopping at discount stores (Wood et al., 2007; Bomberg et al., 2019). Some FCS relating to food intake behavior include eating less, saving leftovers, or eating foods that are inexpensive and more filling. Riskier FCS are behaviors such as eating food that is out of date or stealing food. Not all FCS are high-risk; however, all FCS should be accounted for to develop effective educational messages aimed at reducing behaviors that pose a risk to an individual or those around them.

## OBJECTIVE

The objective of this study was to explore food pantry clients' opinions and experiences around using out-of-date food items through focus group discussions to offer suggestions for education at food pantries.

## METHODS

### FOCUS GROUP TOPIC AND SCRIPT

The research design involved two phases, outlined in Table 1. Both Phase I and Phase II of the research were approved by the University of Maine Institutional Review Board. The topic for the Phase II focus group discussion was chosen based on the Phase I food pantry participant survey responses ( $n = 566$ ). One of the most common risky FCS reported was use of out-of-date or expired foods (62.7% of respondents). Table 2 shows the prevalence of all risky FCS from Phase I. The purpose of the focus groups was to discuss food pantry clients' experiences and opinions on using out-of-date food items, what information they needed to decide



whether or not to use the food product, and where they went to find food and nutrition information. Additional topics discussed with focus group participants included desired food pantry items, avoided food pantry items, and food storage techniques.

### FOCUS GROUP RECRUITMENT

Focus group participants were recruited from four food pantries across Maine in Cumberland, Kennebec, and Penobscot counties. At each location, verbal communication was initiated with food pantry clients to identify if they were interested in participating in the focus group. Participation was incentivized with twenty dollars in cash for individuals who participated in the focus group. Twenty participants were recruited from each food pantry location with the goal that 10-15 individuals would participate in each focus group.

### FOCUS GROUP SET UP

Focus groups took place at the same food pantries where participants were recruited and lasted for 60-90 minutes. Each group consisted of 11-17 individuals to be able to hear from each participant and avoid overcrowding. At the beginning of the focus groups, individuals were given the Informed Consent to read, and consent was obtained if the individual agreed to stay for the discussion. Participants were given an optional demographic information survey to fill out after the session while snacks were served.

Discussions were audio-recorded using an Olympus digital recorder version WS-852 (Tokyo, Japan) and the Voice Memos app on an iPhone 7 Plus.

### FOCUS GROUP ANALYSIS

The recordings were uploaded to a password-protected computer for analysis and transcribed verbatim. Each transcribed recording was coded by topic using the highlighting tool on Microsoft Word (Redmond, WA) version 15.24. Word clouds were generated on Word Cloud Generator by Jason Davies via <http://www.jasondavies.com/wordcloud/>.

## RESULTS/FINDINGS

In June 2018, two focus groups were held in Penobscot County and one was held in both Cumberland and Kennebec Counties, for a total of four focus groups. There were 59 participants in the four focus groups, and the focus group size ranged from 11 to 17

participants. Table 3 identifies the demographic profile of the participants, and Table 4 includes the nine questions asked in the focus group.

### FOOD PANTRY STAPLES AND AVOIDED ITEMS

To begin the focus group, participants were asked what items they desired most when they come to the food pantry. In each of the focus groups, participants first mentioned that they looked for fresh fruits and vegetables. Most participants also mentioned that they would look for canned fruits and vegetables because they last longer than fresh produce; however, some would bypass the canned items that were higher in sugar (canned fruit) and sodium (canned vegetables).

Other common items looked for at the food pantry were cheese and dairy products, bread, eggs, and protein foods such as meat and beans. Common desired items reported by participants are shown in Figure 1, and quotes regarding items avoided at the food pantries can be found in Table 5.

### OUT-OF-DATE/EXPIRED FOOD USE AND DECISION-MAKING

Almost all participants said they check the date on food items before purchasing but would check more often for perishable items such as dairy products, packaged produce, and eggs. Participants expressed that canned items would be okay to use far beyond the 'best by' or 'use by' dates. Sensory evaluation of foods was a significant part of the discussion, and individuals would incorporate their senses of smell, taste, touch, and vision during the decision-making process when deciding if an item is still safe to eat. Individuals said they would still 'check' an item that was out of date by using sensory evaluation, and if there was anything 'off' about the taste or smell, then they would not use the food item. Visual inspection was also used for cans that were dented, rusted, or bulging – some participants would still use them at their own risk, while others would throw them away regardless of their date after seeing the compromised packaging. Quotes from this topic can be found in Tables 6 through 9.





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## SOURCES OF INFORMATION AND LEARNING METHODS

The most common educational resource in each of the four focus groups was the Internet. Examples of resources mentioned were Facebook, Google, Pinterest, news stations, Food and Drug Administration, National Canning Association, YouTube, and Cooperative Extension. Some individuals mentioned that they cared about the credibility of the source of information.

Aside from the Internet, many participants identified individuals they would go to for nutrition information.

Friends or family members who were interested in food and 'knew a lot' about nutrition were mentioned as trusted sources. Nutritionists were mentioned by individuals who had attended community nutrition classes, or who had consulted grocery store nutritionists and nutritionists at a Native American reservation. Common sources of nutrition information are shown in Figure 2, and quotes regarding methods of learning are shown in Table 10.

Lastly, focus group participants were asked whether or not information on storing food properly or food preservation would be beneficial. Participants mentioned that information on storing food in the refrigerator, especially produce, would be helpful.

Often, people felt as though they were refrigerating the wrong items, or the refrigerator drawers were not at the right temperature or humidity level for the produce. Canning and freezing properly was also of interest in each of the discussions.

## SUMMARY/DISCUSSION

Focus groups have shown to be an effective method of obtaining information from low-income populations who participate in programs such as the Expanded Food and Nutrition Education Program (EFNEP), the Special Supplemental Nutrition Assistance Program for Women, Infants, and Children (WIC), and the Supplemental Nutrition Assistance Program (SNAP; Leak et al., 2014; Robbins et al., 2017). Focus groups have also been utilized in the past to explore nutrition education needs by food pantry users in Washington State (Hoisington et al., 2002). The group discussion environment allows individuals to share experiences and perspectives and possibly learn from one another during the process. Focus groups also provide an opportunity for nutrition professionals to gain insight into the populations they serve and to make improvements in educational interventions.

A common misconception among this study's focus group participants, and also the general public, regarded food product dating (Newsome et al., 2014). A national survey of over 1000 adults revealed that food disposal was linked to viewing date labels as federally-regulated and as food safety messaging (Neff et al., 2019). According to the United States Department of Agriculture Food Safety and Inspection Service (FSIS), manufacturers provide dating on food items to help consumers and retailers decide when food is the best quality. Dates on labels are not an indicator of the product's safety and are not required by Federal law (U.S. Department of Agriculture Food Safety and Inspection Service, 2016). There are various types of food product dating, so it can be difficult to make decisions regarding the safety of food items that are close to or past their 'best' or 'use' by dates. Types of dates include 'sell by,' 'use by,' and 'best if used by/before.' The 'best if used by/before' statement indicates when a product will be of best flavor or quality, the 'sell-by' date tells the store how long to display the product for sale for inventory management, and the 'use-by' date is the last date recommended for the use of the product while at peak quality. The FSIS has recommended that food manufacturers use a 'best if used by' date to reduce confusion and food waste.

Other misconceptions revealed during the focus group discussions are shown in Table 11.

Education on the use of expired foods could reduce the risk for foodborne illness and reduce unwarranted food waste. The focus group participants had varying opinions about when to use or not use food items (See Tables 2, 6, and 7), which illustrated the need for education on the use of out-of-date food items.

Nutrition education exists in various forms including EFNEP, SNAP-Ed, WIC, and nutrition education classes at food pantries. Oftentimes education at food pantries comes from food pantry volunteers. Offering nutrition education in food pantries has been found useful for participants to improve their kitchen practices and self-reported behavior (Ruble et al., 2019). Food pantry staff and volunteers should be educated to provide sound information on food product dating and communicate information about food handling practices at the food pantry (Jones, 2017; Jones et al., 2017). Food pantry managers in North Carolina struggled to balance food waste with potential safety issues posed by out-of-date food items, indicating that more education about food dating is needed (Chaifetz & Chapman, 2015). Sharing the information gained from these focus groups with educational programs in the

community would help organizations implement interventions around how to know when an out-of-date food item is still safe to eat.

## CONCLUSION

Food insecurity is a stressful and complex situation that results in individuals resorting to various food coping strategies (FCS). Prior to this research, FCS had not yet been studied in the state of Maine. This research gives insight into the use of out-of-date and expired foods from a sample of the food pantry consumer population. Additionally, analysis of focus group transcripts identified several misconceptions regarding food spoilage, storing leftovers properly, what to do with mold on food items, and discoloration of meat products. While these topics may already be taught during nutrition education classes, food pantries and their volunteers provide a unique opportunity for food safety education outside of formal nutrition education programs. Food pantry personnel can be a source of information about food safety and pantry food handling practices when clients are receiving their food, and ultimately aid pantry participants to reduce food waste and improve their food security status. Research across the remaining counties of Maine and in other states is warranted to identify the impact of other risky FCS on food choices of pantry participants.



You may click here to access the references, tables, and graphs for this article.

### Food Storage: expiration dates

**USE BY**

you've got until the end of this date to use or freeze the food before it becomes too risky to eat

vs.

**BEST BEFORE**

you can eat food past this date but it might not be at its best quality



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# Validation of an Older Adult Malnutrition Screening Tool for Nutrition Education Program Outcome Assessment

Nutrition educators need valid methods to assess the effectiveness of nutrition education programs targeting older adults at nutritional risk. The aims of the study were to develop and validate a brief, malnutrition screening tool intended for community-dwelling older adults. Older adults attending congregate meals and other community groups in Florida completed a cross-sectional study. The tool was tested for validity, reliability, and ease of use. The research study results verified that the Comprehensive Older Adult Screening Tool (COAST) is a valid and practical tool for assessing the effectiveness of nutrition education programs targeted at community-dwelling older adults at nutritional risk.



## RESEARCH

# *Karima M. Alabasi, Nancy J. Gal, and Wendy J. Dahl*



Internationally, the population of older adults who are aged 60 years or over is increasing more quickly than any other age group, with this population expected to reach 1.4 billion by 2030 (United Nations, 2017). Older adults with lower health, functional, social, and financial status are at higher risk of malnutrition than the U.S. older adult population as a whole (Kowlessar et al., 2015; Lloyd & Wellman, 2015). In the United States, under the auspices of the Older Americans Act Nutrition Program (OAANP), meals are provided to low-income older adults. Congregate meals provide at least one-third of the Dietary Reference Intakes values for nutrients based on the needs of a 70-year-old male (Thomas et al., 2010). However, 56% of congregate nutrition service participants report that these meals actually provide 50% or more of their dietary intake each

each day (Kowlessar et al., 2015) and participants consume less than the recommended number of servings of dairy, protein, grains, and vegetables/fruits (Huffman et al., 2018). Nutrition education sessions are routinely offered at congregate nutrition meal sites; however, the effectiveness of the nutrition programming for decreasing malnutrition risk of attendees is not well known, which may be due in part to the lack of a convenient and valid malnutrition risk screening tool to assess outcomes.

Although the OAANP congregate meal sites report on questions derived from the Nutrition Screening Initiative's (NSI) "Determine Your Nutritional Health Checklist" (NSI, 1994; Wellman et al., 2005), this tool was intended to assess awareness and nutrition education versus

screening (Sahyoun et al., 1997). Although the DETERMINE checklist was recently used to screen for malnutrition risk in longitudinal studies (Katsas et al., 2020; Wei et al., 2018), it was scored low on validity and practicality for use in the community (Corish & Bardon, 2019). Existing malnutrition screening tools have limitations for use in a lower income, community-dwelling older adult populations, particularly a population with a high prevalence of obesity (Davidson & Getz, 2004; Porter et al., 2014) and mobility issues (Brewer et al., 2010) as they require anthropometric measurement and calculation, which is time consuming and impractical in community settings (Cook et al., 2005). Further, the acceptability of these tools is relatively unexplored (Phillips et al., 2010). Although the Malnutrition Screening Tool (MST) is recommended to screen adults of all ages for malnutrition for the purposes of triaging referral for assessment by registered dietitians (Skipper et al., 2020). A more comprehensive tool, including questions on food intake, perceived diet quality, and impact of health conditions on food intake, may be more informative to assess the effectiveness of nutrition education programs. A valid malnutrition screening tool that is practical and feasible, for use in at-risk community-dwelling older adult populations at higher nutritional risk, is needed to promote widespread evaluation of the effectiveness of nutrition education programs. Additionally, such a tool may also be used to identify individuals at high nutritional risk in need of additional food-based nutrition interventions.

## OBJECTIVES

The aims of this study were to develop a comprehensive malnutrition screening tool for lower income,

community-dwelling older adults, specifically those attending congregate meal sites and to validate this tool against the Mini Nutritional Assessment (MNA®), a valid nutrition assessment tool (Vellas et al., 1999). An important consideration was for the tool to be easily administered by non-experts. It was hypothesized that the developed screening tool would be predictive of malnutrition risk in community-dwelling older adults and practical for use in community nutrition education programming environments.

## METHODS

### SCREENING TOOL DEVELOPMENT

As the goal was to develop a malnutrition screening tool that was practical and easily administered by non-experts, anthropometrics (e.g., height and weight) and calculations were excluded. The criteria for the tool was nutritional risk screening of community-dwelling older adults; key items identified from the literature included unplanned weight loss, appetite, changes in the kind/amount of food eaten, quality of diet, and intake of protein foods. Strong evidence suggests that poor appetite is associated with protein energy malnutrition (van der Pols-Vijlbrief et al., 2014); therefore, an item addressing decreased food intake due to decreased appetite was adapted from the Malnutrition Screening Tool (MST), a tool developed for nutrition screening at hospital admission (Ferguson et al., 1999). The item "Have you lost weight recently without trying?" from the MST was also included (Ferguson et al., 1999). A third item about changes in the amount and kind of food intake due to any disease or condition was adapted from the Nutrition Screening Initiative DETERMINE Checklist (NSI, 1994), which is considered to be inclusive of physiological, psychological, or cognitive problems which may impact food intake. A fourth item examining diet quality, with demonstrated construct validity in a diverse study population including older adults (Loftfield et al., 2015), was included. Finally, a fifth item exploring intake of protein foods was adapted from the MNA (Vellas et al., 1999). Experts (n = 5), including university professors who were registered dietitians and an Extension Agent IV specializing in older adult nutrition, were consulted to assess the content validity of the tool.

The screening tool was scored as follows: 7-8 points = "low risk of malnutrition", 5-6 points = "moderate risk of malnutrition", and 0-4 points = "high risk of malnutrition." One point was assigned for a "No" response to the following items: "Have you lost weight

recently without trying?" (Ferguson et al., 1999); "Have you been eating less food because of decreased appetite?" (Ferguson et al., 1999); and "Do you have an illness or condition that has made you change the kind and/or amount of food you eat?" (NSI, 1994). For item 4, "In general, how healthy is your overall diet?" (Loftfield et al., 2015), 1 point was given for the response good and 2 points for the response very good. For item 5, one point was given for each yes response to the following items: "Do you consume dairy products (milk, cheese, yogurt) or soymilk at least once a day?"; "Do you consume meat, poultry (e.g. chicken), fish/seafood, or eggs every day?"; "Do you consume legumes (e.g. beans), soy products, nuts, or seeds at least twice a week?"; Following tool development, assessment of readability and ease of self-administration were conducted and approved as exempt by the Institutional Review Board at the University of Florida.

### RELIABILITY AND VALIDITY DETERMINATION

A cross-sectional study was undertaken to test the reliability and validity of the 5-item "Comprehensive Older Adult Screening Tool" (COAST); older adults (inclusion criteria:  $\geq 60$  y; English-speaking) were recruited from 14 congregate meal sites and three additional community groups in Florida. Target recruitment was set at 300. The comparator for nutritional status used was the MNA. A team of nutritional sciences and dietetic graduate and undergraduate students trained by a registered dietitian carried out the study. Demographic information (gender, age, race, and ethnicity), the MNA questions, and the 5 COAST questions were completed by interview, followed by measurement of height and weight (Seca® 874 flat scale for mobile use; Seca® 217 portable stadiometer). The study was approved by the Institutional Review Board, University of Florida. All participants provided written informed consent.

### STATISTICAL ANALYSES

Using SPSS (version 25), internal consistency reliability (Cronbach's alpha) of the COAST was tested. Criterion validity was established using the Pearson correlation, which assessed the correlation of each item of the COAST with the MNA score. Construct validity was established using the Receiver Operating Curve (ROC) analysis. To determine three classification scores for the COAST, ROC analysis was conducted with the upper cut-point increased for sensitivity by comparison of the COAST with the MNA reclassified as normal nutritional status versus at risk/malnourished. The lower cut-point was increased for specificity by comparing the COAST

with the reclassified MNA as normal nutritional status/at risk versus malnourished.

## RESULTS

### SCREENING TOOL DEVELOPMENT AND EASE OF USE

Readability testing of the screening tool's items by 35 older adults determined that the wording was generally clear and understandable. However, for the appetite question, it was suggested that "eating poorly" may be a confusing phrase, so it was changed to "eating less food." In addition, an example of legumes, i.e., beans, was added to the protein foods item, as it was suggested that "legumes" might be an unknown term for some older adults. In a sample of 42 older adults, 96% found the COAST "easy" or "very easy" to complete by self-assessment.

### RELIABILITY AND VALIDITY DETERMINATION

Table 1 presents the participants' demographic characteristics. Three participants were excluded due to incomplete data, leaving 298 for the analysis. Nutrition risk and status of the study population using the MNA and COAST are presented in Table 2. Cronbach's alpha of COAST was 0.71. All COAST items were significantly correlated ( $p < 0.01$ ) with the MNA score (Table 3). The COAST included three classification categories, a score of 7 or 8 indicating "low risk of malnutrition," 5 or 6 "moderate risk of malnutrition," and 0 to 4 indicating "high risk of malnutrition." The upper cut-point of 6 out of 8 points showed 74% sensitivity, 74% specificity, and 84% area under the curve (AUC). Whereas, the lower cut-point of 5 points displayed 100% sensitivity, 88% specificity, and 95% AUC. The upper cut point of the MNA-SF (11/14 points) exhibited 72% sensitivity, 89% specificity, and 91% AUC, while the lower cut point (8/14 points) demonstrated 75% sensitivity, 97% specificity, and 99% AUC. For scoring purposes, answer choices for items 1, 3, and 4 were collapsed. Specifically, responses of "unsure," included in items 1 and 3, were combined with the "no" response as only 1% of participants chose this option. To further simplify the tool, item 4, which included response choices "poor," "fair," "good," "very good," and "excellent," "fair" and "good" were collapsed into a single category, as "fair" was chosen by only 31 participants. Also, "excellent" and "very good" were collapsed, as "very good" was chosen by only 38 participants. The final version of the COAST is available at <https://edis.ifas.ufl.edu/pdf/files/FS/FS39300.pdf>.

## DISCUSSION

A malnutrition screening tool should be valid and reliable, but also practical to implement in a community setting, particularly if it is to be used to evaluate the effectiveness of a nutrition education programming targeted at congregate meal nutrition program attendees. The results of the present study indicate that the COAST exhibits internal consistency reliability, as well as adequate sensitivity and specificity with its upper and lower cut-points in this primarily lower income, older adult population (Neelemaat et al., 2011). COAST items were chosen to reflect factors associated with risk of malnutrition, namely weight loss, appetite, health status, perceived diet quality, and intake of protein foods. COAST identified 13% of the participants as high risk for malnutrition vs. only 2% assessed as malnourished by the MNA. Similarly, moderate risk of malnutrition by the COAST was higher than the "risk of malnutrition" category of the MNA, a reflection of its moderate specificity. The false positives generated by COAST at the cut-points assessed may contribute higher resource costs if those individuals identified are referred for dietitian assessment or food-based nutrition interventions.

The COAST can be easily self-administered and does not require calculations or anthropometric measurements required by most existing screening tools. The COAST is practical for use in community settings lacking trained individuals for administration. Depending on the functional and literacy levels of the target group, it may be most appropriate to screen by interview. It is not known if the COAST is valid for older adults in other geographical areas or socioeconomic populations, or for nutrition screening of other high-risk groups, such as adults with specific chronic diseases. The population studied was primarily female and white; therefore, the tool requires further validation in men and other racial groups. Further research is needed to confirm inter-rater and intra-rater reliability, as well as cross-validity in other populations. In addition, testing of the predictive validity of the COAST tool would be useful, specifically its association with outcomes, such as onset of malnutrition, need for additional services such as homecare, or admission to long-term care. Further, the tool requires testing as a pre- and post-tool for nutrition education program evaluation, specifically to determine if nutrition education improves the nutritional risk of high-risk community-dwelling older adults.



Implementing a malnutrition screening tool, such as COAST at OAANP congregate meal sites or other community groups, for the purpose of evaluating program effectiveness, may identify older adults at high risk of malnutrition who may be in need of services to prevent or treat malnutrition. Subsequent to the identification of individuals with high risk of malnutrition, assessment by a registered dietitian is often the recommended next step. However, given resource limitations, a comprehensive assessment may not be feasible for those identified at moderate risk. Instead, a given program may need to directly facilitate interventions, such as more intensive, targeted nutrition education, additional protein food supplements, or referral to higher level services. The present study suggests that the COAST screening may result in some false positives, that is, identifying some individuals at nutritional risk when they may not be, and this may result in overuse of scarce resources. However, older adults at risk for sarcopenia (age-related muscle loss) and frailty may also benefit from additional food-based nutrition interventions that promote increased protein intake.

The COAST, a comprehensive malnutrition screening tool, was developed to determine nutritional risk in a lower income, community-dwelling older adult population. It exhibits internal consistency reliability and validity as a screening tool for malnutrition risk. As COAST is easy to use, it may be a practical medium to long-term outcome tool for use in evaluating nutrition education programming targeting low-income, community-dwelling older adults at nutritional risk, such as congregate nutrition program participants.

However, administering the COAST will identify individuals who may be at risk of malnutrition, so it is recommended that nutrition education programming utilizing the tool have a plan in place for additional targeted nutrition education, services, or referral for high-risk individuals identified, to thereby decrease health consequences.



You may click here to access the references, tables, and graphs for this article.



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*Author's Note: The funding for this study was provided by the Institute of Food and Agricultural Sciences, University of Florida with in-kind support from Marion County Extension, UF/IFAS. Karima Alabasi was the recipient of a Libyan Ministry of Higher Education and Scientific Research doctoral scholarship.*



# Are Online Parenting Newsletters Still Relevant and Useful? Parents Report Yes!

Over 80% of new parents/caregivers are under 30 and online, yet little research has been conducted into their information-seeking behavior. Analysis of survey data (2010-2015) from parents/caregivers receiving an age-paced parenting information newsletter shows that a significant number find it as or more useful than information from other print or online sources and family and friends, though there are differences by marital status, race, and levels of education. Qualitative data include unexpected findings, such as sharing, enjoyment, and appreciation of regular delivery, giving insight into usefulness. An online newsletter is a low-cost method of parent support with unexpectedly high value (98).



## RESEARCH

# *Silvia L. Vilches, YaeBin Kim, and Anne Clarkson*



The advent of the internet has transformed information-seeking opportunities for parents and caregivers. According to national survey conducted by Zero to Three, a professional association representing practitioners who work with children three and under, 96% of parents and caregivers of children age five or younger report using the internet and 94% own smart phones (Kinser et al., 2019). Nearly half report using mobile parenting apps for information related to parenting and children (Kinser et al., 2019). Parents born between the early 1980s and mid-1990s, found that parents want credible, expert-based child development information delivered specifically to them, with that 54% preferring a website or blog, and 39% preferring a direct e-mail (ZERO TO THREE, 2016). An important question that is under-explored in research is how to best communicate evidence-based

information, and on what platform. We utilize data from a national e-newsletter to explore the effectiveness of this method of delivering evidence-based information.

Parenting is not easy and often requires hard work and new skills. Parenting support has been shown to improve parenting knowledge, increase parenting skills, and help prevent child abuse and neglect (Campbell & Palm, 2003; Martin & Weigel, 2001). Kinser et al. (2019) found that new parents would like to have more parenting information to help deal with the uncertainties and challenges of raising a child. They also found that parents with college degrees were more likely to trust and use science-based information while 27% of parents with less than a high school degree never used a science-based website. Many millennial

parents also have great trust in parenting information received from immediate family, teachers, and health professionals (Kinser et al., 2019).

The availability of information from many sources and widespread use of mobile apps raises questions about the relevance of online newsletters, including the over ten-year-old Just in Time Parenting newsletter, which is delivered by e-mail to subscribers with a hyperlink to a newsletter pdf or the content for web-based viewing. Age-paced newsletters reach families with key parenting information during developmental transitions, when the content is most useful and can make the biggest impact. Prior to the advent of the internet, mailed age-paced newsletters have been shown to be effective in increasing parents' knowledge of child development, self-confidence, nurturing ability, and other positive parenting behaviors (Cudaback et al., 1985; Riley et al., 1991). When newsletters work effectively, target audiences are motivated and have the opportunity and ability to change their behaviors (Rothschild, 1999). One study using a randomized controlled trial showed that a monthly parenting newsletter sent home in the first year of life especially helped parents understand their baby better and felt less hassled (Waterston et al., 2009). In another study, parents reported that the newsletters were as useful as information provided by healthcare practitioners (Ostergren & Riley, 2012). Parenting newsletters that targeted fathers have shown that reading newsletters helped improve their parenting confidence and parenting skills, especially benefitting fathers with less education (Brotherson et al., 2012). Overall, age-paced newsletter delivery models have been known to be a cost-effective and efficient way to reach parents (Cudaback et al., 1985;



Waterston et al., 2009). Evaluations of this form of parent education; however, have primarily reflected the impact of mailed print newsletters. Electronic delivery is able to reach more parents and better meet the needs of contemporary parents (Radey & Randolph, 2009; Rothbaum et al., 2008; Walker et al., 2011).

Just in Time Parenting (JITP) is an electronically delivered, free parenting newsletter originally developed by a national network of Extension Family Life Specialists in 2008 in response to the need for advertisement-free, research-based, online parenting and child development information ([www.jitp.info](http://www.jitp.info)). The age-paced feature of JITP is initiated by the parent/caregiver when they enter the child's birth date so that the newsletters reach parents at teachable, transitional moments with research-based information about pregnancy, parenting, and child development. JITP is currently delivered for five years, with newsletters in three age-bands: (a) four prenatal and birth; (b) 12 monthly newsletters for parents of infants aged 0 to 12 months; and (c) bi-monthly newsletters for parents of children aged two to five years old. To subscribe, parents submit their email address, due date or child's birth date, and confirm with a reply to a confirmation email.

## OBJECTIVE

Previously, JITP's delivery process has been evaluated across all parent participants via process monitoring evaluation (Kim et al., 2015). The focus of this analysis was to assess the JITP program's effectiveness for parents of 0 to 36 month old children, using five years of survey data (2010-2015). Specifically, we were interested to know:

- a. After reading JITP, do parents report positive changes in their behaviors?
- b. What are parents' perceptions of JITP's usefulness compared to other sources of parenting education?
- c. What are the most valuable referral sources for JITP newsletters?
- d. How do outcomes differ by participant characteristics?

## METHODS

### PARTICIPANTS AND PROCEDURE

Participants included all subscribers who responded to the annual survey e-mailed on the anniversary of their enrolled child's birthday. Of the respondents, 68% were female parents/caregivers of young children, birth to 36 months old, primarily from the USA, ranging in age from 18 to 80 ( $M = 35.46$ ). More than half were married and had a college degree; almost half were caregivers of a one-year-old child (Table 1). All of the respondents had received the free, age-paced newsletter series through email, monthly for the first year and then on a bi-monthly basis through age three. Of the 11,633 questionnaires automatically emailed from 2010 to 2015, 956 were returned, for an 8.2% response rate.

### MEASURES

All data were derived from a self-report questionnaire that included demographic information, collected in single post-reflection survey after 12 months on each birth date. The questions asked about: (1) changes in parenting practices after reading the JITP newsletters (eight questions for one-year-newsletter, nine questions for two- and three-year newsletter); (2) referral sources for the JITP newsletters (five options) and; (3) usefulness of the JITP parenting newsletter compared to other eight other possible sources (Table 2). A few questions for parents/caregivers with one-year old children were different than for those parents/caregivers with two and three-year olds. In addition, the two opened-ended responses from 2013 (midpoint 2010-2015) were sampled from the 12-month survey for qualitative data. The open-ended questions invited parents to add comments on usefulness and any other ways in which they liked or did not like the JITP newsletter, and to provide guidance or suggestions for ways to improve the newsletter.

## RESULTS

### CHANGES IN PARENTING PRACTICES

Participants were asked to rate their current parenting practices after reading the JITP newsletter on a four-point scale (Strongly disagree to Strongly agree). The post reflection questionnaire showed that all reported changed parenting practices after reading JITP and Table 2 reflects combined means scores and standard deviation for families with all three age groups. After reading the JITP newsletter, there were significant differences in parenting practices of parents by

children's age, ethnicity, and marital status. For instance, caregivers of one- and three-year-olds reported knowing significantly more about appropriate age-based expectations ( $F = 25.47, p < .001$ ) and reported feeling more confident as a parent ( $F = 35.28, p < .001$ ) than caregivers of two-year-olds. Caregivers of three-year-olds were significantly more likely than caregivers of two-year-olds to agree that they used new ideas about play to help their child learn ( $t = 5.86, p < .001$ ). Non-white caregivers were significantly more confident in reading their infant's hunger and fullness cues ( $F = 2.57, p < .05$ ). Married caregivers reported having significantly more patience when their baby was fussy or annoying ( $t = 3.49, p < .05$ ).

### USEFULNESS OF THE JITP NEWSLETTERS

Participants were asked to rate the usefulness of eight sources of parenting advice on a three-point scale (not useful-somewhat useful-very useful). The JITP newsletter was rated "very useful" more frequently than any other source on the list (see Figure 1). Usefulness of each source was compared among different groups. While all groups rated JITP as the most useful source, different groups of parents reported certain types of information as more useful. Caregivers with more education reported print resources and family/friends as more useful ( $F = 4.23, p < .01$ ;  $F = 3.12, p < .05$ ;  $F = 2.54, p < .05$ ); caregivers with a one-year-old reported parenting classes and TV shows/videos as more useful compared to other age groups ( $F = 22.22, p < .001$ ;  $F = 5.34, p < .05$ ); and caregivers of two-year-olds reported that health professionals and family/friends are more useful ( $F = 4.17, p < .01$ ;  $F = 2.80, p < .05$ ). Married caregivers reported family/friends as more useful and parenting classes are less useful than non-married caregivers ( $t = 3.21, p < .01$ ;  $t = 2.22, p < .05$ ).

Responses to the two open-ended comment boxes give some idea of why recipients find the newsletter useful and how they use it. Clustering responses to the 2013 12-month survey open-ended questions, reveals three novel characteristics. A recipient who rated the newsletter "very useful" wrote:

*I really enjoyed receiving the emails for the newsletter and actually started to look forward to getting them. The newsletter gave me a glimpse into what my baby should be doing and how he should be progressing. It was really nice having it as a guide and another piece to rely on, as a first time parent. Thank you.*

This comment confirms the usefulness, but also points to appreciation of the regular delivery, the brief insights, and the needs of first-time parents. Two other characteristics are revealed in further comments, which indicate that recipients share information with other family members:

*I also had my son's grandmother sign up for newsletter, which helped her to understand his stages as well.*

Two other recipients mention sharing the newsletters, both with partners, suggesting that sharing could be an unexpected benefit. The third unexpected characteristic is that the newsletters seem to enhance enjoyment of parenting:

*I really enjoyed the JITP articles. I really liked the activity suggestions and also things my partner could do to help or engage the little one in the early months.*

The qualitative data is limited and illustrative rather than comprehensive but indicates some important potential characteristics of "usefulness:" enjoyment; tips for age-appropriate activities; sharing of caregiving in the family; and anticipation of regular delivery received.

### REFERRAL SOURCES FOR THE JITP NEWSLETTERS

Participants were asked how they learned about JITP resources: community agency/cooperative extension office (38%); internet search (20%); friend or family member (19%); another website (10%), and; other (13%), including reports as birth hospital, child care/development class, pediatrician, Text4Baby, Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), home visiting service, Early Head Start, mail, and other sources. No differences were found in referral sources by family characteristics.

### SUMMARY AND IMPLICATIONS FOR PRACTICE/POLICY

The analysis confirmed that even with high levels of internet and social media use, online newsletters make a difference to parents' knowledge and behavior. Parents of infants under 12 months reported knowing more about their infant's needs; non-white parents reported significantly more confidence; and married caregivers/respondents reported significantly more patience. Parents/caregivers who participated in the surveys reported that they used ideas to help enhance safety, guide behavior, change routines, and know

more about what to expect. Parents/caregivers rated the newsletters as more useful for parenting advice than other sources of parenting resources with analysis showing that parents rated the JITP newsletter higher than several other sources (Figure 1). However, there were differences among respondents. More educated parents reported JITP more useful than friends or family; while parents/caregivers of toddlers found JITP as useful or more useful than health professionals; and parents with high school education found JITP as useful as TV/media. The comparisons tell us that there are likely differences in how parents locate information and what they source. Qualitative comments suggest potentially productive ways to explore other characteristics that may add value, such as family sharing, enjoyment, tips for age-appropriate activities, and regular delivery.

The results affirm that age-paced online newsletters can be a low-cost, high-value tool for supporting parents/caregivers. Appropriate developmental expectations gained from the newsletter has the potential to shift parents' confidence and increase positive parent-child interactions. However, different parent groups appear to have different needs, interests, and expectations, which can help guide the development and targeting of future online parenting newsletters. For example, some sources of communication about parenting practices may work better for different ethnicities or ages. Findings such as these may help inform updates to and managing of online parenting newsletters to meet the diverse needs of parents.

The study had limitations in respect to the questions and respondents. The average sample age was somewhat older than the millennial target age, with a mean age of 35.5 years across all five years, although the range included parents/caregivers under 30. The sample also had a higher average level of education than the majority population of new parents/caregivers. In addition, 38% of parents/caregivers found the newsletter from Extension outreach sources, suggesting that there is opportunity to increase distribution, but also suggesting that the sample may over-reflect those who are already supported in other ways by Extension programs and services. Future research should explore impacts for audiences that are not directly referred through an Extension source. The source indications, however, suggest that distributing through a variety of community agencies such as local health providers (hospitals, pediatricians, and OB/GYN), family and

friends, childcare programs, community centers, and health and parenting websites, are important and should be further explored for promoting online newsletters. The qualitative review suggests that some characteristics of usefulness may be a result of information sharing, enjoyment, or the regularity of the information, indicating ways to explore further the construct of usefulness. Although we did not collect household income data during the time of these surveys, the higher education level of this sample, suggests that the findings should be examined again when income data is available. Also, if lower income families might be assumed to have less technology (such as printers) are pdfs more or less effective depending on income level? Does a credible print resource enhance uptake by parents with less than high school education? While there was no difference in findings of usefulness by household characteristics, could the previously discovered link between lower education and preference for parenting groups versus family as a resource be linked to specific characteristics of the newsletters (tips, examples, milestones or suggestions) lead and usefulness ratings? In conclusion, the results confirm that this online format can meet the needs of parents, that parents find online newsletters to be useful, and that it is viable to continue updating and managing a free, publicly developed and scientifically informed online parenting newsletter.



You may click here to access the references, tables, and graphs for this article.



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# Food Safety of Low Acid Canning in Electric Pressure Cookers

The popularity of electric programmable pressure cookers (EPPCs), like the “Instant Pott”, raises concerns regarding the safety of low acid pressure canning in EPPCs, particularly at altitudes above 2,000 feet. Because under-processed low acid canned foods are at risk for developing deadly botulism toxins, our preliminary research study tested internal temperatures in low acid foods canned in three popular EPPCs at three different altitudes. The results showed altitude had a significant impact on temperatures. Knowing the public risk of this practice, Extension has responded with an initial media blitz, followed by curriculum development, a fact sheet, and continued public education.

## RESEARCH

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The extensive popularity of electric programmable pressure cookers (EPPCs), such as the “Instant Pot” raises concerns regarding the safety of low acid pressure canning in EPPCs. Regardless of USDA and occasional manufacturer’s warnings, public blogs increasingly showed these appliances being used for small batch, low acid food canning. A 2013 Utah State University Extension study on pressure cooking revealed EPPCs to be negatively affected by altitude (Haws et al., 2015). As a high-altitude state, this knowledge implied a serious canning food safety risk for Extension constituents. Therefore, a preliminary research study was proposed to determine the temperatures reached by EPPCs when doing low acid pressure

canning at high altitudes.

Along with other manufacturers of EPPCs, the Carey, Power Pressure Cooker XL, and the Gourmia GPC625 tout pressure canning capabilities. Instructions even recommend the use of Ball or USDA canning information as a reference guide for the consumer, although the National Center for Home Food Preservation (NCHFP) has specifically stated they do not currently support the use of the USDA canning processes in electric multi-cooker appliances (National Center for Home Food Preservation [NCHFP], 2014).

This position was reiterated and further reinforced in the NCHFP article, “Burning Issue: Canning in Electric Multi-Cookers” (2019).

The main concerns addressed by the NCHFP have been:

1. No USDA-based thermal process research has been done using an electric pressure cooker of any kind, and there are too many types and styles to attempt blanket recommendations.
2. Unanswered questions about temperature due to altitude and venting, which were not addressed in appliance instructions (NCHFP, 2019).
3. The *USDA Complete Guide to Home Canning* processing times were established for specified sizes of home stove top pressure canners (E. Address, personal communication, December, 2017). The processing times were determined using the heat-up and cool-down times as well as the time at pressure, times which could be affected by unit dimensions. Thirty to forty percent of the thermal death kill, or the destruction of the spores of *Clostridium botulinum* which produce the botulism toxin, happens during the long home canner cool-down cycle (E. Address, personal communication, December, 2017; Etzel et al., 2015). The concern is the risk associated with under-processed food and the viability of *C. botulinum* spores.

The food processing industry often relies on the 12-D or “botulism cook,” which is 121.1° C for 2.5 minutes, as a starting point for designing their canning processes (Pflug, 2010). The 12-D process means every single can had one spore of *C. botulinum* before processing. After processing, only one can out of 1 *trillion* (10<sup>12</sup>) cans would have a surviving spore; none of the other spores would have survived processing. Using the same equation, theoretical time and temperature equivalencies can be created: lower



lower temperatures for longer times, depending on the product. However, in 1978 some studies were conducted to determine how effectively spores of *C. botulinum* are destroyed at temperatures in the range of 110° C (230° F) and 115.6° C (240° F). These results pointed to the possibility that using lower temperatures for denser products may not be adequate, even if the times and temperatures used are theoretically equal to the “botulism cook” (Odlaug et al., 1978). In a 2009 study, van Doornmalen and Kopinga concluded the further below 121.1° C the temperature gets, the smaller the margin of error, and the greater the likelihood of equivalent calculations varying from actual observations. The “Theoretically Adequate?” label in Appendix A reflects this concern. These studies reinforce the necessity for in-depth research when dealing with food safety.

## OBJECTIVE

With the goal of informing Extension home-canning constituents, and knowing the concerns of the National Center for Home Food Preservation, the research questions of this study were to determine:

1. Do these EPPCs attain the commercial standard deemed necessary to destroy botulism toxin spores: 121.1° C (250° F) for 2.5 minutes, the temperature reached under 15 pounds of pressure at sea level.
2. Does altitude affect the maximum temperature reached in the electric programmable pressure cookers tested while canning.

## METHODS

Three brands of electric programmable pressure cookers (EPPCs) were utilized: The Carey Smart Canner and Cooker (14 quart), the Power Pressure Cooker XL (10 quart), and the Duo80 Instant Pot (8 quart). The first two were chosen because they specifically advertised canning in their units, and the third was chosen for its overwhelming popularity as a kitchen appliance.

The three EPPCs were tested at three urban population elevations: 7,070 feet; 4,500 feet; and 2,917 feet.

Temperature patterns were recorded using a ThermoWorks HiTemp 140-2 Autoclave Temperature data logger enclosed in pint canning jars with three commonly canned low acid food products of varying

densities: Hot pack chicken strips, raw pack green beans, and hot pack pinto beans.

Three complete replicates (EPPC x food type x altitude) were performed (n = 81). For example, at each altitude a pint of hot packed chicken was processed three separate times in each of the three canners. Main effects and interactions were evaluated using Analysis of Variance (ANOVA) at the  $\alpha = 0.05$  significance level.

The experiments were done using USDA process times and preparation instructions found in *So Easy to Preserve* (Andress & Harrison, 2014). The Power Pressure XL canning instructions specified a quick release with canning processing, so those directions were followed with the XL. The Carey and the Instant Pot used the natural release recommendation of the USDA (See Table 1).

To examine the possibility that adequate processing may have been achieved with a different time/temperature combination (longer time at lower temperature), lethality values ( $L$ ) and equivalency values ( $t$ ) were determined.  $L$  and  $t$  were calculated using data logger readings, according to the following equations (Erkmen & Bozoglu, 2016):

$$L_R = 1 / (10^{(R - 121)/10}) \quad (\text{eq. 1})$$

$$t = 2.5 \text{ min} / L_R \quad (\text{eq. 2})$$

where  $L_R$  is the lethality value at temperature  $R$ ; and  $t$  is the amount of time, in minutes, that a food would theoretically need to be processed at temperature  $R$  to achieve an equivalent lethality.

## RESULTS

For the purposes of our study, the “botulism cook” commercial standard of 121.1° C for a minimum of 2.5 minutes was used as the target. The Instant Pot and Power Pressure Cooker XL did not reach the target temperature (121.1° C or 250° F). The Carey Smart Canner reached 121.1° C in most conditions, but the temperature and the time sustained was affected by altitude and food type.

### ALTITUDE

Altitude made a significant ( $p < .0001$ ) difference in maximum temperature reached in all of the EPPCs tested. No EPPC tested was able to reach 121.1° C at 7,070 feet above sea level (see Figure 1).



## TEMPERATURE

The Carey Smart Canner reached significantly higher maximum temperatures ( $p < .0001$ ) than the Instant Pot or the Power Pressure XL, as shown in Figure 1. The Carey was the only unit to reach 121.1° C, but only at 4,500 feet and 2,917 feet. The Instant Pot and Power Pressure XL never reached maximum temperatures higher than 116.38° C at any of the three elevations.

## TIME

The combination of temperature and time at maximum temperature is crucial to killing botulism toxin spores. Although the Carey reached significantly higher maximum temperatures than the other units, the Carey was not able to sustain the temperature for 75 minutes, even at lower elevations (see Appendix A for Processing Adequacy Chart).

## STUDY LIMITATIONS

Manufacturers are continuing to produce a wide variety of electric multi-cookers, some of which advertise using their unit for small batch home canning. The results of this study are confined only to the units that were part of the study: The Carey, the Duo 80 Instant Pot, and the Power Pressure XL.

In the food process industry, studies are done to determine cold spots within jars or cans at various locations within an industrial retort canner. The coldest spot found is then used to calculate the necessary times and temperatures for *Clostridium botulinum* spore lethality. Our research included a temperature data logger to monitor the temperatures reached inside the jars, but no studies were done to determine cold spots.

This study was geared toward altitudes in the researchers' home state of Utah and has no data on the performance of the EPPCs between sea level and 2900 feet.

Most importantly, this is preliminary research. It did not contain a microbial challenge component. Temperature observations and calculations are an important first step but cannot replace a full microbial challenge study to confirm actual vs. theoretical food safety of the products processed.



## SUMMARY AND DISCUSSION

At the time of the research, the Carey and the Power Pressure XL not only advertised canning capabilities but recommended the USDA instructions for process times. This preliminary study shows the impact of altitude on the electric pressure cookers and strongly reinforces the original USDA recommendation of not using EPPCs for low acid canning at this time, particularly at altitudes above 2,000 feet. Improperly home canned foods caused 91% of foodborne botulism outbreaks between 1999 and 2008 (Francis, 2014). Considering the food safety risk of EPPC canning, it was important to get the information to the public as quickly and effectively as possible.

A 2010 West Virginia survey of canners indicated that between 70% - 85% of respondents got their canning information from informal sources, such as family, friends, or the internet (Taylor et al., 2014). According to a five-state study done in 2019, participants of Extension canning courses indicated that out of 201 respondents, 93.5% "always practice safe food preservation practices at home", and 94.5% had shared Extension resources (Garden-Robinson et al., 2019).

Knowing these statistics, the dissemination of the information was a hybrid of on-line and face-to-face efforts.

Knowing these statistics, the dissemination of the information was a hybrid of on-line and face-to-face efforts.

1. A media blitz: A press release was sent out in 2019 summarizing the vital findings of the study. This release was picked up by statewide media, the CDC, and *Food Safety News*, potentially reaching well over 4,000,000 people internationally. Spin-off interviews and radio spots within the state after the press release reached another 74,000 potential local viewers. State and county Extension websites posted a brightly colored reminder that “electric pressure cookers are not for canning” with a link to the press release.

a. Informing other Extension professionals: Findings were presented at a national professional conference of Extension faculty, a statewide Extension conference, and a popular statewide preparedness expo. Since the national conference, several sea-level Extension states have contacted us for study replication information. Other high-altitude states in the West have discussed collaborating on next-step research.

2. Face-to-face adult education: An electric pressure cooker module based on the study results has been included in the statewide Master Food Preserver (MFP) curriculum pressure canning unit (see Appendix B for handout example). Between the MFP course, in-person or online canning workshops, and “Instant Pot” style pressure cooking classes, the estimated public reach in one urban county alone was over 2,500 people in 2019.

3. Continuing Education: A “Safe Canning Campaign” has been implemented that includes information from the study, links to proper pressure canning videos, and a video of a local woman telling how she contracted botulism from her own improperly canned green beans.

Safe home canning is a vital part of Extension programming. With evolving kitchen appliances and changes in education styles, Extension needs to constantly research and update their knowledge and outreach to keep their communities safe.



You may click here to access the references, tables, and graphs for this article.



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*Author's Note: We would like to gratefully acknowledge the funding of this research by Utah State University. The lead author would like to also acknowledge the amazing work of the entire research team.*





# Seminars for Stronger Relationships

Couple relationships often face problems that can threaten the viability of the relationship long-term. Family and Consumer Sciences Extension professionals are in a unique position to offer programming to help address some of the issues couples face. This program evaluation measures the effectiveness of the Seminars for Stronger Relationships (SFSR), a program designed to help couples overcome selfishness and fighting and improve communication, openness, and emotional closeness. Results demonstrate the effectiveness of the Seminars for Stronger Relationships in improving relationship satisfaction and dyadic cohesion while reducing depression and stress.



## RESEARCH

# Jonathan Swinton and Shannon Cromwell



Satisfaction and quality in a relationship can be defined as the degree to which each member of the couple meets the needs and desires of their partner through showing intimacy, affection, and mutual support. It can also manifest as an emotional state in which the couple is pleased with the interactions, experiences, and expectations of the couple relationship. Couple satisfaction can be predicted based on identifying factors that influence the quality of interaction among couples (Omidì & Talighi, 2017).

For example, there is a relationship between marital satisfaction and personality factors such as openness and conscientiousness, communication skills, emotional control skills, and demographic variables such as age, education, income, and attachment style (Mazzuca et al., 2019).

Furthermore, intimacy and

emotional bonding serve an important need and provides opportunities for couples to share their innermost thoughts to increase feelings of trustworthiness, love, and commitment. Shared emotions among couples provide interpersonal cohesion and can lead to high relationship satisfaction (Horne & Johnson, 2018; Mazzuca et al., 2019).

As couples grow together, they often experience a host of transitions such as marriage, change in health status, career change or job loss, or change in family composition. These new events and changes can influence their identities, expectations, behaviors, and roles, which can in turn have a significant effect on their relationship stability (Brisini et al., 2018; Gere & Impett, 2018). Another significant factor influencing this stability is mental

health as mental health problems are associated with relationship stability (Clavarino et al., 2011; Nguyen et al., 2020; O'Leary, & Cano, 2001).

Relationship education programs are created and implemented to help adults develop and maintain healthy and satisfying couple relationships during times of transition (Fincham, et al., 2011; Vennum et al., 2015). In addition, couple relationship education programs seek to aid couples in the maintenance of healthy, mutually satisfying and stable relationships during trying times and to prevent future distress among couples (Halford & Bodenmann, 2013).

Despite best efforts through relationship education programs, couples are often faced with the dissolution of their relationships. A thorough needs assessment identified divorce rates in Sevier County, Utah of 65.3% (Utah Department of Health, 2010), which is 23.4% higher than the national average and 50.1% higher than the state average (Centers for Disease Control, 2017). Based on these divorce rates, and the lack of qualified providers to help address the disparity, the Seminars for Stronger Relationships (SFSR) program was developed by Extension faculty to address the need for strengthening and improving couple relationships.

## OBJECTIVES

The Seminars for Stronger Relationships (SFSR) program was developed to address the most common couple relationship problems in response to the growing divorce rates in Sevier County, Utah. The program objective was to strengthen couple relationships by focusing on selfishness, fighting, communication problems, keys to

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healthy communication, prioritizing the relationship, and emotional bonding strategies. By breaking the lessons down into three distinct seminars, Extension faculty were able to focus on building from relationship problems toward positive behaviors that are likely to lead to closeness and bonding. All classes were presented face-to-face in a lecture-style format, but encouraged and included audience participation, as well as group and couple activities. In addition, all participants received take home packets that reinforced the class lessons and encouraged couples to put their newfound skills into practice (see Supplementary Materials).

### **SEMINAR 1: SELFISHNESS, FIGHTING, AND COMMUNICATION PROBLEMS**

In the first seminar, the issues of selfishness and consumerism were the focus of the seminar as researched by Doherty (2013). In addition, emotional flooding and the four most common pitfalls in communication were addressed (Gottman & Schwartz-Gottman, 2010; Gottman & Silver, 1999; McDonald, 2010). This seminar created a foundation of what couples should avoid or seek to overcome in their relationship.

### **SEMINAR 2: KEYS TO HEALTHY COMMUNICATION**

The second seminar built on the objective of 'what not to do' from the previous week's lesson and focused on the essential skills of employing a soft startup (Gottman & Schwartz-Gottman, 2010; Gottman & Silver, 1999) and the use of the WE not me model developed by one of the authors of this program evaluation, which focuses on the important keys of vulnerability and validation (Gottman & Schwartz-Gottman, 2010; Gottman & Silver, 1999; Johnson, 2004; Johnson, 2008; Johnson & Whiffen, 2003). The overall goal of the second seminar was to provide the necessary tools for couples to be able to communicate vulnerably, reach mutual understanding, heal from past emotional pain, and make collaborative decisions together.

### **SEMINAR 3: FEELING CLOSE IN YOUR RELATIONSHIP**

The final seminar built on the progress in communication by helping couples align priorities, so the relationship takes center stage instead of sitting as an afterthought or being left behind parenting responsibilities (Doherty, 2002; Doherty, 2013). Setting appropriate boundaries was key in this discussion as was the establishment of couple rituals or traditions that will help couples build and maintain emotional

connections for years to come (Doherty, 2013).

## **METHOD**

### **RECRUITMENT**

Married couples and adults in committed romantic relationships who reside in rural Sevier County were invited to attend. Couples were encouraged to attend together whenever possible, but individuals in romantic relationships were also welcomed. This included couples across the lifespan and was not limited by length of relationship, marital status, or other demographic factors. Couples were referred by primary care providers, mental health providers, religious leaders, the area prevention coalition, and were marketed to through social media, flyers, and ads in the newspaper. The seminars were provided in-person in a central location making access available to as many county residents as possible.

### **PARTICIPANTS**

The participants included 23 people between the ages of 28 and 72 years ( $M = 43.3$ ,  $SD = 11.6$ ). Of the 23 participants, 13 identified themselves as female and 10 as male; all identified themselves as white, non-Hispanic; and three indicated they were not in a romantic relationship, and the remainder were married. Because the data to be analyzed was related to the romantic relationship the participants were in, data beyond demographics were collected only from those who indicated they were in a romantic relationship ( $N = 20$ ).

### **MEASURES OF IMPACT**

Two reliable and valid measures were given at the beginning of each of the three seminars and again six-weeks following the end of the seminars to evaluate the impact of the programming on couple relationships and mental health. The measures used were the Dyadic Adjustment Scale (Spanier, 1976; DAS), and the Depression Anxiety Stress Scales 21 (Lovibond & Lovibond, 1995a, 1995b; DASS21). The DAS measures the overall quality of couple relationships and has subscales that evaluate dyadic satisfaction (DS), dyadic cohesion (DCoh), dyadic consensus (DCon), and affectional expression (AE). The Dyadic adjustment scale has strong reliability ( $DAS \alpha = .96$ ;  $DS \alpha = .94$ ;  $DCoh \alpha = .81$ ;  $DCon \alpha = .90$ ;  $AE \alpha = .73$ ). It has also been checked for logical content validity and concurrent validity correlating with the Locke-Wallace Marital Adjustment Scale. Despite its age, it is a measure that is still recommended for use in research today (Corcoran & Fischer, 2013).

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Because of the mental health associations with relationship problems, we also included the DASS21 which measures the emotional states of depression, anxiety, and stress. It also has excellent reliability for: depression ( $\alpha = .96$ ), anxiety ( $\alpha = .89$ ), and stress ( $\alpha = .93$ ). Test-retest reliability coefficients over a period of two-weeks were: depression ( $\alpha = .71$ ), anxiety ( $\alpha = .79$ ), and stress ( $\alpha = .81$ ). It also has established validity (concurrent validity, confirmatory factor analysis, and known-groups validity; Corcoran & Fischer, 2013).

The other items measured were the quality of the presenter and the content presented on a scale of 1 (poor) to 5 (exceptional).

## DATA ANALYSIS

Repeated measures data were analyzed for progress between each wave of data collection (between seminar 1 and seminar 2, between seminar 2 and seminar 3, and between seminar 3 and 6-week follow-up). A Wilcoxon signed ranks test was performed on the data because nonparametric tests were believed to be the most appropriate form of analysis for this program evaluation due to its small sample size. Data were grouped for analysis to include all those who completed data for both waves analyzed.

## RESULTS

For differences between seminar 1 and seminar 2, the test revealed a significant positive rank differences in dyadic satisfaction,  $N = 13$ ,  $T = 6.0$ ,  $p < .05$ ; dyadic cohesion,  $N = 13$ ,  $T = 10.5$ ,  $p < .05$ ; and depression,  $N = 13$ ,  $T = 0$ ,  $p < .05$ ; and significant negative rank differences in dyadic consensus,  $N = 13$ ,  $T = 10.5$ ,  $p < .10$ . No other significant improvement or deterioration were found.

For differences between seminar 2 and seminar 3, the test revealed a significant positive rank differences in dyadic satisfaction,  $N = 12$ ,  $T = 7.0$ ,  $p < .10$ ; stress,  $N = 12$ ,  $T = 8.0$ ,  $p < .05$ . No other significant improvement or deterioration were found.

For differences between seminar 3 and the 6-week follow-up, the test revealed significant negative rank differences in depression,  $N = 9$ ,  $T = 0$ ,  $p < .05$ , anxiety,  $N = 9$ ,  $T = 0$ ,  $p < .05$ , and stress,  $N = 9$ ,  $T = 2.5$ ,  $p < .05$ . No other significant improvement or deterioration were found.

For the presentation quality data, results showed that the average combined scores from the seminars is near exceptional for both the quality of the content ( $M = 4.21$ ) and the effectiveness of the instructor ( $M = 4.29$ ).

## DISCUSSION

The SFSR showed significant positive impacts for those who participated. Positive impacts were demonstrated between seminars 1 and 2 for dyadic satisfaction, dyadic cohesion, and depression. The focus of the material taught during seminar 1 was on selfishness, consumerism, emotion regulation, and problematic communication strategies. The results from the data suggest that when providing interventions on these topics, those in couple relationships may be motivated to make or see positive changes leading to improved relationship satisfaction and their cohesiveness as a couple. In addition, depression symptoms improved as a result of this relationship education as well, which may be because poor relationships are associated with depression problems (Clavarino, et al., 2011; O'Leary & Cano, 2001). Hence, these improvements in the relationship may impact mental health such as depression.

Deteriorations were identified in dyadic consensus between seminars 1 and 2. We hypothesize that this may be because the first seminar addressed problems with communication in depth, but solutions to help couples reach consensus are not addressed until seminar 2. The discussion of communication problems may have highlighted the deficiencies they had not previously considered which may have impacted their perceptions when responding to consensus questions at the beginning of seminar 2.

Positive relationship impacts were demonstrated between seminars 2 and 3 for dyadic satisfaction and stress. This suggests that in addition to the progress already made on relationship satisfaction, educating couples on healthy communication skills and the WE not me model further improved their relationship satisfaction and reduced relationship stress. The relationship satisfaction improvements are consistent with research that indicates improved ability to share emotionally vulnerable issues in couple relationships (as is taught in the WE not me model) is associated with healthy relationship satisfaction (Horne & Johnson, 2018; Mazzuca et al., 2019). The stress improvement might be attributed to the new toolset that couples



might be attributed to the new toolset that couples were given to aid in their communication, potentially reducing stress that is associated with couples who struggle with communication (Nguyen et al., 2020).

At the six-week follow-up no significant further relationship improvements or deterioration were identified. This suggests that the positive changes identified between seminars 1 and 2 and between seminars 2 and 3 maintained, suggesting sustained impacts were found related to dyadic satisfaction and dyadic cohesion.

Unfortunately, at the six-week follow-up the three mental health measurements all saw significant deterioration. This could suggest that the program led to overall reductions in mental health. Potential reasons for this could be if further improvements were anticipated but not realized, or more awareness of relationship problems as a result of the SFSR that still needed improvement, it may have affected depression, anxiety, and stress symptoms. Additionally, the six-week follow-up fell right around the busy winter holidays, a time when pressures and stressors are already high and mental health symptoms typically worsen on their own (Melrose, 2015; Parrish, 2018). Hence, this confounding factor may be the most logical explanation, especially given the significant improvement in depression and stress symptoms measured between seminars.

Finally, the participants felt that the content and presentation of the materials were between excellent and exceptional. This positive report supports the content and means of presentation. Hence, we invite further implementation of the SFSR by other Extension professionals throughout the country to help improve the relationship satisfaction and dyadic cohesion in other communities.

## LIMITATIONS

Several limitations are relevant when discussing these potential impacts. As was previously referenced, the time of year for the six-week follow-up may have confounded the results. Had the follow-up taken place at a different time of the year, results on the relationship and mental health assessments may have been different. The small sample size of only 20 participants is another potential limitation. Had the sample size been larger, it is possible that more positive and/or negative impacts may have been measured.

## FUTURE DIRECTIONS

Future research could address the limitations by replicating this program evaluation with additional programming to see if larger data sets would support, strengthen, or lead to different results. In addition, implementation of the program in other states and in urban communities is encouraged to see if the positive improvements measured can be replicated elsewhere. Future implementation of SFSR programs during a time period other than the holiday season may establish if the deterioration of mental health was a result of the time of year or the programming. Finally, implementation and evaluation of the SFSR program through web-based formats could aid in expanding its impact reach.



You may click here to access the references, tables, and graphs for this article.



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# What Do Men Want to Know about Nutrition and Health?

## Results of an Online Survey Guide Extension Program Development

Men have a higher incidence of several chronic diseases than women. The purpose of this research was to determine men's health concerns, topics of interest in nutrition and health, and current and preferred educational delivery methods. In an online survey, men (n=554) indicated an awareness of key health issues affecting men (heart disease, cancer, etc.). Face-to-face conversations with health professionals, spouses/significant others, educational classes, and web-based information were identified as their preferred methods for receiving nutrition/health information. Men represent an audience for Extension Family and Consumer Sciences (FCS) programming. Results of this research were used to develop a men's train-the-trainer toolkit, website, and educational materials.



## RESEARCH

### *Julie Garden-Robinson*



Over the past 100 years, chronic diseases related to diet and lifestyle have increased, while nutrient deficiencies and infectious diseases have decreased (U.S. Department of Health and Human Services, 2015). About one-half of adults have a chronic disease such as cardiovascular disease, high blood pressure, type 2 diabetes, cancer, and/or osteoporosis, which often are linked to lifestyle choices such as diet and physical activity levels. In 2017, the life expectancy decreased by 0.1 year for both non-Hispanic White males and non-Hispanic Black males, with heart disease, cancer, and accidents/unintentional injuries reported as the leading causes of death for the population (Kochanek et al., 2019). For many years, men have had higher rates of chronic diseases and a shorter lifespan than women (Courtenay, 2000). While a federal Office on Women's Health exists in the U.S., an office on men's health does not exist (U.S. Department of Health and Human Service, 2020).

Men are less likely to be included in research studies, and published literature specifically focusing on aspects of men's health is relatively scarce. In a review of randomized, controlled trials of lifestyle interventions, researchers report that among 244 studies with 94,207 participants, the studies included 73% women and 27% men. Further, minority males comprised 1.8% of U.S. study participants and were not targeted for inclusion in specific studies (Pagoto et al., 2012).

The relationship between men, food, nutrition, and health has been studied using interviews and other qualitative methods in sociological studies. According to results of interviews with 33 men ages 18 to 65 years and older, men have a complex relationship with food. Their roles as men, fathers, and husbands may influence their food habits, and men sometimes concede control of their food intake to their

partners (Newcombe et al., 2012). Researchers in the Netherlands studied health beliefs and workplace physical activities in their interviews with 13 Dutch male employees and questioned whether men were "doing masculinity, not doing health?" According to their interviewees, the "ideal man" was a "winner" who was prepared to compete and was not a "whiner" (Verdonk et al., 2010).

Researchers in the United Kingdom interviewed 10 "healthy" men who revealed a complex relationship between masculinity and health behaviors (Sloan et al., 2010). Scottish researchers found that men participating in a football club were more likely to change their lifestyle practices (Bunn et al., 2016). In a study of men participating in a weight management program in the United Kingdom, social support from women (partner, mother, mothers-in-law) was viewed as highly influential in promoting behavioral change (MacLean et al., 2014). Researchers in Australia studied young men's motivators and barriers to healthy lifestyle. Barriers to eating healthy included their perceived efforts to adopting healthy eating patterns, cost, and peer support. Barriers to physical activity included lack of time, cost, feelings of inferiority, and family upbringing (Ashton et al., 2015).

## OBJECTIVES

The overall goal of this study was to conduct a needs assessment to inform the development of Extension nutrition and health programming for men. The objective was to develop and implement an online survey targeting men in the U.S. to determine their a) health issues of greatest concern, b) health/nutrition topics of greatest interest, c) current sources of health information, and d) preferred delivery methods for receiving nutrition and health information.



## METHOD

After reviewing the available literature, survey questions were developed by an Extension specialist and two Extension agents/educators. The completed survey was reviewed by a survey development specialist and nutrition/health professionals. The survey questions included lists of items to select or rate, along with both “other” and “comment” boxes to provide further insight. The protocol was submitted to the university’s Institutional Review Board (IRB) and was given an “exempt” status. The 22-question survey was pilot-tested with members of the target population (men 18 years and older) to determine any issues with the questions. The SurveyMonkey ([www.surveymonkey.com](http://www.surveymonkey.com)) online subscription-based platform was used to collect data. The survey link was disseminated through emails in November 2017 in a snowball (or referral) sampling method for two weeks to reach men. The respondents could skip any questions they chose not to answer. If desired, they could type their names into a separate survey not connected to their responses to be eligible for one of two \$50 gift cards.

## DATA ANALYSIS

Frequencies and mean values were determined, and the data was further separated into two age categories: men ages 18 to 45 years, and men ages 46 years and older. In addition, the men provided extensive written comments, and after thematic analysis, this qualitative data will be submitted for publication.

## RESULTS

Tables 1 to 4 present the cumulative responses as well as the separated data for men ages 18 to 45 and 46 and older, respectively. Respondents (n=554) from 39 states completed the online survey. According to the analytic data provided by SurveyMonkey, they spent an average of 7 minutes completing the survey. Respondents ranged in age from 18 to 76 years or older, with the majority (n=240 respondents) in the 46 to 65 year-old categories. Respondents reported living on farms (23%), in cities with populations less than 5,000 (19%), cities with 5,000 to 9,999 (8%), cities with 10,000 to 49,999 (13%), cities with 50,000 to 99,999 (14%), and cities with populations of 100,000 or more (23%). Most (83%) reported they live with other people in their household.

The vast majority of respondents (90%) reported they usually or sometimes make healthy choices; however, 66% reported they were not satisfied with their weight, with the majority (63%) considering themselves overweight. Nearly 59% reported getting less than the recommended 30 minutes of physical activity daily. About 57% reported drinking two or fewer alcoholic beverages per week, while 10% reported drinking 10 or more alcoholic beverages per week. Men of all ages were similar in their interest and readiness to make changes in their lifestyle to promote health.

As shown in Table 1, the top health conditions of interest or concern for all respondents were cancer (especially colon), high blood pressure, heart disease, overweight/obesity, and high cholesterol. Younger men (45 years or younger) were more likely to choose stress and mental health as issues of concern, while men over 46 years and older were more likely to list prostate health and skin cancer as areas of concern. As shown in Table 2, the respondents rated nutrition needs of men, fitness programs, healthy snacks, quick healthy recipes and protein in a healthy diet as their five top areas of interest in terms of nutrition/health topics. Men of all ages most frequently receive their health information from health professionals, websites, spouses/significant others, friends and relatives. Magazines, Extension programs, social media (Facebook, Twitter) and classes/presentations also provided health information for some of the participants. (See Table 3.)

Table 4 shows the mean responses to men’s preferred methods of receiving information about nutrition and health. The top responses were face-to-face conversations/consultations with a professional, including dietitians, doctors, nurses, pharmacists and public health nutritionist, while conversations with spouses/significant others, classes from nutrition educator, website fact sheets and conversations with friends rounded out the top 5 list. The lowest-rated preferred methods for getting information about nutrition and health were social media (Facebook, Twitter), radio, and blogs.

The survey also collected data about men’s overall level of interest in nutrition and health topics and their readiness to make changes in their lifestyle. On a scale of 1 to 5, with 5=“very interested”, men ages 18 to 45 years rated themselves 3.9/5, and men ages 46-plus rated themselves 4.0/5. On a 5-point scale (5=“very ready”), men of all ages rated themselves 3.7/5 in terms of readiness to make changes.

## DISCUSSION

Men revealed that significant others, such as spouses/partners, play a key role in providing nutrition and health information. These results were similar to a study conducted in Scotland, which showed that spouses/partners and relative play a key role in supporting lifestyle changes in nutrition, fitness, and weight (MacLean et al., 2014). In Extension programs, teaching women about health concepts that affect men and providing them with materials may be a way to reach males. In targeting male audiences of different ages with health information, an educator should consider their interests and needs at different stages of life. For example, we found stress and mental health as greater issues among younger men.

The study has limitations. Respondents comprised a convenience sample reached through a snowball method using technology. The results are not generalizable to the population; however, they provide insight into men's educational interests related to nutrition and health. In addition, men needed access to a device (computer, phone, tablet) to provide their input; in some cases, women reported filling out the survey for their male spouse/partner. Although we collected age information, we did not collect race/ethnicity-related information from our respondents. Future research could focus on assessing the needs of a diverse audiences, which has been identified as a shortcoming in lifestyle intervention programs (Pagoto et al., 2012). In addition, other techniques such as focus groups or interviews could be used as research tools to gather their input.

The results of this needs assessment survey were used to create a train-the-trainer educational program released in early 2018 for men. It included several topics of interest identified by men, a website, toolkit with scripted lessons about cancer screening and prevention, interactive learning stations/displays, several (two-page) fact sheets, social media posts, and other resources from evidence-based government sources, including the Centers for Disease Control and Prevention. To access the materials for educational purposes, visit Healthwise for Guys ([www.ag.ndsu.edu/healthwiseforguys](http://www.ag.ndsu.edu/healthwiseforguys)).

In conclusion, this research showed how surveys can be used to assess needs quickly and develop programs based on those identified needs. Men showed interest and motivation toward nutrition/health-related topics, provided insight into their preferred delivery methods,

and motivation to make lifestyle choices. The men's responses guided the identification of key topics and the type of educational tools developed. The train-the-trainer program has been used to reach more than 1,500 men. Although men are frequent consumers of Extension agriculture information, they may be an under-reached audience for health, wellness, and nutrition programs in Family and Consumer Sciences.



You may click here to access the references, tables, and graphs for this article.

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*Author's Note: I acknowledge the survey input and follow-up program development and implementation of my colleagues Cindy Klapperich, Extension agent, Kristi Berdal, Extension agent (retired) at North Dakota State University. I also thank friends and colleagues throughout the United States who helped disseminate the survey.*

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# Barriers and Motivators of Physical Activity for Muslim Women

This exploratory study seeks to address a research gap by describing some of the barriers, and motivators to, exercise among Muslim women. An online survey of 110 adult, Muslim women was conducted. The survey included questions on levels of exercise, and barriers and motivators to exercise. Overall, 10.4% of women reported that they met the moderate intensity exercise recommendations. The top barriers included: no childcare, cost of gym, lack of privacy, family responsibilities, and no time to exercise. While “modest clothing” was not found to be a primary barrier overall, it was for women who adhere to Islamic dress code.



## RESEARCH

# *Sara Elnakib, Christine M. Davis, and Patrick R. Clifford*



Regular physical activity, defined as moderate to vigorous physical activity for most days a week, has been shown to reduce the risk of numerous health conditions such as heart disease, high blood pressure, and diabetes (Bousquet et al., 2011; Division of Nutrition, 2018; World Health Organization, 2015). Although Muslim women face many of the same barriers to exercising as the general female population (Bautista et al., 2011; Joseph et al.; Tuero et al., 2001), some research suggests that these women may face additional barriers to achieving regular physical activity due to perceived conflict with their religious and/or cultural beliefs.

A review of the existing literature suggests that commonly cited barriers to regular physical activity for Muslim women can be

organized into three main categories: intrapersonal, interpersonal, and environmental. Intrapersonal barriers are those that affect the individual's beliefs and attitudes such as modesty (Dagkas & Benn, 2006; Guerin, Elmi, & Corrigan, 2007; Kahan, 2003; Riley et al., 2016), religiosity (Ali et al., 2015), and self-efficacy (Islam et al., 2013). Interpersonal barriers include social support (Berger & Pearson, 2009; Horne et al., 2012; Kalter-Leibovici et al., 2010; Lenneis & Pfister, 2017), lack of physically active female role models (Shuval et al., 2008), lack of childcare (Guerin, Diiriye, Corrigan, & Guerin, 2003), and lack of social pressure to be physically fit (Shuval et al., 2008). Environmental barriers include safety concerns (Shuval et al.,

2008), environment of the indoor fitness facilities like the gender makeup of the gym (Guerin, Diiriye, Corrigan, & Guerin, 2003; Knez et al., 2012; Snape & Binks, 2008), and access to gym facilities (Carroll, Ali, & Azam, 2002; Dagkas & Benn, 2006; Guerin, Diiriye, Corrigan, & Guerin, 2003; Khanam & Costarelli, 2008).

Some motivational factors have also been discussed in other studies (Khanam & Costarelli, 2008). For example, a study of British Bangladeshi overweight and obese women noted that religious messages and Islamic teachings of moderate eating and caring for one's body may be important motivational factors to consider when developing physical activity initiatives for women in the Muslim community.

This study is an exploratory analysis of a convenience sample of Muslim women which sought to identify perceived barriers to, and motivators for, engaging in physical activity and to evaluate whether these perceived barriers and motivators differed based on adherence to Islamic dress code.

The researchers hypothesized that perceived barriers to physical activity would have a negative effect on Muslim women's physical activity levels, whereas perceived motivators would have a positive effect. In addition, it was hypothesized that the relationship between the perceived modesty barriers and physical activity levels would be moderated by adherence or non-adherence to Islamic dress code. Identifying and understanding these barriers and motivators and how they may affect behavior can inform and facilitate the development of effective and impactful extension programs.

## METHODS

### DATA & MANAGEMENT

"The Knowledge, Attitudes and Beliefs of Muslim Women on Physical Activity" survey instrument was developed by the author and administered via the internet. All survey participants were adult females (19-67) recruited from, and members of, the "Muslim Mom Network," an opt-in group blog for Muslim women living in the United States and Canada. An invitation to participate in the survey and a link to the survey were posted both on the Muslim Mom Network Google group and on the Muslim Mom Network Facebook page. The survey was conducted from February 11 through May 1, 2013 and took approximately 15 minutes to complete. The survey included questions on demographics, perceived barriers, and motivational factors related to exercise and physical activity, as well as the respondents' frequency, duration, and intensity level of exercise. A total of 110 women completed the survey.

All responses for the attitudinal and belief questions on perceived barriers and motivators were measured using Likert-type scales, with scores ranging from 1 through 5, where 1 was 'not a barrier or motivator' and 5 was 'an extreme barrier or motivator.' Any response with a score of three or above was considered a barrier or motivator, as appropriate.

Responses regarding religiosity were measured using a five-point Likert-type scale, with 1 being 'not very religious', and 5 was 'extremely religious'. For the purpose of this study a response of 3 or above was considered 'religious.' Finally, to assess their adherence to Islamic dress code the positive responses for wearing a hijab (headscarf covering), niqab (face covering) were considered 'adhering to Islamic dress code' and neither was considered as 'not adhering to Islamic dress code' (Table 1).

A series of sequential regressions modeled the weekly duration (in minutes) of light, moderate, and vigorous physical activity, controlling for covariates. The control variables included continuous variables such as age, and BMI.

### OPERATIONALIZATION OF PHYSICAL ACTIVITY

This study used the same measures of physical activity as those in the National Health Interview Survey (NHIS) (Office of Disease Prevention and Health Promotion, 2018), and included questions about the duration, frequency, and intensity levels (i.e., vigorous, moderate,

and light) of leisure-time physical activity. This allowed for the comparison of physical activity levels reported by study participants to the Healthy People 2020 goals (U.S. Department of Health and Human Services, 2018). A score of physical activity (in minutes per week) was computed by multiplying the duration by the frequency of the leisure-time physical activity. A score was computed for each leisure-time physical activity intensity level (i.e., vigorous, moderate, and light.). For example, if a respondent indicated they were at least moderately active two days per week, and they typically engaged in such activity for 20 minutes, their weekly moderate physical activity was recorded as 40 minutes. Body Mass index (BMI) was calculated using the

$$\text{equation: } = \frac{\text{mass(lb)}}{(\text{height(in)})^2} \times 703$$

### METHODS OF EVALUATION

The survey results, collected via Survey Monkey (<https://www.surveymonkey.com>), were imported into Statistical Package for the Social Sciences (version 25.0, 2017, SPSS Inc) for data analysis. Initial analyses focused on frequency distributions to identify response trends among different demographic factors, descriptive statistics, and correlations between the variables of interest (i.e., perceived barriers, motivational factors and physical activity levels). Sequential regression models were utilized to assess the various factors effecting frequency of leisure-time physical activity. Control variables (such as age, BMI, income, and education) were added first, followed by the barriers indices, and finally the motivator indices. SPSS PROCESS was used to model the relationship of the moderator variable "adherence to Islamic Dress Code" on the relationship between the Modesty Index and the dependent variables. The study protocol was approved by the authors' Institutional Review Board.

## RESULTS

### DEMOGRAPHICS

The demographic characteristics of the 110 participants are presented in Table 1. The majority of the participants (83.1%) were between the ages of 20-35, reflecting the young membership of the Muslim Mom Network. Forty-three percent of the participants had normal BMI ranging from 18-24.9 kg/cm<sup>2</sup>, 38% were considered to be overweight with a BMI ranging from 25-29.9 kg/cm<sup>2</sup> and 20% were obese or severely obese with a BMI over 30 kg/cm<sup>2</sup>.

Approximately 40% of the participants reported annual incomes over \$100,000. In addition, 86% of the participants reported having at least a bachelor's degree, and of those, additionally 36% had graduate degrees. The majority of the participants (81%) were married and 78% had more than one child. Over half (61%) were employed; another 12% were students. An overwhelming 94% of the participants classified themselves as "religious." Additionally, 77% of respondents indicated that they adhere to the Islamic dress code of covering their hair; 3% indicated they adhered to the Islamic dress code of covering their face; and 20% indicated they did not adhere to any Islamic dress code.

### PHYSICAL ACTIVITY LEVELS

The Healthy People 2020 recommendations specify 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity physical activity each week (U.S. Department of Health and Human Services, 2018). The target for Healthy People 2020 is for 47.9% of Americans to meet either guideline. Based on the computed physical activity levels, approximately 10.4% of respondents met the moderate intensity physical activity recommendation and 41.5% met the vigorous intensity physical activity recommendation. Overall, 26% of respondents met the Healthy People 2020 recommendations compared to the nation's reported average in 2008, of 43.5%.

### PERCEIVED BARRIERS TO PHYSICAL ACTIVITY

Apart from lack of privacy at the gym, which could be attributed to modesty among Muslim women, the top barriers reported by respondents were not culturally or religiously specific. The greatest perceived barriers reported were: no time to be physically active, family responsibilities, lack of privacy at the gym or lack of access to an all-women's facility, monetary cost of gym, and no child care at the gym (Table 2).

Chi-square analyses revealed that fifty eight percent (58.2%) of women who wear the hijab indicated that lack of access to an all-female gym was a barrier, compared to 31.6% of women who did not adhere to the Islamic dress code ( $p = .04$ ). Likewise, 34.3% of women wearing hijab indicated that difficulty finding modest or non-form fitting fitness attire was a barrier, compared to 16.7% of women who did not adhere to the Islamic dress code. Finally, 25.4% of women wearing hijab indicated that the sexuality of different sports or physical activity routines was a barrier, compared to 11.1% of women who did not adhere to Islamic dress code.

### PERCEIVED MOTIVATORS TO BEING PHYSICALLY ACTIVE

The top motivators for physical activity reported by respondents were as follows: staying in shape, living longer, disease prevention, fun or recreation, social benefits, and Islamic reference to physical activity (Table 2).

As with perceived barriers, chi-square analyses were utilized to compare responses of women who adhere to the Islamic dress code and those who did not. Those who did adhere to Islamic dress code were less likely to indicate that fun and recreation was a motivator for physical activity compared to women who did not adhere to the Islamic dress code ( $p < .05$ ). Interestingly, living longer was more of a motivator for women who did not adhere to the Islamic dress code, and Islamic reference to physical activity was more of a motivator for women who did adhere to the Islamic dress code.

### PERCEIVED BARRIERS' & MOTIVATORS' EFFECTS ON PHYSICAL ACTIVITY

A sequential regression model was conducted testing first the significance of the control variables, followed by the barrier indices, and finally the motivator indices. The results of the sequential regressions are presented for each physical activity intensity level (Table 3).

The Health Index was a statistically significant predictor of greater levels of light physical activity. or the moderate and vigorous physical activity levels, a higher score on the Mom Index was negatively associated with physical activity ( $p < .001$ ). That is, the higher the scores for perceived barriers, such as not enough time to be physically active, lack of childcare at the gym, and responsibilities for children and family, the less likely they were to participate in moderate and vigorous levels of physical activity. Additionally, for the vigorous physical activity level, BMI made a statistically significant difference at the  $p < 0.05$  level such that for every one-point increase in BMI, the average number of minutes of vigorous exercise increased by 5 when controlling for the barrier indices as well as control variables such as age, education, and income (Table 3).

### ISLAMIC DRESS CODE AS A MODERATOR

Although not statistically significant, regression analyses suggested a negative relationship between the Modesty Index and each of the physical activity levels. The researchers hypothesized that the strength of this relationship would differ among those who adhere and those who do not adhere to the Islamic dress code. To



test this hypothesis, a path analysis was conducted to see if the relationship between Modesty Index and the three different physical activity levels varied by whether or not the women adhered to the Islamic dress code. The theory based on the exploratory analysis was that women who adhere to the Islamic dress code will have lower physical activity levels based on higher Modesty Index.

For the light leisure-time physical activity level, there was no difference in minutes of physical activity among women who did not adhere to Islamic dress code despite differing modesty levels. However, for the women who adhered to the Islamic dress code, those with higher Modesty Index scores tended to have more minutes of light physical activity than those with lower Modesty Index scores. Among women who did not adhere to the Islamic dress code, minutes of moderate physical activity was slightly higher among those with a higher Modesty Index score compared to those with a lower Modesty Index score. The opposite effect was found for those women who adhered to the Islamic dress code. Finally, the minutes of vigorous leisure time physical activity was lower with higher Modesty Index scores for both women who adhered to the Islamic dress code and those who did not. There was a statistically significant difference for those women who adhered to the Islamic dress code ( $B = -6.31, p < 0.05$ ).

## DISCUSSION

Muslim women face similar personal, social, and environmental barriers and motivators to engaging in physical activity as non-Muslim women. Indeed, the top five barriers reported by participants of this study were not specific to Muslim women and were also noted as barriers among Hispanic, (Bautista et al., 2011;

Tuero et al., 2001) and African American (Joseph et al., 2015) women in previous studies. Additionally, when conducting the sequential regression analyses the Mom Index was the only statistically significant barrier that predicted lower physical activity levels. Similarly, non-religious motivating factors were most significant for this group of Muslim women, such as staying in shape (Berger & Pearson, 2009; Dagkas & Benn, 2006; Madanat & Merrill, 2006) and health promotion (Carroll et al., 2002).

The relatively high educational levels among participants in this study may also explain why nearly

100% of the participants named health benefits as a motivator for physical activity. This result shows a very distinct divide between other studies in the literature that mentioned only a margin of Muslim women believed exercise had any effect on health (Joseph et al., 2015; Kahan, 2003). More than half of the current sample of Muslim women exercised, with 51.9% being moderately to vigorously active. On average, only 26% of Muslim women in this survey met the moderate or vigorous physical activity recommendation.

Similar to other studies, a general sense of modesty (Dagkas & Benn, 2006), religiosity (Guerin, Diiriye, Corrigan, & Guerin, 2003) and inappropriate gym facilities (Guerin, Diiriye, Corrigan, & Guerin, 2003; Knez et al., 2012) were considered to be barriers to engaging in physical activity. The effect of modesty was more pronounced in those who adhere to Islamic dress code. For example, access to female gym facilities had significantly higher levels of endorsement for women who wear a hijab and niqab than those who do not. Additionally, a moderating effect of adherence to Islamic dress code on the relationship between modesty and on the different levels of physical activity was found. There was a significant difference between women who adhere to the Islamic dress code and those who do not in the vigorous physical activity level. This relationship between modesty and adherence to Islamic dress code may be a barrier that transcends acculturation, socioeconomic status, and education.

It is important to recognize the vast cultural differences among Muslims from around the world. For example, the findings of the current study paralleled, for the most part, studies conducted in the United Kingdom (Dagkas & Benn, 2006; Horne et al., 2012; Snape & Binks, 2008), Greece (Dagkas & Benn, 2006), New Zealand (Ali et al., 2015; Guerin, Diiriye, Corrigan, & Guerin, 2003; Guerin, Elmi, & Corrigan, 2007), and Norway (Walseth, 2006). This may indicate a cultural divide between the barriers faced by Muslim women in western countries and those in Middle Eastern and South Asian countries. Creating culturally appropriate programs for an increasingly diverse population in the United States is essential to the success of Family and Consumer Extension programs.

## LIMITATIONS

The use of an online survey limited our sample as respondents would have to be computer literate, have internet access, and be fluent in English. Additionally,

reflective of the Muslim Mom Network membership, the demographics of respondents were highly skewed towards younger, wealthier, and more highly educated Muslim women and may decrease the generalizability of the research to Muslim women who do not participate in such networks.

The survey was self-administered, which may introduce potential misinterpretation of questions. The survey did not include any questions on barriers to physical activity outside of the gym.

## FUTURE RESEARCH

Future research should explore the relationship between adherence to Islamic dress code and physical activity barriers, a more comprehensive look at the motivations to be physically active, as well as a focus on the differences in cultural divides within the Muslim population.



You may click here to access the references, tables, and graphs for this article.



*Author's Note: This work would not have been possible without the guidance and support of Dr. Cristine Delnevo of Rutgers University School of Public Health and generous contributions of the Muslim Mom Network listserv and its founder Ms. Hala Amer.*



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# Online Training Influence on Food Preservation Behaviors

Idaho, Colorado, and Oregon Extension faculty collaborated to offer a 6-week online food preservation course, *Preserve @ Home*. Participant knowledge and intent to change behaviors with food preservation were assessed using a retrospective pre-post survey. Over half of the participants that completed assessment (n=116) improved their knowledge of food preservation practices. Assessments revealed 67% learned to use up-to-date, science-based canning recipes and recommendations, and 53% learned to adjust for altitude when pressure canning. Online classes that share interstate Extension expertise appear to be an effective delivery method to extend food preservation instruction to larger audiences without increasing costs.



## RESEARCH

*Julie Buck, Laura Sant, Patty Case, Surine Greenway, Glenda Hyde, Joey Peutz, Anne Zander, Grace Wittman, and Amy Robertson*



The growing popularity of vegetable gardening and buying locally grown produce has sparked an increase in home food preservation, such as canning, freezing, and drying (Johnson et al., 2018). In 2015, the Opinion Resource Corporation International (ORC) found nearly half (38%) of all millennials surveyed were interested in home food production mainly because they loved to cook and can foods. These researchers also found 68% of Americans would rather make their own fresh foods than purchase store-bought food (ORC, 2015). Based on surveys conducted during food preservation classes, University of Idaho Extension Family and Consumer Sciences (FCS) Educators found similar results.

Eighty seven percent of those

surveyed (n=39) wanted to better utilize the produce they grow and 84.6% wanted to be more self-sufficient (Dye & Hoffman, 2014). While more people are interested in preserving their food, they may not have the knowledge or skill to do so safely or have access to attend a local class (Wittman et al, 2012).

### PURPOSE

Cooperative Extension is recognized as a source of current and reliable information for consumer food safety, food preservation, and food storage concerns. Many Extension offices throughout the nation are equipped with educational resources for the home food preserver and provide valuable services such as testing dial gauges for accuracy on pressure

canners. In-person Extension food preservation classes were evaluated by a five-state team which revealed 67% of the 201 participants surveyed changed their canning behaviors (Garden-Robinson, et al. 2019). In 2012, Extension FCS educators in eight counties in Idaho surveyed 153 persons during dial gauge checks, with 18% being first time food preservers, 62% receiving new food preservation information, and 30% reinforcing the present knowledge of food preserving (Hoffman et al., 2012). However, not all Cooperative Extension offices have an FCS Educator who is knowledgeable in food safety and/or home food preservation and the necessary techniques. Some home residences are rural or remote and do not have access to in-person food preservation classes. Additionally, many home food preservers do not have the time to take a face-to-face food preservation class. For these reasons, an online food preservation course is a viable option. The purpose of this paper is to demonstrate how one multi-state, online program, Preserve @ Home, is being used to expand the reach of Extension to provide current and reliable information on home food preservation.

### BACKGROUND

The development of this online curriculum started with collaboration between Extension Educators and a specialist who adapted the researched-based Washington State University and University of Idaho Food Safety Advisor Volunteer Handbook (Hillers & McCurdy, 2002). Hampton and Peutz (2007) detailed the process of development and implementation of this online course. The target audience for Preserve @ Home is college students seeking FCS certification or to apply for the dietetics program and adults

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interested in learning how to safely preserve foods at home. This online curriculum works especially well for individuals who live in rural or remote areas who do not have access to in-person food preservation classes or persons who do not have the time to take an in-person food preservation class. Currently, Extension faculty from Idaho, Colorado, Wyoming, and Oregon share the coordination and instruction of Preserve @ Home, an online home food safety and preservation course taught twice a year through <http://campus.extension.org> using eXtension website and Moodle open source platform.

The class is divided into six main lessons, with six supplemental lessons for additional learning. Each of the six lessons includes online text, which can be downloaded and printed; weekly online discussion boards to facilitate student interaction within the course; a real-time online chat with classmates and instructors; open-book lesson quizzes and a final test to assess knowledge gained throughout the course. Summary of course outline is in Table 1.

Records of enrollees' demographics have been recorded since 2011 and show over 450 persons have participated in the course. The participants live in 25 states across the United States (U.S.) and have included Canada, Table 2. During the years of 2014-2019, 244 or 81% of the 302 participants passed the optional final exam with a 70% or higher score on completed course work (Sant et al., 2017).

## RESULTS

To determine effectiveness of the Preserve @ Home course, a retrospective pre-post online survey was given at the end of the six-week Preserve @ Home course.

From 2015-2019, 116 participants completed the survey. Students reported their reasons for taking Preserve @ Home as: 86% wanted to be in better control of what's in their food, 67% wanted to save money, 89% wanted to be more self-sufficient, and 80% wanted to better use the produce they grew. Additionally, the survey asked participants if they learned or already knew critical canning behaviors; if they did or didn't do the behaviors before taking the class; and if they will or will not do the behaviors after taking the class. A Chi-Square test, in Table 3, was used to compare responses for before and after the class.

The percentage of class participants who projected that they would do the behaviors after the class increased from what participants reported doing before the class.

However, only two behaviors were significantly higher with the Chi Square test: 1) Processed all low acid foods in a pressure canner according to research-based recommendations and 2) When making home canned salsa, followed a tested research-based recipe and processed according to recommendations.

## DISCUSSION

The results of this study show this online course is a valid option to improve knowledge of research-based food preservation techniques, with 81% of the 2014-2019 enrollees scoring 70% or higher on their completed course work. Barriers to participating in the online course may include availability of internet, access to a computer, and funds to purchase the study materials, although many of the food preservation sources could be downloaded from the internet or copied from a local Extension office.

The results reported should be viewed considering some limitations. First, is the use of the retrospective pre-post survey. These answers gathered after the course may have been positively influenced by the desire for participants to practice the new knowledge learned. Future studies to prevent possible inflation of scores may consider using a follow-up assessment at a set time after the course to allow for canning behaviors to be practiced, then reported. Second, availability for potential participants to access web-based learning may limit enrollment. Pew Research Center (2016) reports 61% of adults surveyed have little or no awareness of distance learning opportunities. Continued effort should be made to inform the general public of free internet access available in most communities, namely public libraries, fast food restaurants, grocery stores, and Extension offices. Future studies could compare food preservation behaviors after an online, interactive course versus an in-person, hands-on lab course.

The convenience of learning in an online format provides access to those persons not able to attend an on-site course. Through the eXtension website, participants and educators have easy access to provide research-based continuing education. The survey received approval by the University of Idaho Office of Research Assurances.

The Preserve @ Home online course increases access to training for those that might have barriers, or to enrollees who do not have the time to attend an in-person program. The nine identified behaviors (see

Table 3), are all high-risk food safety behaviors. For example, if food is consumed without following these recommendations, the result could potentially lead to serious illness or death from the improperly handled preserved food items. Almost all participants indicated they plan to change behaviors to follow recommendations to eliminate high-risk food safety/preservation practices. This research demonstrates how Extension faculty can work across state lines and counties to use platforms other than face-to-face to provide effective food preservation education. This approach may also provide advantages to Extension educators by combining expertise and sharing the instructor responsibility between multiple educators in several states.



You may click here to access the references, tables, and graphs for this article.



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# Breakfast After the Bell: Understanding the Student Experience

Administrators at a middle school (MS) in a large, low-income, urban school district deemed Breakfast After the Bell (BATB) unnecessary due to their assumption that students ate breakfast before school. A survey was distributed to the MS students (n=1149) to ascertain their opinions on school breakfast and their breakfast-eating habits. Overall, students reported positive impressions of school breakfast's healthfulness (68%), variety (61%), and taste (56%). Additionally, contrary to what administrators had believed, the majority (82%) reported that they do not always eat breakfast before school, justifying the need for the BATB program in this district.

## RESEARCH

### *Jennifer Shukaitis, Gina McKeon, and Cara Cuite*



About 20% of children in the United States do not eat breakfast daily, with low-income children in urban areas especially at risk for missing breakfast (Dykstra et al., 2016). The School Breakfast Program (SBP) was created in 1966 to address this issue by providing free or reduced-price breakfast in participating schools. However, the SBP has been underutilized, with less than half of qualified students taking advantage of the program (Dykstra et al., 2016). “Breakfast After the Bell” (BATB) aims to address this gap by serving breakfast to students after the first bell of the school day rings. The rationale behind this approach is that many students miss school breakfast because they do not arrive early enough to go to the

cafeteria and eat before their first class begins (Bailey-Davis et al., 2013).

Each year, Advocates for Children of New Jersey (ACNJ), a non-profit advocacy organization, publishes a report ranking the state’s school districts based on the percentage of students who eat school breakfast. The higher the percentage of students who eat breakfast, the higher that district ranks in the report as feeding their students breakfast on a regular basis. The Food Research and Action Center (FRAC) also scores states based on how many low-income students are served school breakfast. Schools that use the BATB model report much higher numbers of

breakfast participation (ACNJ, 2017). As such, BATB has become the unofficial gold standard in school breakfast programs, particularly in larger, low-resource school districts. Schools with lower breakfast participation numbers are labeled as “underachievers”, and those serving high percentages of their students are “School Breakfast Champions.” (ACNJ, 2017).

The fact that school districts’ ranking in these reports is based on one metric (the percentage of students who eat breakfast) indicates the importance of students’ eating breakfast every day. Research strongly suggests that students who eat breakfast perform better in school (FRAC, 2016). Conversely, studies show that students who do not eat breakfast do not perform as well in school and are at increased risk for behavioral, academic, and health issues (Adolphus, 2016). Furthermore, evidence shows that the timing of breakfast affects cognitive function; and students’ cognitive functioning improves with less time passing between eating and academic performance (Adolphus, 2016). Therefore, implementing a successful BATB program may be critical to overall student achievement.

BATB is championed as an effective way to serve breakfast to large numbers of students, but there are few studies of BATB. Student support of any breakfast program is key to its success. Students are the main consumers and target audience for this program, yet student perceptions and opinions of BATB remain largely unstudied. This survey examined students’ experience with BATB and whether breakfast participation rates may be affected by their experience with school breakfast.



## OBJECTIVE

The main purpose of this study was to gain an understanding of the benefits and challenges of school breakfast programs, as identified by students from one middle school (MS). One question of particular interest was whether students ate breakfast in the morning before coming to school, to understand if BATB was, in fact, needed in that school. Furthermore, the research team wanted to understand if the student experience with two different breakfast delivery systems (BATB and the traditional, before the bell model) affected breakfast participation rates.

## BACKGROUND

The school district (SD) where this study was conducted piloted BATB in six elementary schools in spring of the 2013-14 school year, with a staggered roll-out. Data from this pilot showed a significant increase in breakfast participation immediately following the implementation of BATB. One school reported serving 91% of students with BATB, compared to 31% before the program (Thomas, 2014). Starting in September of the following school year (2014-15), the SD began serving BATB to all students in kindergarten through eighth grade.

Over time, breakfast participation steadily declined district-wide, to under 50% in the 2016-17 school year. In January 2017, the MS eliminated BATB, and saw participation drop to under 30% by June 2018 (see Table 1). This data alone was not a concern to MS administration, since they were under the impression that students ate breakfast at home or stopped to buy and eat breakfast on the way to school in the morning. The principal of the MS believed that BATB was not only unnecessary, but also excessive, since eating two breakfasts may have been a contributing factor to overconsumption of calories, therefore contributing to the ongoing childhood obesity trend. This, coupled with the secondary reasons of BATB being more work for teachers and school maintenance staff, led him to the decision to reinstate breakfast before the bell. While the change from BATB to breakfast before the bell was likely a factor in the drop in breakfast participation, the survey would provide the students' perspectives on the downward trend. The MS principal also expressed a great interest in learning more about student opinions on breakfast.

The SD selected for this study had Community Eligibility

Provision (CEP) status (a type of school largely unstudied in regard to BATB), which it gained in 2014. CEP is a non-pricing meal service option for schools and school districts in low-income areas (United States Department of Agriculture, 2018). With this in mind, the research team recognized the unique opportunity to obtain students' opinions on school breakfast since these students had participated in both breakfast delivery models.

## METHOD

A survey was conducted in the MS of a large, urban, low-income SD in New Jersey in May 2018. All data collection was approved by the Rutgers University Institutional Review Board as part of a larger, district-wide, multi-method evaluation of the BATB program in this SD. All participants completed informed consents or assents appropriate to their age. At the time of the survey, the MS enrollment was about 1,350 sixth through eighth grade students. Approximately 150 of enrolled students spoke only or primarily Spanish. The racial/ethnic makeup of the school was about 88% Hispanic/Latino and 10% African American.

Additionally, the SD provided the research team with breakfast participation data, broken out by month, school, and year compiled as part of the district's reporting to the USDA[CC4] to determine reimbursement. They also provided quantitative data from pre-BATB (2011-12 and 2012-13 school years); the transition year 2013-14; and four years post-BATB, (2014-15, 2015-16, 2016-17, and 2017-18).

### SURVEY

On the day of the survey, there were no conflicting activities, holidays or other celebrations taking place at the school. Teachers administered a paper-and-pencil survey to students during first period (homeroom) in the spring of 2018. All students who were present during homeroom period that day received the survey in either English or Spanish. Members of the research team were not present. Homeroom lasted 23 minutes, during which time each homeroom teacher read aloud an assent and instructions for the students to take the survey. No incentives were offered for taking the survey.

The two-page survey included questions on the students' experiences with, opinions on, and perceptions of school breakfast. The first page of the survey was table style with two sections of questions. In the first part, participants indicated how frequently they



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participated in various behaviors, such as eating breakfast at home, using the following scale: Always, Often, Sometimes, Never. In the second half, participants indicated their level of agreement with statements describing various aspects of school breakfast, such as “the breakfast served at school tastes good.” The following 4-point scale was used: *Strongly Agree, Somewhat Agree, Somewhat Disagree, Strongly Disagree*. On page two of the survey were two open-ended questions: “Do you have any suggestions for foods that you would like to have served for breakfast at school?” and “Is there anything else you would like to tell us about school breakfast at [the MS]?” Completed surveys were collected by the homeroom teachers and returned to the school’s main office, where they were picked up by a member of the research team. Responses from the surveys were then entered into SPSS (Version 25; IBM, 2018) and descriptive statistics were performed and analyzed.

## DATA ANALYSIS

Quantitative data from the SD and the student survey, and qualitative data from the student survey were analyzed using Microsoft Excel and SPSS. Inferential statistics with sufficient power were not used because the data were at the level of the school – not at the level of the individual student. Therefore, only descriptive statistics were used. Responses to the open-ended questions were coded and placed into categories by two independent coders.

## RESULTS

A total of 1,149 students completed surveys. Of this number, 1,014 surveys (88%) were in English and 135 (12%) were in Spanish; 390 students (34%) were in 8th grade, 414 (36%) were in 7th grade, and 345 (30%) were in 6th grade. Not all participants answered every question. The response rate was approximately 85%, based on total students enrolled in the MS because the exact number of students present on the day of the survey was not available.

Most students reported positive impressions of BATB: 68% agreed that the breakfast is healthy and 56% agreed that the breakfast tastes good. However, of those responses, only 14% of students “strongly agree” that the breakfast is healthy and 11% of students “strongly agree” that the breakfast served tastes good. In addition, 32% of students “somewhat disagree” or “strongly disagree” that the breakfast served is healthy; 43% of students “somewhat disagree” or “strongly

disagree” that the breakfast tastes good. A small majority either “strongly agree” (31%) or “somewhat agree” (26%) that they were more likely to eat breakfast when served in the classroom, *before* the bell.

While most students did indicate positive responses to many aspects of school breakfast, several students provided critiques of school breakfast in their responses to the open-ended questions. The most common of these were: the food tastes bad (n=54, or 5%); the food is poor quality (n=50, or 4%) – burnt, raw, or not prepared properly. However, 26 students (2%) did indicate that they preferred breakfast being served in the classroom during BATB. Another 76 respondents (7%) indicated that the school breakfast food tasted “fine” or “good.”

Two survey questions of great interest to the research team, as well as to the MS principal, asked students to indicate how frequently they 1) ate breakfast at home, and 2) bought breakfast on the way to school. Only 18% of students reported that they “always” eat breakfast at home, and another 20% reported that they eat at home “often.” Notably, 72% of students reported that they “never” buy breakfast on the way to school, 20% reported that they only “sometimes” do, indicating that the vast majority of students (92%) do not make a habit of buying food before the school day begins. This stands in contrast to what the MS principal believed was the trend among MS students.

Other positive impressions that the students reported were: they feel better when they eat breakfast (31% “strongly agree,” 38% “somewhat agree”); eating school breakfast saves time at home in the morning (24% “strongly agree,” 32% “somewhat agree”); and school breakfast saves their family money (24% “strongly agree,” 32% “somewhat agree”).

## LIMITATIONS

Limitations of this study include that the students surveyed were from only one low-income urban school district with CEP status where all students receive free breakfast, so results may not be generalizable to all school districts. Additionally, because some survey questions asked students to recall past experiences with BATB, their responses may have been subject to recall bias.

## SUMMARY/DISCUSSION

The initial dramatic increase in BATB participation indicated the program's ability to feed a much larger number of students than the traditional breakfast before the bell model. Students reported positive overall impressions of BATB and enjoyed many benefits of the program. However, students also reported several downsides of the food served for school breakfast, most notably food quality and taste, and these go beyond BATB. These issues may account for the inability of the school breakfast program to maintain high participation numbers over time.

One important finding of the student survey was that the vast majority of students (92%) reported that they did not habitually buy breakfast before school, and 82% reported that they do not always eat breakfast at home. This should eliminate the concern that the MS principal expressed over students eating multiple breakfasts, thereby consuming excess calories. This finding also indicates the need for a breakfast program that can effectively feed as many students as possible, which the data indicates is BATB.

The researchers' primary recommendation would be to reinstate BATB in the MS, which would likely increase breakfast participation. Furthermore, the SD's food service management company should examine issues of quality with the breakfast food served, to meet the needs and wants of students. This, coupled with serving breakfast at a time when students are most likely to be in school (after the first bell), would likely result in a significant increase in breakfast participation.

Extension professionals who work with schools should be aware that BATB can greatly increase breakfast participation numbers, particularly in low-resource school districts that are eligible for CEP. Encouraging schools to participate in BATB may lead to overall improvements in student nutrition and academic achievement. To do this, Family and Consumer Sciences educators may work with school food service staff to inform them of the benefits of BATB, as well as train staff on implementing a successful BATB program. In light of student observations that some breakfast items are not healthy, FCS educators may also work with school food service to find viable breakfast items that are nutritious and also easily served in a BATB program.



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# Encouraging College and Career Readiness by Incorporating STEM Education into Family Engagement Activities

Community-based programs that promote hands-on science, technology, engineering, and mathematics (STEM) principles, along with incorporating a parental component, have demonstrated effectiveness in engaging youth and families in the areas of STEM education. By participating in Extension-hosted Family STEM Nights, parents or guardians gained an increased understanding of the importance of STEM-based education, and youth participants gained valuable skills that will be beneficial for their future college and career pathways. Implications for Extension and future directions related to evaluation results are discussed.



## IMPLICATIONS FOR EXTENSION

### *Elizabeth Davis and Shannon Cromwell*



21st-century careers are becoming increasingly dependent upon knowledge in science, technology, engineering, and mathematics (STEM); therefore, creating a need to incorporate STEM education into college and career readiness activities (Erdogan & Stuessy, 2015; Fletcher et al., 2018; Turner & Albro, 2017). Preparing youth for college and career achievement has become a critical educational priority for Extension professionals due to the importance of providing youth with the knowledge and skills necessary for success in a rapidly changing economy.

As careers in STEM continue to multiply over the next several decades, it is important to engage

engage youth in STEM-based curricula at an early age. Fortunately, policymakers, practitioners, and researchers recognize the benefits of STEM related fields. (Christensen et al., 2015; Rozek, et al., 2017). STEM education provides youth with the skills to think critically, and analyze and find solutions to real-world problems. By incorporating STEM-based lessons into youth development activities, children learn to work cooperatively and to demonstrate practical communication skills preparing them to pursue a STEM career (Lessig et al., 2017).

Additional research points to

participation in extracurricular activities that incorporate family involvement having positive effects on a child's development. Youth who participate in extracurricular activities have opportunities to explore and express their identities, engage in challenging activities, and develop social skills that are imperative to educational attainment and academic success (Schoffstall et al., 2016). Along with family engagement having a positive impact on youth's academic and behavioral outcomes, it also plays a vital role in their future academic aspirations, career choice, and overall well-being (Lv et al., 2018; Wong et al., 2018). Extension professionals have the opportunity to address the shortage of scientists, engineers, and other related professionals by promoting STEM-based programs that incorporate family involvement through a hands-on approach (Sallee & Peek, 2014).

## OBJECTIVES

Early engagement in STEM programming that includes a family component is needed to promote college and career readiness in STEM-based fields among youth. Many rural communities are faced with multiple barriers for students to participate in high-quality STEM programs, such as lack of funding, lack of expertise in STEM-related curricula, and lack of parental understanding of the importance of STEM-based activities (Mokher et al., 2019). To address the growing need, Extension faculty in two rural communities in central and southern Utah designed, implemented, and evaluated community-wide Family STEM Nights.

The objectives of Family STEM Nights were to: 1) promote family participation in STEM programs;

2) increase community awareness of the importance of STEM-based programs; and 3) provide opportunities for youth to gain 21st century skills, including critical thinking, adaptability, and information literacy through hands-on STEM activities.

## METHOD

Family STEM Night events were a collaborative effort between Utah State University Extension faculty, local school districts, and local community agencies. During the 2019-2020 school year, Family STEM Nights were held in two rural communities in central and southern Utah, focusing on hands-on, experiential STEM activities geared toward families with elementary and middle school aged youth. The events were held in the evenings from 6:00-8:00 p.m., included refreshments, and were scheduled in conjunction with school administrators in order to avoid conflicts. Funding for the events was provided through a grant from Utah's Department of Workforce Services, the Utah STEM Action Center, and Kane County Commissioners. In order to meet program objectives, events focused on a variety of hands-on STEM activities including robotics, coding, 3-D printing, Legos, computer science programs, and science projects that provided opportunities for youth and families to sharpen critical thinking skills in a highly engaging atmosphere.

An Institutional Review Board (IRB) approved pen and paper survey was disseminated to parents or guardians who attended the Family STEM Night events. The survey was created to gauge parental opinions of their families' experiences with Family STEM Nights. Parents were asked to report how much they agreed upon statements using a Likert scale, ranking their opinions on the following options: 1=Strongly Agree, 2=Agree, 3=Neutral/Disagree, and 4=Strongly Disagree.

## RESULTS

Five Family STEM Nights were hosted during the 2019-2020 school year with over 700 individuals participating in hands-on activities that promoted family participation in STEM programs, increased community awareness of the importance of STEM-based programs, and provided opportunities for youth to gain 21st century skills to be better prepared for future college and career pathways. Survey results indicated the following:

- 76% of parents/guardians strongly agreed that they were likely to participate in future STEM-based 4-H activities and camps.
- 82% of parents/guardians strongly agreed that Family STEM Night provided opportunities for youth to gain 21st century skills including: critical thinking, adaptability, and information literacy through hands-on STEM activities.
- 76% of parents/guardians strongly agreed that their child(ren) need additional educational opportunities to develop technical skills in order to be relevant and succeed in their future career.
- 76% of parents/guardians strongly agreed that after attending Family STEM Night, they have a better understanding of the importance of STEM education.

Additionally, parents/guardians were asked an open-ended question to determine the benefits their families received from participating in Family STEM Nights. Responses included:

"More knowledge of current technology and science."

"Learning about technology can help choose a career path."

"Knowledge my kids can use in many areas."

One parent indicated that they appreciated the opportunity their child had to participate in the event as an instructor and said, "my son got to show off in an area that doesn't normally get "game time."

## SUMMARY

Hosting community-wide Family STEM Nights in partnership with local school districts and community agencies presents a valuable opportunity for Extension faculty to provide hands-on learning experiences in various areas of STEM education. In addition to positive evaluation results, new and strengthened partnerships with county commissioners, school administrators, and local agencies have resulted from Family STEM Nights. There has also been an increase in school participation in STEM programming, including the implementation of afterschool coding classes. Finally, there has been an increased demand, in both counties, for Extension programming focused on STEM, which prepares youth for success in their college and career pathways.

## IMPLICATIONS FOR EXTENSION AND FUTURE DIRECTIONS

Further exploration is needed in order to determine the long-term impacts of hosting Family STEM Nights. The preliminary results indicate that participation in Family STEM Nights has the potential to provide families with opportunities to learn valuable skills together and gain an increased awareness of the importance of STEM education. Additionally, preliminary results indicated that parents/guardians who participated with their child(ren) in these events were more likely to send their child to additional Extension programs. Hosting Family STEM Nights could be an excellent avenue for Extension to engage their community in the events and expand their other programs.



You may click here to access the references, tables, and graphs for this article.

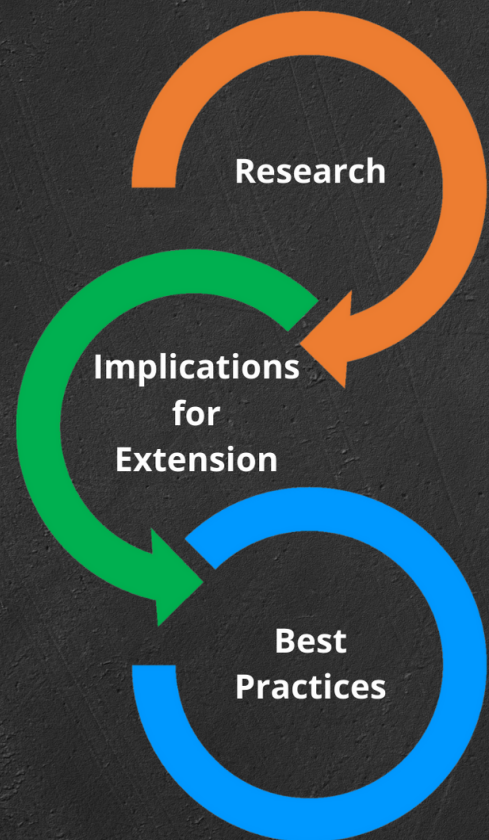


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# JOURNAL

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# My TIME to Eat Healthy and Move More: A Parent/Child Curriculum

My TIME to Eat Healthy and Move More (My TIME) is a home-based program for parents and their children ages three to five years old using an asset-focused approach to build upon and strengthen a family's knowledge and skills. This program actively engages parents and children in a co-learning process as they experience how to make healthy food choices and become more physically active. Participants in the program showed improvements in nutrition behaviors and physical activity during a pilot study undertaken with Head Start home-based families in Minnesota. My TIME was used as a train-the-trainer model to extend Extension's reach.



## BEST PRACTICES

### *Mary Caskey, Mary Krentz, Amy Baack, and Cole Hanson*



Early nutrition is important for child development through establishing healthy behaviors and building life-long health (Victoria et al., 2008; Heckman, 2006).

Nutrition programming directed at preschool children can positively impact consumption of low-fat dairy and vegetables in the home (Williams et al., 2014). Head Start provides nutrition education to children and separately, to parents in a home and/or center-based setting (United States Department of Agriculture [USDA] Food and Nutrition Service, 2017). However, parents can often play a key role in teaching and modeling healthy behaviors to their children (Natale et al., 2014). When parents are under stress, such as those

experiencing economic hardship, it can negatively impact how they feed their children (Berge et al., 2017). My TIME to Eat Healthy and Move More (My TIME) curriculum infuses early education principles into nutrition education and centers in supporting the parent-child relationship as a key factor in promoting healthy child development. This curriculum is unique in focusing on both the child and parent learning together.

## PURPOSE

*My TIME*, and its novel components specifically designed for parents

and children ages three to five, was initially developed in 2015 in response to a change in programmatic focus and delivery in University of Minnesota Extension Supplemental Nutrition Assistance Program - Education (SNAP-Ed). Historically, SNAP-Ed educators have had strong relationships with their local Head Start programs as Head Start families are SNAP eligible, leading to cross-programming. SNAP-Ed educators' programming with Head Start families often included nutrition education for preschool children and meeting with parents to provide nutrition information and answer questions; unfortunately, meetings were not well-attended. Additionally, a structural reorganization of Minnesota (MN) Extension's SNAP-Ed program meant that staff shifted to regional, versus county-based operations and a major programming decision was made not to provide nutrition education to preschoolers.

This created a gap in services for Head Start programs and their families by not having a strong connection to SNAP-Ed. In an effort to reach MN SNAP-Ed's target audience, mothers with young children, our team decided to create a curriculum that would be tailored for Head Start (HS) home-based teachers to use during home visits, using a train-the-trainer model.

## BACKGROUND

### DESIGN

Our team designed *My TIME* curriculum around USDA's MyPlate information, specifically for parents and children ages three to five.

Working with a home-based Head Start program, the curriculum was piloted at six different sites. Our team focused on creating a six-lesson curriculum that provided education by simplifying messages and incorporating creative solutions to build engagement around nutrition

and physical activity. We asked ourselves how parents could make snacks fun and creative; how can families move together and have fun. Parent education was integrated into the content, creating an opportunity for HS home-based teachers to model talking to children about food, involving them in the kitchen and engaging children when selecting foods at the grocery store.

Combining parent education and teacher modeling has been demonstrated as an effective way to address both nutrition and parenting with families (Kim, 2016). In addition, positive reinforcement techniques are interspersed into the nutrition content in combination with developmentally appropriate activities such as color recognition, counting, and age appropriate cooking skills. The recipes offered are versatile, using ingredients families have in their home. Each lesson topic is connected to a related children's book to reinforce literacy, aligning with Head Start language outcomes. Finally, parents are linked to related nutrition and physical activity resources, both online and in the community to expand their learning.

## IMPLEMENTATION

In the first year of the pilot, HS home-based teachers reported that while they liked the content, they did not have time to do the entire one-hour lesson. At this same time, our team was inspired by the work of America Bracho, M.D., founder of the Latino Health Access in Santa Ana, California, who encourages the Promotora Model for health education (Bracho et al., 2016). We re-designed the curriculum in several ways: 1) changed the name to be more flexible and less prescriptive (from Best Fit to My TIME), 2) changed the curriculum to be more asset-based and learner-led while viewing the parent as the family's expert, 3) changed the structure of the curriculum from one-hour long lessons into four mini-lessons that can be taught over the course of a month, and 4) changed the lessons so they ended with parents creating a family action plan by building upon their identified strengths. The updated version of My TIME was piloted in the 2017-2018 school year. Following are the evaluation results of the yearlong pilot.

## DATA

The pilot data was collected from Head Start parents using the MN SNAP-Ed Teen and Adult pre-post evaluation survey, which included questions around healthy eating and physical activity. Nutrition questions included the amount of fruit and vegetable

consumption and the variety of fruits and vegetables consumed in a day. Physical activity questions included the amount of exercise time, mild-moderate physical activity, and how much sedentary activity time occurs in a week. The pre-test was collected during the first lesson and the post-test was collected at the last lesson.

## ANALYSIS

Descriptive analysis on participant demographics was conducted. Participants were not randomly sampled.

They voluntarily participated in the survey. To test the group differences on demographics between the participants who completed both the pre-test and post-test and participants who did not complete both, Chi-squared tests and t-tests were conducted. Paired sample T-test on outcome measures were conducted to test the outcome differences between pre-test and post-test.

# RESULTS

## DEMOGRAPHICS

There were 86 participants total across ten courses.

Demographics are described in Table 1. Among the 86 participants, 44 participants (51.2%) completed both the pre-test and post-test evaluation surveys. Forty-two participants did not finish the post-survey due to Head Start staffing inconsistencies and were excluded from the outcome analysis. There were no significant demographic differences, including race ( $\chi^2(3, N=88) = 2.41, p=.19$ ), ethnicity ( $t(83.7)=-.125, p=.90$ ), gender ( $t(66.1)=-1.34, p=.18$ ) and age groups ( $\chi^2(3, N=88) = 2.74, p=.43$ ), between the participants who did and did not complete both the pre-test and post-test (Table 1). As a result, even though the response rate was relatively low (51.2%), there is no indication that participants who did not complete the post survey were significantly different from those who did. Non-Hispanic white participants ( $n=25, 56.8\%$ ) were the majority of the participants in the analysis dataset. Hispanic participants ( $n=11, 25\%$ ) were the second majority.

## BEHAVIORAL OUTCOME CHANGES

There were seven behavioral outcomes measured: fruit consumption amount, vegetable consumption amount, fruit consumption variety, vegetable consumption variety, exercise time, physical activity, and sedentary activity time. Results of Paired T-tests between pre-test and post-test on the outcome measures are described in Table 2.



The analysis results indicated that all fruit and vegetable consumption variables showed statistically significant positive changes ( $p < .05$ ). After the program, the mean fruit consumption amount in a day increased 0.5 serving ( $p < .001$ ). This amounts to 3.5 more fruit servings in a week. For vegetables, it was .34 more servings in a day, the same as 2.4 more servings in a week after the program ( $p < .05$ ). Before the program, 66% of participants in the analysis dataset ate more than one kind of fruit in a day. After the program, 93% of participants responded they ate more than one kind of fruit in a day ( $p < .001$ ). This trend was the same in vegetable variety but at a lower rate than fruit variety. Before the program, 77% of participants responded they ate more than one kind of vegetable and after the program, 86% of participants responded they ate more than one kind of vegetable in a day ( $p < .05$ ).

Among physical activity measures; however, only physically active time showed a statistically significant difference ( $p < .01$ ). Exercise time increased after the program but was not statistically significant ( $p > .05$ ). Sedentary activity time increased, which is not the intended direction, but was not statistically significant ( $p > .05$ ).

## DISCUSSION

### FEEDBACK FROM HEAD START TEACHERS

After the HS home-based teachers were trained by SNAP-Ed educators and taught the *My TIME* curriculum, informal feedback was collected during face-to-face or technical assistance check-ins completed via phone. The teachers liked having the curriculum broken down into mini-lessons, since they were previously dividing it on their own. The HS home-based teachers appreciated that the curriculum incorporated opportunities to teach parents through interaction with their children. They also welcomed the consistency of the curriculum and how each lesson was similarly structured, which made it easier to follow. The consistency was identified as helpful for both HS home-based teachers and parents. The teachers indicated that parents and children liked bringing personal meaning to the educational message taught and noted the satisfaction of learning new information. Overall, the HS home-based teachers noted the curriculum was a positive experience for families.



### EVIDENCE OF POSITIVE EFFECT

After examining the differences on health and nutrition behavioral measures between pre- and post-tests, it is clear participants of the *My TIME* program showed positive health and nutrition behavioral changes. Changes in the amount of fruit consumption, the variety of fruit consumption, and the amount of time spent on physical activity were especially significant. However, after completing the program, participants' sedentary time did not change in the intended direction.

Therefore, in future iterations of the curriculum, greater emphasis will be placed on the benefits of decreasing sedentary behavior time. In addition, in order to continue to study the program's effects, an increased effort will be made to support participant completion of post-surveys as well as exploring more rigorous study designs.



## FOR EXTENSION HEALTH AND NUTRITION EDUCATORS

The home-based model is an effective avenue to reach parents with young children in a co-learning setting. It capitalizes on the trusting relationships that HS home-based teachers have with families. This positively translates to families making behavioral choices to improve their consumption of fruit and vegetables and increased physical activity. With weekly mini-lessons, families are supported and reinforced in their implementation of positive changes. At the same time, the train-the-trainer format allows Extension Health and Nutrition Educators to maximize productivity and reach a challenging demographic in a climate of shrinking resources. While the Minnesota model has centered on the Head Start population, the curriculum could be easily adapted to public health or social work settings.

The current version of *My TIME* will continue to be a train-the-trainer option for Minnesota Extension SNAP-Ed educators with the goal of continued use with Head Start programs and expansion to additional partners who are working with both the parents and preschool children. *My TIME* was accepted into the national SNAP-Ed Database Toolkit as a practice-tested intervention in August 2019.



You may click here to access the references, tables, and graphs for this article.



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# Collaborating to Meet the Professional Development Needs of Nutrition Extension Educators at a National Level

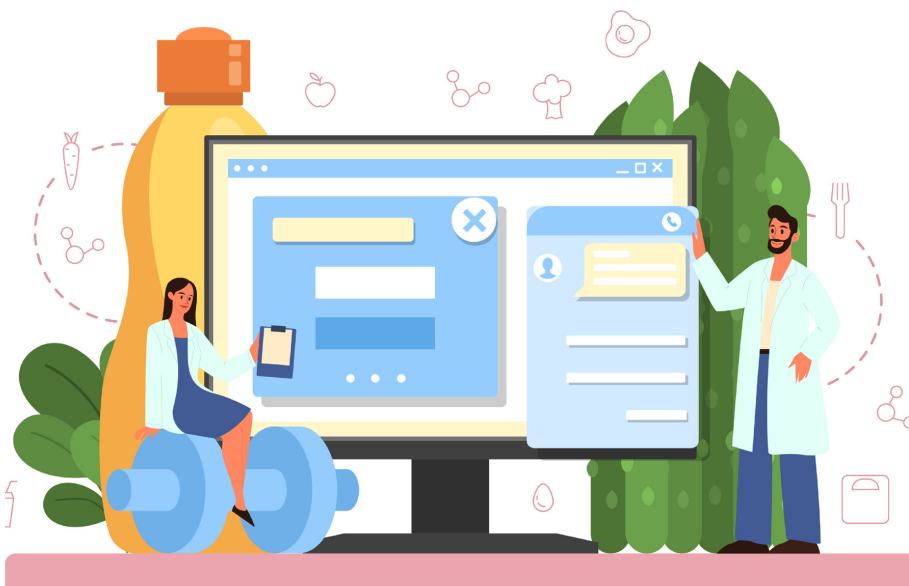
Professional development is often limited by time, funding, and access to subject-matter experts. The objective of this project was to provide convenient, evidence-based training by webinar on current nutrition and health topics to increase knowledge, abilities, and confidence of Extension educators. Two, four-session series on popular diets and brain health were delivered by a multi-state team, reaching 1,344 educators in 40 states. Post-session, post-series, and 6-month follow-up surveys showed an increase in knowledge, ability to discuss theme topics, and confidence in presenting information to clientele. Virtual delivery with collaborations among states provided opportunities for access to subject-matter experts, greater reach, and sound professional development.



## BEST PRACTICES

*Julie England, Wendy Lynch,  
Kendra Zamojski, Julie Garden-  
Robinson, Carlin Rafie, Wendy J.  
Dahl*

# Online Education



Professional development opportunities are essential for preparing Extension educators to deliver high quality, research-based programming (Cummings et al., 2015). Continuing professional development is what enables Extension agents to serve as local experts in nutrition and wellness and effectively serve their communities; however, if quality, timely, and comprehensive training to Extension educators is to be achieved, budget and time pressures may require approaches to professional development different from the traditional face-to-face method.

Digital and mobile technologies have emerged as important resources for self-directed learning of professionals (Curran, Matthews, Fleet, et al., 2017; Curran, Gustafson, Simmons, et al., 2019). Extension educators have shown an interest in online professional development in an environment of budget limitations (Senyurekli et al., 2006). Among the technology options, webinars provide focused content and address barriers to access due to geography, time, funding, and subject-matter expert availability (Frisch et al., 2017).

In addition, Extension educators are most comfortable with webinar delivery according to published research (Cater et al., 2013). However, the effectiveness of education delivery to professionals through mobile technologies requires further study (Curran et al., 2017).

To address the need for professional development of Family and Consumer Sciences (FCS) Extension educators, a multi-state team of Extension educators and specialists was created to plan, deliver, and evaluate continuing education by webinar. Together, the multi-state team aimed to provide specialized health and nutrition in-service trainings to FCS agents and other Extension professionals across the United States.



## OBJECTIVES

The goal was to plan, deliver, and evaluate professional development webinars aimed to increase subject matter expertise of FCS Extension professionals working in nutrition, health, and wellness. Specifically, the objectives of the professional development webinars were: 1) increase perceived knowledge of evidence-based nutrition and health topics, and thereby improve subject matter expertise; 2) increase ability and self-efficacy to discuss theme topics; 3) increase confidence in developing Extension materials and presenting on theme topics in Extension programming.

## METHOD

### PROGRAM DESCRIPTION

From consumer-targeted nutrition and health webinar feedback, dialogue with colleagues, and published literature supporting the need for professional development for Extension professionals (Cummings et al., 2015), a multi-state nutrition and wellness team was formed in 2018 to plan, deliver and evaluate webinars focused on evidence-based information on trending topics in nutrition and health. The team consisted of three Extension Specialists, one Regional Specialized Agent, and two county Extension Agents with greater than 10 years experience, representing the

University of Florida, North Dakota State University, and Virginia Polytechnic Institute and State University. In addition to the team, subject-experts from the fields, such as nutrition research and medicine, were invited as presenters. The target audience was Family and Consumer Science Extension educators and specialists, as well as other health educators, extension volunteers, and paraprofessionals.

Two, four-part, in-service training series by webinar were organized and presented. Each session in the series was a live, one-hour, online presentation. The first series, entitled Diet Dilemmas: Fads, Facts, and Fundamentals, was a four-part series that included topics on the essentials of healthy eating patterns and reviewed the current research on many trending diets and eating plans including: ketogenic, gluten-free, alkaline, vegetarian, and intermittent fasting. The second series, Brain Boosters: Fads, Facts and Fundamentals, included three sessions that provided a background on brain disorders and cognitive decline, as well as nutrition and lifestyle factors to maintain or improve brain health. Responding to feedback from the first series, a fourth session was added to the Brain Boosters series, which provided Extension professionals with information on available brain health programs, resources, and best practices for applying the knowledge gained in the previous three sessions. Research-based, multi-media presentations were developed by all speakers.

### TECHNOLOGY PLATFORMS UTILIZED

The Zoom© (<https://zoom.us>) webinar platform was used for the series, which allowed for both synchronous and asynchronous learning. This technology provided the opportunity to create interactive sessions using chat questions, demonstrations of online tools, live responses to participant questions, as well as recordings of the sessions for later viewing. The virtual environment provided the opportunity to recruit speakers nationally; thus, inviting speakers with diverse subject-matter expertise was possible. Sessions were recorded and archived on the Vimeo© (<https://vimeo.com>) website.

MailChimp© (<https://mailchimp.com>) was used to promote the series to past professional participants of the Florida team's consumer webinars. State FCS program leaders were contacted through the National Institute of Food and Agriculture (NIFA) listserv and were asked to promote the series statewide. Marketing efforts included e-flyers, as well as social media posts, e.g. NEAFCS Facebook. Cooperative Extension was identified in the branding of all marketing materials, including save-the-date cards, email campaigns, and as an introduction to each webinar sessions. Follow-up emails were sent after each session to attendees and non-attendees including recording links, handouts, and answers to any chat-posted questions not answered during the live session.

### PROGRAM EVALUATION

Approval for the program evaluation was sought from the Institutional Review Board, University of Florida, and was approved as Exempt. Surveys were distributed via Qualtrics© post-session, post-series, and a six-month follow-up. Example questions related to session objectives are shown in Table 1.



## RESULTS

The professional development webinars (eight sessions) attracted 1,344 live-session unduplicated participants. Participants who viewed recorded sessions were not tracked. Live sessions of four-part Diet Dilemmas attracted a total of 970 participants (430 unduplicated) from 37 states. Brain Boosters had 365 live participants attending during the four-session series (187 unduplicated) from 32 states. The combined breakdown of live participants showed 53% were FCS educators, 9% Extension specialists, 9% other Extension educators, 14% other Extension personnel (paraprofessional or volunteer), and 15% were unclassified/not reported. Demographics of the attendees of the two webinar series are shown in Table 2.

Webinars were evaluated for knowledge gain and increased self-efficacy immediately after each session. A six-month, follow-up survey assessed how the information was used. According to the Diet Dilemmas post-session results, 92% (586 of 639) of participants reported an increase in knowledge of the eating patterns discussed, 88% (558 of 637) reported an increase in their ability to discuss topics with clientele, and 78% (496 of 638) reported an increase in their ability to evaluate sources of information about popular diets. The post-series survey results revealed that 94% (140 of 149) of Extension professionals reported that the information presented was relevant to their educational programming. Results of the six-month, follow-up survey for the Diet Dilemmas series (130 of 546 registrants) showed that 62% (81) of respondents increased in their ability to teach general nutrition, and 53% (69) were more confident in presenting information on popular diets to clientele. The majority of Diet Dilemmas respondents (66%) reported viewing only live presentations, 4% viewed recorded sessions only, and 30% viewed combined live and recorded sessions. In the six-month follow-up, 98% of respondents (316 of 324) reported using the knowledge gained from the series to enhance their Extension program. This included direct education, creating blogs, newsletter articles, webpage and social media content, as well as training volunteers and Extension paraprofessionals.

The *Brain Boosters* post-session results showed that 93% (174 of 187) of participants reported an increase in knowledge of brain disorders, cognitive decline, and lifestyle factors for brain health. Of Brain Boosters end of session survey respondents, 92% (69 of 75) increased knowledge of prevention of cognitive decline and dementia and 89%

(50 of 56) learned current evidence for diet (lifestyle) as a preventive for cognitive decline and Alzheimer's disease. Of all session participants, 82% (193 of 235) increased their ability to discuss topics with clientele, and 84% (196 of 234) reported increased confidence in discussing the topics with clientele. In addition, 64% (149 of 232) planned to integrate the information presented into their Extension programming. Results of the six-month, follow-up survey for the Brain Boosters series (43 of 187 attendees responded) showed 44% (19) of respondents increased their ability to teach nutrition for brain health and 53% (23) were more confident in presenting information on brain health to clientele.

Combined end-of-session surveys for the two series indicated that 86% (711 of 822 respondents) increased ability to discuss theme topics with clientele. Open-ended comments were solicited in the post-series surveys. Table 3 presents examples of the comments received.

## DISCUSSION

Research-based information is the foundation of quality Extension programming. Family and Consumer Sciences Extension educators are considered by their clientele to be subject-matter experts on a wide variety of topics, including nutrition and health. To keep up with evolving research and emerging community issues, educators require ongoing education (Cummings et al., 2015). Budgetary concerns and increasing job responsibilities limit professional development opportunities and educators' ability to attend trainings. Webinar delivery offers convenience, particularly relief from travel, and low cost, as well as access to a wider pool of professionals with subject-area expertise.

The multi-state, virtual in-service trainings empowered Extension professionals across the U.S. to enhance their programs through direct education, creating blogs, newsletter articles, webpages, and social media content. Additionally, the programs provided the knowledge of nutrition and wellness topics specific to popular diets and brain health to train Extension volunteers and paraprofessionals. Through this collaborative, online approach, timely and relevant professional development in nutrition and wellness supported and enhanced Extension professionals' programs.

The multi-state team noted several potential improvements to enhance the in-service training



experience. Opportunities include developing a formal needs assessment of Family and Consumer Sciences Agents nationwide to prioritize webinar subject matter, the topic areas, and improving or fine-tuning the vetting process of speakers to ensure speakers understand the Extension audience and present well in a virtual format. Another opportunity is to find ways to capture the reach of the recorded trainings and maximize their use for professional development of agents. The team would also like to increase participation, nationally.

In conclusion, appropriate use of webinar technology for effective self-directed learning provides opportunities for increased knowledge and skills vital to creating and sustaining robust Family and Consumer Science Extension programs. Creating these opportunities, using multi-state resources and marketing, exponentially increases their reach on a national level and promotes collaborations among states. Regarding future evaluation of program offerings, there is an opportunity to deeply document areas for improvement and implementation.



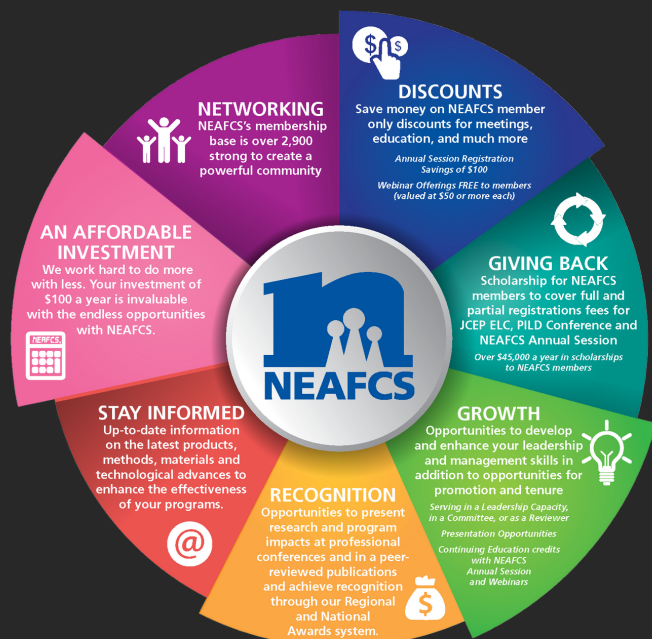
You may click here to access the references, tables, and graphs for this article.



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# Exploration of High-Risk Food Coping Strategies of Maine Food Pantry Clients



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### TABLE 1

*Phase I and Phase II Research Project*

## PHASE I

November 2017 –  
February 2018

- University of Maine Institutional Review Board Approval
- Food Coping Survey development
- Target number of survey responses per county identified
- Survey recruitment and administration; 566 surveys collected
- Survey analysis

## PHASE II

June – July 2018

- Focus group discussion topic and script development
- Focus group recruitment
- Focus groups conducted; 59 total participants
- Transcribing recordings
- Analyzing discussion data



**TABLE 2***Food Coping Strategies That Pose Risk to Individuals*

FOOD COPING STRATEGY	RESPONDENTS (%)		
	Yes	No	Unsure
Skipped meals or did not eat	68.0	27.2	0.2
Used out-of-date/expired food	62.7	30.6	2.3
Lived in car /outdoors	21.7	73.1	0.2
Acquired discarded food	17.0	76.0	1.8
Shoplifted food	13.8	80.4	0.5
Switched price tags on food	10.1	85.0	0.2
Begged/Panhandled	7.6	86.6	0.7
Engaged in illegal activities	7.1	86.9	0.9
Sought roadkill	5.5	88.5	1.1
Gambling	5.3	88.7	0.4

**TABLE 3***Food Coping Strategies That Pose Risk to Individuals***FOCUS GROUP DEMOGRAPHIC INFORMATION**

<u>Demographic Question</u>	<u>Percentage of Total (59)</u>	<u>n</u>
<b>Age</b>		
18-34	7%	4
35-49	22.8%	13
50-64	31.6%	22
65 or older	0	0
<b>Gender</b>		
Female	71.9%	41
Male	28.1%	16
<b>Hispanic/Latino</b>		
No	94.7%	54
<b>Race</b>		
AI or AN*	6.8%	4
White	89.8%	53
<b>Location</b>		
Urban	50.9%	29
Suburban	8.8%	5
Rural	38.6%	22





## FOCUS GROUP DEMOGRAPHIC INFORMATION

<u>Demographic Question</u>	<u>Percentage of Total (59)</u>	<u>n</u>
<b>Number in Household</b>		
1	42.1%	24
2	29.8%	17
3-4	15.8%	9
5-6	7%	4
7 or more	1.8%	1
<b>Children in Household</b>		
Yes	14%	8
No	82.5%	47
<b>Primary Food Provider</b>		
Yes	75.4%	46

**TABLE 4**

*Focus Group Questions by Topic*

<u>Topic</u>	<u>Questions</u>
Food Pantry Staples and Avoided Items	<ol style="list-style-type: none"> <li>1. When you have been to a food pantry, what items do you typically look for that you use the most in your household? <ul style="list-style-type: none"> <li>• Typical or 'staple' items</li> <li>• Items avoided and why</li> </ul> </li> </ol>
Out of Date/Expired Food Use and Decision-Making	<ol style="list-style-type: none"> <li>2. When you are cooking at home, has there ever been a time when you are preparing a recipe and one of the ingredients was not 'good' or past the 'best by' date? How did you decide whether or not to use it?</li> <li>3. When you are at the food pantry or grocery store, how often do you look at the 'best by' or 'sell by' dates?</li> <li>4. When looking at these dates, what is your interpretation of them?</li> <li>5. Do your thoughts on the 'best by' or 'sell by' dates depend on the food item?</li> <li>6. What factors help you decide if something is still 'good' to eat, other than the expiration date?</li> </ol>



<u>Topic</u>	<u>Questions</u>
Sources of Information and Information Needed	<p>7. When you go to look for information about food, where and/or who would you go to for answers?</p> <p>8. What type of information would you need to help you make a better decision around using food that may be out of date?</p> <p>9. Would information about storing food properly be beneficial?</p>

**TABLE 5**  
*Quotes Regarding Items Avoided at the Food Pantry and Reasoning*

<b>Location</b>	<b>Quote</b>
Cumberland County	"Yesterday they had a lot of asparagus that – I love asparagus – but it was past the stage of being eaten because it was yellow, and it was soft when you touched it. And I couldn't take it."
Penobscot County	"Sometimes the [fresh] fruit I bypass because it doesn't last long and you have to eat it right away."
Penobscot County	"It's hard with the canned if you're a diabetic or you have high blood pressure because of all the salt, so I don't bother anymore with it."

**TABLE 6**  
*Quotes Regarding Checking Dates on Food Items*

<b>Location</b>	<b>Quote</b>
Kennebec County	"I mostly check it on dairy, I always try to get the best date on milk and yogurt. But there's a lot of things that I don't even bother checking the sell by date. And meat I have to check too."
Penobscot County	"I look into the back to get the good date. And if it's too close to the date for certain items and there isn't a different option, then I won't buy it. If it's only 3-4 days or a week then they can keep it."
Penobscot County	"I don't usually pay attention unless I'm here [at the food pantry] – if I go to the grocery store, I trust that they go through their shelves often, but here I do look."
Kennebec County	"I figure it's best if I use it by that date, and if not, you're eating it at your own risk. I have health issues also so I keep my eye on that."



**TABLE 7***Quotes Regarding Dates on Canned Food Items*

Location	Quote
Kennebec County	"Sometimes when you have them for a long period of time you have to throw them out when you see rust on the outside of the can."
Penobscot County	"A lot for me, it depends on what's inside the can – if it's tomatoes or something that is really acidic, then I would throw it away, I don't even look for the bulging. But something like string beans, which is not really acidic, that can stay in that can until something happens to the can – and it's still fine to eat because there is nothing in that can that is going to create a botulism or something."
Penobscot County	"Some of your canned goods – those will say use by a certain date – but you can use those for months after."
Kennebec County	"I usually don't pay any attention to it if it's canned. I don't pay attention to the date at all. I just, I look at canned as nonperishable. So they're good forever, canned goods."

**TABLE 8***Decision-Making with Foods That Have Spoiled*

Location	Quote
Kennebec County	"Well, with the vegetables, if they're too soft, you have to throw them away – but if they're just alright, then use them that day."
Cumberland County	"Certainly like with cheese or something, if it's not too deep then I can cut it off, but there are some things – like if there is mold in a loaf of bread then I won't eat it."
Kennebec County	"I taste it. A little taste of it. And then the vegetables, I take and chop off that part of it and put the rest in the freezer."
Penobscot County	"Well if it's mold on strawberries, then I'll take out the bad ones, but if it's still good then I'll wash them and eat them."





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**TABLE 9***Sensory Evaluation of Food Items*

Location	Quote
Penobscot County	"Yeah it might get a smell to it too or be slimy. That's a signal to not use it."
Kennebec County	"If it looks good, then you eat it – so you check the food first, you look at it. You have to make sure it looks alright before you eat it."
Penobscot County	"It's the exposure. Because if it's got ice crystals on it then it has a leak somewhere, so it has exposure and then I'm just not going to eat it."
Kennebec County	"Canned foods, once I open it up and I look at it, I can tell by the looks and taste, but it's definitely good to open it up and take a look at it and if you kind of taste it, you should know."

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**TABLE 10***Methods of Learning About Food and Nutrition*

Location	Quote
Cumberland County	"I need things orally, written and visual. It doesn't absorb unless I have it all."
Penobscot County	"Yeah whenever I look something up it comes up with sixteen pages to go through and it's ridiculous. Give me a yes or no is what I want."
Penobscot County	"Pamphlets with information or something that has recipes or on Facebook – that would be really helpful."
Penobscot County	"I just need the questions answered – I don't need any videos because they go on and on and I like to just ask questions and have it come up and I can read through. They can give you a website [with the video] if you want to go to it."

**TABLE 11**  
*Nutrition Misconceptions Among Focus Group Participants*

Food Category/Item	Misconception
Peanut Butter	Separation of oil and solids in an unopened jar of peanut butter indicates spoilage.
Mold	Discard any food with mold, no matter the type of food or how much mold is on it.  Certain foods with mold (i.e. cheeses, fruits) can be used if you cut out the portion with mold on it.
Meat and Poultry	Red meat that has turned brown has spoiled.  Ice crystals on frozen meat is an indicator that it is no longer good to eat.

**FIGURE 1**  
*Common Items Desired at Food Pantries by Focus Group Participants*



**FIGURE 2**  
*Common Sources of Food and Nutrition-Related Information Among Focus Group Participants*





# Validation of an Older Adult Malnutrition Screening Tool for Nutrition Education Program Outcome Assessment



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Table 1. Characteristics of older adult participants in the cross-sectional validation study.

	Participants (n = 298)
Age, y	77 ± 9
Range	60-100
Sex, <i>n</i> (%)	
Male	59 (20)
Female	239 (80)
BMI, kg/m <sup>2</sup>	29.5 ± 6.5
Range	17-56
Race, <i>n</i> (%)	
White	209 (70)
Black African American	71 (24)
Others	18 (6)
Ethnicity, <i>n</i> (%)	
Hispanic or Latino	20 (7)
Not Hispanic or Latino	260 (87)
Unknown or Not Reported	18 (6)

Table 2. Nutrition status of the study population using MNA and COAST.

Nutrition Status	MNA	COAST
High risk of malnutrition, <i>n</i> (%)	4 (1.3)	39 (13.1)
Moderate risk of malnutrition, <i>n</i> (%)	68 (22.8)	103 (34.6)
Low risk of malnutrition, <i>n</i> (%)	226 (75.8)	156 (52.3)

Table 3. COAST item correlation with the MNA® Score

Item	Content	Pearson r with MNA score
1	“Have you lost weight recently without trying?” (Ferguson et al., 1999)	.420**
2	Have you been eating less food because of a decreased appetite? (Ferguson et al., 1999)	.367**
3	Do you have an illness or condition that has made you change the kind and/or amount of food [you] eat? (NSI, 1994)	.290**
4	“In general, how healthy is your overall diet?” (Loftfield et al., 2015)	.395**
5	Do you consume...  • Dairy products (milk, cheese, yogurt) or soy milk at least once a day?  • Meat, poultry (e.g. chicken), fish/seafood, or eggs every day?  • Legumes (e.g. beans), soy products, nuts, or seeds at least twice a week? (Vellas et al., 1999)	.334**

\*\*  $p < 0.01$



A photograph of a family of three—a mother, a father, and a young child—gathered around a table. The mother is holding a smartphone, and all three are looking at the screen with interest. The father is leaning in from behind the mother, and the child is sitting in front of them. A laptop is open on the table in the foreground. The background is softly blurred, showing a home interior with a plant and curtains.

# Are Online Parenting Newsletters Still Relevant and Useful? Parents Report Yes!

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Table 1

Demographic Characteristics of Just In Time Parenting Newsletter Survey Respondents between 2010 and 2015 (N = 928)

	Mean	Number	Percent
Year			
2010		74	8.0
2011		80	8.6
2012		99	10.7
2013		89	9.6
2014		448	48.3
2015		138	14.9
Parent / Caregiver's age			
2010	33.8 (9.02)		
2011	33.44 (8.10)		
2012	36.61 (10.03)		
2013	37.44 (10.24)		
2014	35.19 (8.02)		
2015	36.14 (8.82)		
Child's age (in years)			
1-year-old		414	44.6
2-year-old		243	26.2
3-year-old		267	28.8
Prefer not to answer		4	0.4
Child's gender			
Boy		342	35.8
Girl		339	35.5
Prefer not to answer		247	26.6
Relationship to the child			





Mother	650	70
Father	41	4.4
Other caregiver	68	7.3
Prefer not to answer	197	18.5
Marital status		
Married	664	71.6
Not-married	92	9.9
Prefer not to answer	200	20.9
Ethnicity		
White	627	67.6
Non-White	143	15.4
Prefer not to answer	186	17.0
Parent's education level		
Less than high school	0	0
High school diploma or GED	27	2.9
Some college/vocational training	57	6.1
College degree	678	73.1
Prefer not to answer	194	17.9
Country		
United States	710	76.5
Other countries	56	6.0
Prefer not to answer	190	17.5
Number of States with survey respondents	42	

Table 2

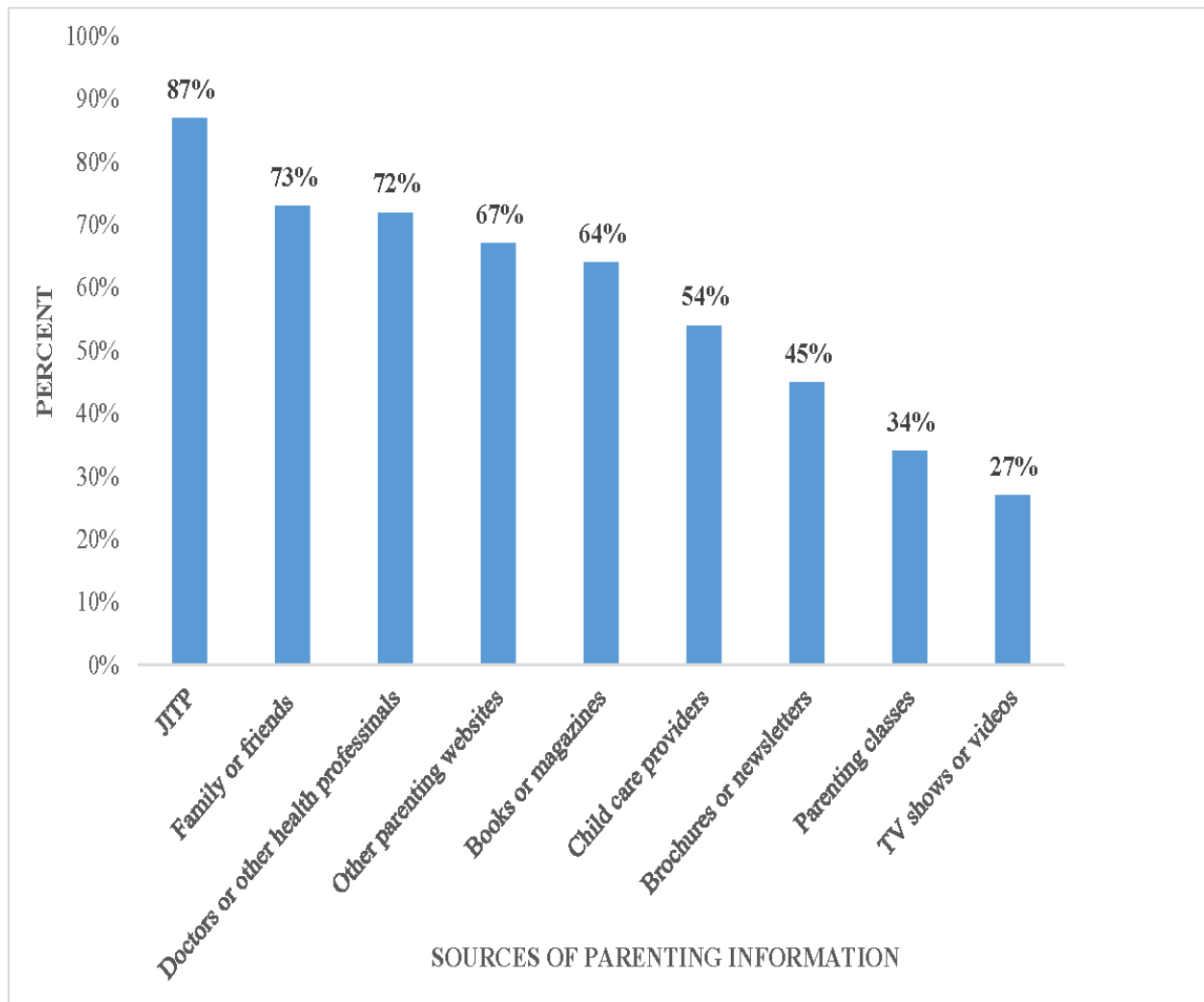
Changes in Parenting Practices after Reading the Newsletters (N = 928), Self-reported on a Scale of 1 to 5, where 1 is strongly disagree and 5 is strongly agree

After reading JITP, I...	Mean (SD)
For all age groups	
Knew more about what to expect my child to be able to do at each age	3.33 (.81)
Felt more confident in my skills as a parent	3.11 (.79)
Felt less stressed about parenting	3.07 (.64)
For 1 year old	
Used the parenting tips in taking care of my baby.	3.31 (.62)
Provided more opportunities for my baby to explore and learn.	3.24 (.66)
Noticed my baby's cues more	3.22 (.67)
Had more patience when my baby was fussy or did something that was annoying	3.18 (.67)
Was better able to know when my baby was hungry or full	2.91 (.70)
For 2 and 3 year old	
Used ideas about ways to play with my child to help him/her learn.	3.09 (.86)
Used ideas about how to get my child to behave	3.22 (.60)
Used ideas to guide my child's healthy eating	3.04 (.65)
Established routines for my child, such as for meals and bedtime	3.12 (.66)
Used ideas to protect my child from accidents and injuries.	3.06 (.64)



Figure 1

Percent of Parents Reporting Usefulness for Each Source of Parenting Information





# Food Safety of Low Acid Canning in Electric Pressure Cookers

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**Table 1**

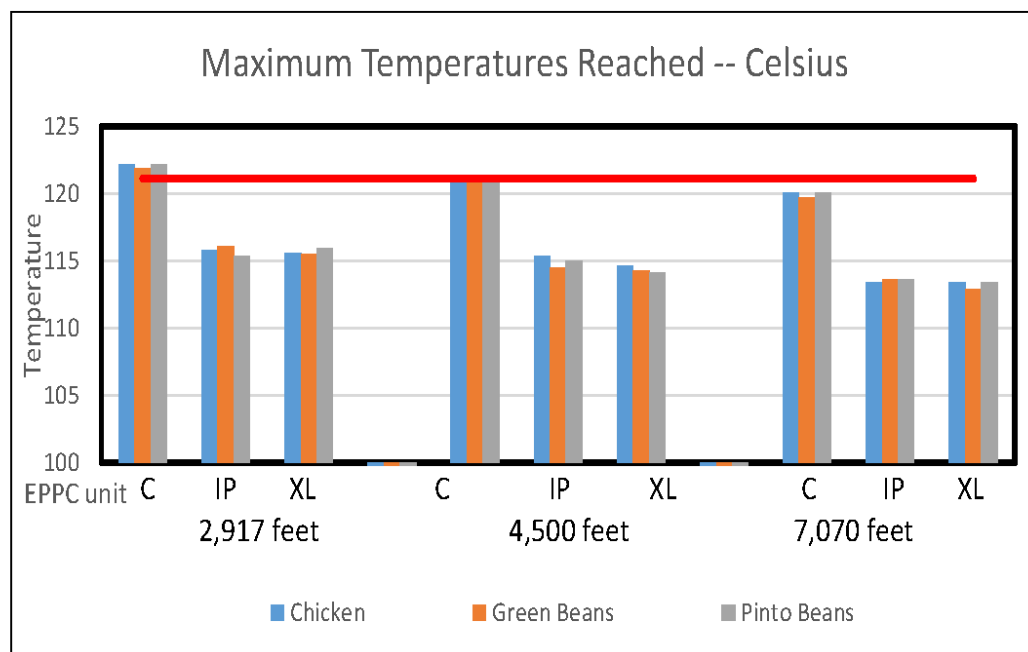
Recipe Protocol from *So Easy to Preserve, Sixth Edition*

Recipe page	Food	Raw Pack/Hot Pack Pints	Process time
Page 98	Chicken	Hot pack, baked 1/2-inch strips, packed in water	75 minutes
Page 87	Green beans	Raw pack, packed in water, 1/2 tsp salt	20 minutes
Page 86	Pinto beans (dried)	Hot pack, quick method pre-soak with 10 minute initial boil, packed in water	75 minutes

*Note.* The Carey and the Instant Pot used a natural release. The Power Pressure XL specified a quick release in their canning instructions.

**Figure 1**

Range of Maximum Temperatures-Celsius reached



*Note.* C = Carey, IP = Instant Pot, XL = Power Pressure XL





## Appendix A

Processing adequacy at 121.1°C (250°F), 115.6°C (240°F), and 110.0°C (230°F). Based on commercial “botulism kill” (2.5 minutes at 121.1°C) or calculated equivalent conditions (8.9 minutes at 115.6°C or 32.2 minutes at 110.0°C).

	Elevation	Electric Pressure Cooker Brand	Max Temp (°C)	121.1°C or above		115.6°C or above		110.0°C or above	
				Time (min)	Theoretically Adequate? (≥ 2.5 min)	Time (min)	Theoretically Adequate? (≥ 8.9 min)	Time (min)	Theoretically Adequate? (≥ 32.2 min)
Pinto Beans	2917 ft	Carey	122.1 ± 0.1	66.9 ± 5.6	Yes	88.6 ± 2.2	Yes	104.5 ± 1.0	Yes
		Instant Pot	114.9 ± 0.4	0		0		91.0 ± 31.4	Yes
		Power XL	116.0 ± 0.7	0		30.5 ± 9.2	Yes	53.2 ± 22.3	Unclear <sup>b</sup>
	4550 ft	Carey	121.2 ± 0.1	21.1 ± 31.2	Unclear <sup>a</sup>	75.4 ± 27.7	Yes	90.0 ± 32.4	Yes
		Instant Pot	110.4 ± 7.5	0		0		69.2 ± 60.0	Unclear <sup>a</sup>
		Power XL	112.6 ± 2.4	0		0		53.9 ± 46.7	Unclear <sup>a</sup>
	7070 ft	Carey	120.0 ± 0.1	0		69.5 ± 23.8	Yes	83.4 ± 29.4	Yes
		Instant Pot	113.2 ± 0.4	0		0		98.1 ± 2.9	Yes

		Power XL	113.1 ± 0.3	0		0		75.8 ± 5.6	Yes
Green Beans	2917 ft	Carey	121.6 ± 0.3	6.7 ± 2.5	Yes	32.3 ± 1.1	Yes	52.2 ± 4.2	Yes
		Instant Pot	115.1 ± 1.0	0		4.7 ± 8.1	Unclear <sup>a</sup>	44.0 ± 2.9	Yes
		Power XL	115.0 ± 0.5	0		0		16.1 ± 0.9	No
	4550 ft	Carey	120.8 ± 0.1	0		27.7 ± 0.7	Yes	47.9 ± 2.1	Yes
		Instant Pot	114.1 ± 0.4	0		0		33.7 ± 13.1	Unclear <sup>b</sup>
		Power XL	114.1 ± 0.2	0		0		16.4 ± 0.7	No
	7070 ft	Carey	119.3 ± 0.4	0		23.1 ± 2.4	Yes	43.7 ± 3.0	Yes
		Instant Pot	113.0 ± 0.7	0		0		27.1 ± 10.2	Unclear <sup>b</sup>
		Power XL	112.7 ± 0.2	0		0		11.2 ± 3.2	No
Chicken	2917 ft	Carey	112.2 ± 0.1	67.2 ± 4.2	Yes	90.4 ± 3.5	Yes	109.9 ± 2.2	Yes
		Instant Pot	115.7 ± 0.2	0		14.7 ± 14.2	Unclear <sup>a</sup>	93.8 ± 34.5	Yes
		Power XL	115.6 ± 0.1	0		21.0 ± 20.4	Unclear <sup>a</sup>	77.7 ± 0.8	Yes
	4550 ft	Carey	121.4 ± 0.1	44.8 ± 13.1	Yes	75.5 ± 25.3	Yes	90.1 ± 30.5	Yes
		Instant Pot	114.7 ± 0.6	0		0		102.1 ± 5.6	Yes



		Power XL	114.3 ± 0.3	0		0		80.3 ± 4.0	Yes
	7070 ft	Carey	120.0 ± 0.1	0		84.8 ± 4.7	Yes	104.3 ± 7.0	Yes
		Instant Pot	112.9 ± 0.5	0		0		74.1 ± 23.7	Yes
		Power XL	113.3 ± 0.2	0		0		50.4 ± 21.6	Unclear <sup>b</sup>


<sup>a</sup>Average time is above the minimum calculated processing time, but not all replicates were above the minimum value.

<sup>b</sup>Average time is above the minimum calculated processing time, but some replicates were barely above the minimum value.



## Appendix B

### Handout for Electric Pressure Cooker Curriculum or Classes



## Do's and Don'ts of Electric Pressure Cookers

DON'T	DO
<ul style="list-style-type: none"><li>• Use an Electric Pressure Cooker as a pressure canner for bottling low-acid foods</li><li>• Use an Electric Pressure Cooker as a steam canner</li></ul>	<ul style="list-style-type: none"><li>• Use an Electric Pressure Cooker to prepare foods for canning<ul style="list-style-type: none"><li>• <i>Steam blanch vegetables</i></li><li>• <i>Parcook and soften apples for applesauce</i></li><li>• <i>Cook beans and legumes</i></li><li>• <i>Make small batches of jam or jelly</i></li></ul></li><li>• Use an Electric Pressure Cooker to cook meals while the stovetop is used for canning</li></ul>

Questions? Visit [extension.usu.edu](https://extension.usu.edu) or contact your county Extension office.

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# Seminars for Stronger Relationships



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## SUPPLEMENTARY MATERIALS

### Seminars for Stronger Relationships Worksheets

- **Seminar #1: Selfishness, Fighting, and Communication Problems**
  - Overcoming Relationship Consumerism
  - Emotional Flooding
  - Understanding Emotional Flooding
  - Emotional Time Out
  - The 4 Pitfalls of Communication
- **Seminar #2: Keys to Healthy Communication**
  - Harsh Startup / Soft Startup
  - WE Model / 100 Root Emotion Words
  - WE Are Stronger Than Me
- **Seminar #3: Feeling Closer in Your Relationship**
  - Priorities
  - Who Owns Your Marriage – Your or Your Kids?
  - Strategies for Not Losing Your Marriage to Your Parenting
  - Couple Rituals
  - Helpful Couple and Family Reading Material

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### OVERCOMING RELATIONSHIP CONSUMERISM

Research shows that psychological individualism has been growing for the past century. This has led to individualistic or consumer-based thinking in romantic relationships. When this happens, the following dangerous processes can occur:

- Confusing my desires with my needs
- Caring more about “what’s in it for me” than “what’s in it for my spouse/partner”
- Comparing my spouse/partner unfavorably to other people
- Believing that my relationship should be as exciting and easy as it seemed when we first got together
- Believing that unrealistic relationship fantasies can be reality
- Believing it is my spouse’s/partner’s responsibility to make my relationship better
- Turning marital disappointments into marital tragedies
- Turning constructive efforts for improvements into entitled demands for change

Goals to overcome consumer-based, individualistic thinking in romantic relationship:

1) What limitations and problems do I need to work on to help improve my relationship with my spouse/partner?

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2) What I can do to better meet my spouse's/partner's needs?

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3) How can I learn to live with my spouse's/partner's limitations and problems?

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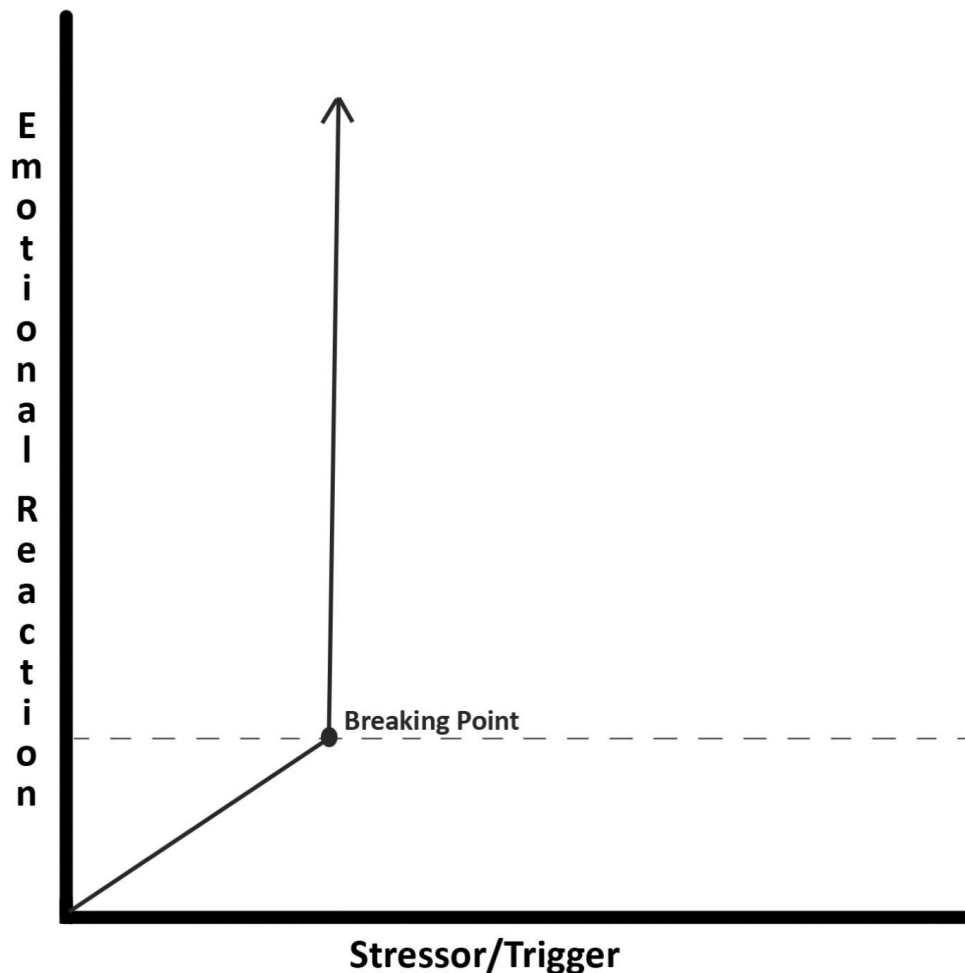
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*Influenced by the work of William Doherty, PhD*

## EMOTIONAL FLOODING





## UNDERSTANDING EMOTIONAL FLOODING

What sets you off? Make an exhaustive list of your triggers:

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How do you know your emotions are getting out of control?

- Physiological cues: \_\_\_\_\_

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- Behavioral cues: \_\_\_\_\_

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- Verbal cues: \_\_\_\_\_

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What helps you calm down? Make an exhaustive list of the things you can do to calm yourself down:

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## EMOTIONAL TIME OUT

If your emotions are getting charged, you should call a time out for yourself (do not call one for the other person).

1) Time Out Signal: \_\_\_\_\_

2) Where you go during the time out? Each partner should select one place that is off-limits to the other during the time out:

- Partner 1 Safe Zone: \_\_\_\_\_
- Partner 2 Safe Zone: \_\_\_\_\_

3) What you will do during the time out (focus on calming yourself down. DO NOT call or talk to anyone during this time):

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4) How long the time out will last? Make 2 lengths for each partner – one for if you catch yourself before the breaking point, one for if you catch yourself after the breaking point (90 minutes max):

- Partner 1 short time out: \_\_\_\_\_
- Partner 2 short time out: \_\_\_\_\_
- Partner 1 long time out: \_\_\_\_\_
- Partner 2 long timeout: \_\_\_\_\_



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How you will come back and talk about issue in a calm rational manner:

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If you need to repeat the time out process multiple times in a discussion, try to work harder to find less emotionally charged ways of presenting your thoughts.

## THE 4 PITFALLS OF COMMUNICATION

1) Criticism (Personal Attack or Blame): This happens when we communicate in ways interpreted by another as personally attacking or blaming. There will inevitably be concerns or frustrations to address in your relationship. However, if they are raised in a way that could be interpreted as personally attacking or blaming, problems will result.

- Examples (Which show criticism?):
  - *"When are you going to act like an adult and learn to put your socks in the laundry basket?"*
  - *"I am frustrated that the socks are on the floor again."*
  - *"You need to stop yelling at me!"*
  - *"I am feeling attacked."*

2) Contempt (Resentment): This happens when we have intense negative feelings toward someone on an issue.

- Unique because it is less about the observable behavior, and more about the underlying feelings such as:
  - Resentment
  - Superiority
  - Blood boiling
- Behavioral manifestations:
  - Mean
  - Disrespectful
  - Sarcastic
  - Eye rolling
  - Poor body language

3) Defensiveness: When we feel accused, attacked, or that we need to clarify something, we become defensive.

- When a person feels accused, attacked or the need to clarify something, human tendency is to respond defensively with a response like:
  - *"That's not what I said"*
  - *"No, I didn't!"*
  - *"I am not always that way"*
- Defensive responses are so problematic for relationships because they send the message that:
  - We are selfishly motivated – to save face
  - We are more interested in not looking bad or receiving blame than we are in listening.
  - Our partner's feelings are not important





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4) Stonewalling (Conflict Avoidance): Conflict avoidance or shutting down.

- Stonewalling typically happens for one of two reasons:
  - We are uncomfortable and don't want to face the issue
  - We use conflict avoidance as a power move
- Problems will accumulate if they are stonewalled – potentially building feelings of contempt and causing a blowup later.

*Based on the research of Dr. John Gottman.*

## HARSH STARTUP

Conversations that begin harshly will typically end harshly. Conversations that begin softly will typically end softly. You have more control over the outcome of a conversation than you might realize. Start softly and you have a much greater chance of reaching a pleasing outcome.

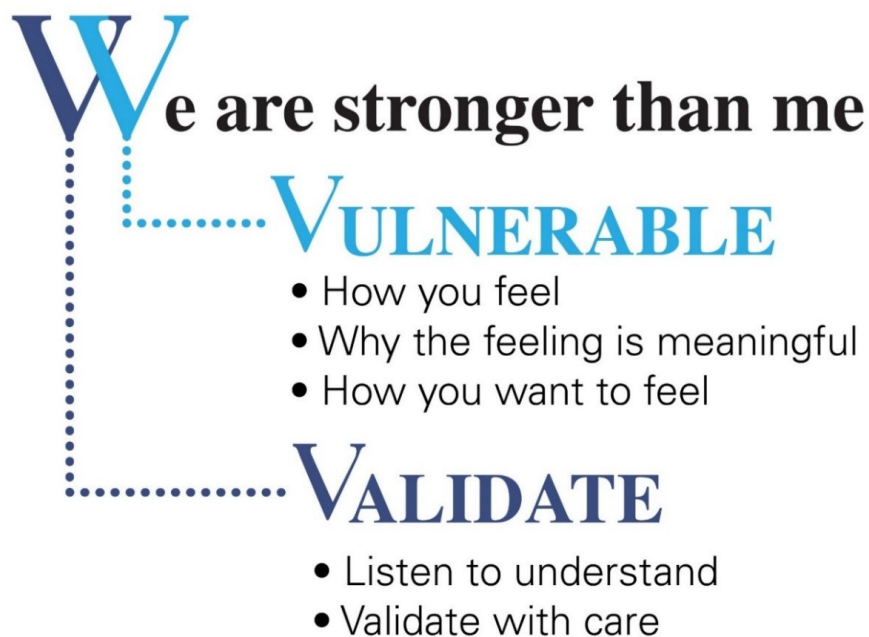
**Methods of starting conversations harshly include:**

- Showing blame
- Making accusations
- Being critical
- Being sarcastic
- Using harsh tones

Conversations that begin softly will typically end softly.

**Keys to soft startup:**

- Commend
- Acknowledge
- Praise
- Gentle
- Use a kind tone



### 100 Root Emotion Words

1	Abandoned	21	Degraded	41	Flawed	61	Inferior	81	Resentful
2	Abused	22	Dejected	42	Flustered	62	Intimidated	82	Ridiculed
3	Adrift	23	Demanded	43	Forsaken	63	Invalid	83	Shamed
4	Afraid	24	Demoralized	44	Frail	64	Judged	84	Shocked
5	Alienated	25	Depressed	45	Frightened	65	Lonely	85	Sorrowful
6	Ambivalent	26	Despondent	46	Grieved	66	Lost	86	Threatened
7	Ashamed	27	Destroyed	47	Guilty	67	Misled	87	Tiny
8	Awkward	28	Detached	48	Helpless	68	Mistreated	88	Trapped
9	Belittled	29	Devalued	49	Hesitant	69	Misunderstood	89	Troubled
10	Betrayed	30	Devastated	50	Hopeless	70	Neglected	90	Uncomfortable
11	Blemished	31	Disappointed	51	Humiliated	71	Nervous	91	Uneasy
12	Blue	32	Discouraged	52	Hurt	72	Oppressed	92	Unimportant
13	Broken	33	Discredited	53	Impaired	73	Overwhelmed	93	Unsure
14	Cheapened	34	Disgraced	54	Imperfect	74	Powerless	94	Used
15	Confused	35	Distant	55	Inadequate	75	Punished	95	Useless
16	Crippled	36	Distracted	56	Incapable	76	Puzzled	96	Weak
17	Crushed	37	Downhearted	57	Incompetent	77	Regretful	97	Wicked
18	Damaged	38	Empty	58	Incomplete	78	Rejected	98	Withdrawn
19	Defeated	39	Excluded	59	Ineffective	79	Reluctant	99	Worried
20	Defensive	40	Exposed	60	Inept	80	Remorseful	100	Worthless

### WE ARE STRONGER THAN ME

The goal of healthy communication is not to agree with each other, or to convince the other of your intentions. Rather, the goal should be to understand the other's perceptions to the other's satisfaction. No problem-solving of any kind should occur until both partners understand the other's perceptions to the others satisfaction.



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## **Vulnerable:**

### **1. How you feel**

- Start by sharing root emotions, such as:
  - Lonely, afraid, hurt, hopeless, judged
- Avoid use of symptom emotions, such as:
  - Anger, upset, mad, ticked

### **2. Why the feeling is meaningful**

- Why is the emotion you feel so meaningful or significant?
- What is at the root of those feelings?
- Does this relate to your identity in some way?
- What is your dream within the conflict? (Gottman, 2010)

### **3. How you want to feel**

- Positive emotional need associated with the issue.
- Not an opportunity to dictate the behavior you expect from your partner

## **Validate:**

### **4. Listen to understand**

- Help your partner feel emotionally sheltered or protected or secure.
- Postpone your own agenda.
- Avoid defensiveness.
- Wait until your partner finishes talking to talk.
- Listen as though this is the first time you have heard these things.
- Do not assume you know what the other thinks.
- Do not focus on agreeing with the other; the goal is understanding, not agreement.

### **5. Validate with care**

- Validate what your partner said
- Repeat what you heard
- Show care and sincerity (a must)
- Resolution can often be felt for both without changing the situation when they feel heard and validated





- Now both of you are informed sufficiently to know how to discuss potential solutions, collaborative solutions, give apologies, agree to disagree, and so forth.

*Influenced by the work of Dr. Susan Johnson and Dr. John Gottman*

## PRIORITIES

Research has shown that couples who place their relationship as their first priority are able to manage all their other priorities much more efficiently.

Things we tend to make a priority:

- Ourselves
- Kids (many have a hard time with this, but research has shown a parent's ability to care for -their kids increases if their marital relationship is the priority)
- Spouse/Partner
- Work
- Hobbies
- Friends
- Siblings/Parents
- Other outside commitments

Honestly list the 5 most important priorities in your life (If I was a fly on the wall for 2 weeks, what 5 priorities would I list based on my observations):

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

Now list how you think your priorities should be (they can be the same as above):

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_



5. \_\_\_\_\_

What do you need to do to change your priorities? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### WHO OWNS YOUR MARRIAGE - YOU OR YOUR KIDS?

It's easy to find reasons why your kids' needs are front and center, but if you neglect your spouse in the process of parenting, you won't be doing your kids any favors.

1. Five nights out of seven, your preadolescent kids go to bed whenever they want, and it's usually well after 9:00pm.

\_\_\_ Yes

\_\_\_ No

2. When you've finally found a moment with your spouse, even if it is in the car and on the way to the soccer match, your kids invariably ask you to turn up the music, give them a juice box, or demand you hear about the latest video game, and you find it easier to listen than to ask them to wait until you're done talking with your spouse.

\_\_\_ Yes

\_\_\_ No

3. You haven't had a night out alone together in a month- and you can't even remember the last time before that.

\_\_\_ Yes

\_\_\_ No

4. The lock on your bedroom door is growing rusty with disuse.

\_\_\_ Yes

\_\_\_ No

5. Your down time as a couple is always family time, for example, spent watching a Disney video with the kids instead of listening to jazz on the deck while the kids watch the movie indoors.



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☐ Yes

☐ No

6. When the choice at the moment is between talking to your spouse about his or her day, or playing ball with your kids, and you almost always choose the kids.

☐ Yes

☐ No

7. When you've finally finished driving the kids to the violin lessons and swim practice and have completed that science project you just found out was due tomorrow and your spouse wants to sit down and relax with you, you just can't resist folding Johnny's laundry or working on building Tanya's dollhouse "while we talk".

☐ Yes

☐ No

If you read these statements and answer "yes" more than three times, you're giving away your married life to your kids and should work to set up boundaries to get back a life with your mate.

### STRATEGIES FOR NOT LOSING YOUR MARRIAGE TO YOUR PARENTING

- Always remember that your marriage is the foundation of your family and the cornerstone of your children's security. Research has shown that if you make your marriage priority #1, parenting will be more manageable. Good marriages lead to good parenting. At some point your children will grow up and move out - your marriage needs to survive after the parenting roles are reduced.
- Share parenting responsibilities.
- Kids will be more demanding of your needs than your spouse. This means you need to make more of an effort to focus on your marriage to compensate.
- Limit outside commitments for you and your children so that you have more time to be together as a family and time to be together as a couple.
- Have fixed bedtimes for your children. This will provide some great isolated time for you and your spouse.
- Don't let your kids interrupt every conversation you have with your spouse. Teach your kids to ask before they can interrupt, and just because they ask doesn't mean you will always allow them to interrupt.





- If you want to talk as a couple, have somewhere you can go (such as the bedroom) that the kids know is off limits unless it is an emergency. Carve out private space.
- Limit the amount of time you devote to your children's school homework each night. It is important for children to learn how to learn on their own. This will also free up more time for you to spend with your spouse.
- Carve out private time for yourselves as a couple every day. Minimum of 15 minutes.
- Never triangulate your children in your marriage.
- If your kids have witnessed a disagreement between you and your spouse, let the kids see that you have made up, are trying to learn from your disagreement, and provide reassurance that your relationship is strong.
- Be open with your children about what you are doing for your marriage and why you are doing it.

## COUPLE RITUALS

Couple rituals are social interactions that are **repeated**, **coordinated**, and **significant**. They may not be convenient or efficient, but they are essential for healthy couple connection.

### Ground rules:

- No logistics talk (e.g. who will take kids to soccer practice)
- No problem-solving talk (e.g. what should we do about the car that needs to be repaired)
- No conflict talk (e.g. talking about problems in the relationship)

### Daily Connection Rituals:

- Talk rituals: Having 15 minutes of un-interrupted time talking together every day.
- Greeting and departure rituals: Making your initial contact when you get home or the last contact before you leave have meaning to both of you.
- Message rituals: Leaving notes for each other, text each other, cute emails.
- Sleep rituals: Go to bed at the same time (Does not mean you need go to sleep at the same time).

### Weekly Rituals:

- Love rituals: Purpose of love rituals is to say, "I love you and you are special to me". Some examples:



- Leaving flowers or chocolates for your spouse.
- Surprising your spouse with a clean house.
- Taking the kids for the afternoon so your spouse can have some time to themselves.
- Dates (at least weekly) - some parameters:
  - Take turns planning a date you know your spouse/partner would love.
  - Activities should provide one-on-one emotional connection.
  - Make sure it is just the two of you (no friends)
  - When possible, get out of the house
  - Don't just go to a movie (movies do not provide the necessary connection).
  - You don't need to spend lots of money (e.g. you could go for a drive, a walk, could share an inexpensive desert, etc.).
- Sex rituals: The goal should be to improve the emotional connection in your relationship.
  - Don't just wait for it to spontaneously happen. Research has shown that being in the mood or not being in the mood is not a key factor in the satisfaction of a sexual experience.
  - Make sure it is repeated, coordinated and significant. Adjust bedtime routines so you go to bed at the same time or pair with date nights.
  - Communicate openly with each other about your sexual relationship.

#### **Special Occasion Rituals:**

- Anniversaries, Valentine's Day, Birthdays, and other special days: Make them count every year. Develop traditions.
- Vacations: 1-2 couple vacations annually (without the kids). Try to get away for at least two nights.

*Influenced by the work of Dr. William Doherty.*

### **HELPFUL COUPLE AND FAMILY READING MATERIAL**

There are a lot of not-so-helpful relationship self-help books out there. If you want to read some that really can give you good ideas, these are based on excellent research and apply to most couples.

#### **Marriage Books:**

- *Take Back Your Marriage: Sticking Together in a World that Pulls Us Apart (2<sup>nd</sup> ed)* by William Doherty
- *The Seven Principles for Making Marriage Work: A Practical Guide from the Country's Foremost Relationship Expert* by John Gottman and Nan Silver
- *Hold Me Tight: Seven Conversations for a Lifetime of Love* by Sue Johnson



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**Family Relationship Book:**

- *The Intentional Family: Simple Rituals to Strengthen Family Ties* by William Doherty

**Parenting Books:**

- *Raising Human Beings* by Ross Greene
- *The Explosive Child* by Ross Greene



# What Do Men Want to Know about Nutrition and Health?

## Results of an Online Survey Guide Extension Program Development



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**Table 1.**

*Responses to “Which health issues are of interest/concern to you?” Mark all that apply.”*

Health condition	Number of respondents  (all age groups)	Percent respons e (%)	Number of respondents  (ages 18 to 45)	Percent respons e (%)	Number of respondents  (ages 46+)	Percent respons e (%)
Cancer  (especially colon)	296	53.1	117	49.4	171	55.5
High blood pressure	264	47.4	92	38.9	167	54.2
Heart disease	249	44.7	88	37.1	155	50.3
Overweight/obe sity	232	41.7	103	43.5	122	39.6
High cholesterol	212	38.1	103	43.5	142	46.1





Stress	210	37.7	111	46.8	95	30.8
Prostate health	199	35.7	52	22.0	141	45.8
Diabetes	186	33.4	66	27.9	114	37.0
Joint/bone health	184	33.0	62	26.2	119	38.6
Mental health	180	32.3	93	39.2	84	27.3
Sleep/sleep apnea	171	30.7	68	28.7	97	31.5
Skin cancer	149	26.8	48	20.3	94	30.5
Sexual health	139	25.0	51	21.5	85	27.6
High triglycerides	95	17.1	28	11.8	62	20.1
Cataracts	82	14.7	20	8.4	58	18.8
Sexually transmitted infections	21	3.8	13	5.5	6	2.0
Osteoporosis	17	3.1	7	3.0	10	3.3

Note: Men could skip any questions they did not choose to answer.

**Table 2**

*Responses to “On a scale of 1 (least interest) to 5 (most interest), please rate the following topics”*

Response options	Number of responses  (all age groups)	Mean score	Number of responses  (ages 18 to 45)	Mean score	Number of responses  (ages 46+)	Mean score
Nutritional needs of men	549	3.5	235	3.5	303	3.5
Fitness programs	550	3.5	237	3.6	301	3.4
Healthy snacks at your desk or on the road	551	3.4	236	3.5	303	3.3
Quick healthy recipes	548	3.4	236	3.5	300	3.3
Proteins in a healthy diet	553	3.3	237	3.4	304	3.3
Making healthy choices in restaurants	551	3.1	236	3.1	303	3.1
Carbohydrates in a healthy diet	549	3.1	236	3.1	301	3.1
Cooking for one or two	550	3.1	235	3.1	303	3.1

Health screenings and tests	546	3.1	236	3.1	298	3.2
Fiber in a healthy diet	551	3.2	236	3.2	303	3.2
Fats in a healthy diet	548	3.1	235	3.0	301	3.1
Eye health	549	3.0	237	2.7	300	3.2
Weight loss programs	547	2.9	235	3.0	300	2.8
Basic cooking skills	547	2.6	2.9	236	299	2.3
Shopping for one or two	546	2.6	2.7	235	298	2.5
Medications	546	2.5	2.2	235	299	2.7
How to read a nutrition label	544	2.4	235	2.4	297	2.4



**Table 3**

*Responses to “Where do you get your health information? 1 = never; 5 = most frequent.”*

Response options	Number of respondents  (all age groups)	Mean score	Number of respondents  (ages 18 to 45)	Mean score	Number of respondents  (ages 46+)	Mean score
Health professional	548	3.5	236	3.3	300	3.7
Web sites	551	3.2	237	3.3	302	3.0
Spouses, significant other	551	3.2	237	3.0	302	3.3
Friends	544	2.8	235	3.0	297	2.7
Relatives (parent, etc.)	548	2.7	236	2.9	300	2.5
Magazine articles	551	2.5	235	2.4	304	2.6
Extension programs/materials	551	2.3	236	2.0	303	2.6
Facebook, Twitter, other social media	545	2.1	235	2.5	298	1.9

Classes, presentations	548	2.1	236	2.1	300	2.0
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Note: Lower-rated responses included newspapers, TV, and radio.

**Table 4**

*Responses to “How would you prefer to get information about nutrition and health issues? (1 = least effective method; 5 = most effective method)”*

Response Options	Number of responses  (all age groups)	Mean score	Number of responses  (ages 18 to 45)	Mean score	Number of responses  (ages 46+)	Mean score
Face-to-face conversations/consultation with a professional (dietician, doctor, nurse, pharmacist, public health office)	554	3.6	237	3.5	305	3.6
Conversations with spouse/significant other	550	3.2	237	3.2	301	3.3
Classes from nutrition education (Extension agent or other)	552	3.1	237	3.0	303	3.2
Website fact sheets	549	3.1	235	3.0	302	3.1
Conversation with friend	547	2.9	235	3.1	300	2.7



Interactive online modules	546	2.7	237	2.8	298	2.6
Workshops and seminars	547	2.7	235	2.7		
Conversation with relative (mother, father, etc.)	552	2.7	237	2.9	303	2.5
Emails	548	2.6	236	2.3	300	2.7
Brochures	541	2.5	237	2.2	292	2.7
TV/video	548	2.3	237	2.3	299	2.3
Facebook, Twitter, other social media	544	2.1	236	2.3	296	1.8
Radio	546	1.9	235	1.8	299	2.0
Blog postings	540	1.9	237	2.0	291	1.7

# Barriers and Motivators of Physical Activity for Muslim Women

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**TABLE 1**

Demographic and Acculturation Summary Statistics

DEMOGRAPHIC FACTOR	NUMBER (%)
<b>AGE</b>	
<= 25	22 (20.8%)
26-30	36 (34%)
31-35	30 (28.3%)
36-40	8 (7.5%)
41-45	5 (4.7%)
Over 45	5 (4.7%)
<b>BMI</b>	
Underweight	4 (4%)
Normal	43 (40%)
Overweight	38 (36%)
Obese	15 (14%)
Severely Obese	6 (6%)
<b>INCOME</b>	
<= \$50K	24 (23.3%)
\$50K-\$99K	40 (38.8%)
\$100K-\$149K	19 (18.4%)
\$150K-\$199K	9 (8.7%)
Over \$200K	11 (10.7%)
<b>EDUCATION</b>	
High School/ GED	3 (2.9%)
Some College	11 (10.5%)
Bachelor's degree	53 (50.5%)
Graduate degree	38 (36.2%)

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## DEMOGRAPHIC FACTOR LANGUAGE SPOKEN AT HOME

## NUMBER (%)

English	55 (52.9%)
Arabic, Turkish, Urdu	41 (39.4%)
Bilingual	8 (7.7%)

## COUNTRY OF BIRTH

United States of America	59 (57.3%)
Non-United States Born	44 (42.7%)

## IMMIGRATION

1st generation American	63 (93%)
2nd generation American	2 (3%)
3rd generation American	3 (4%)

## MARITAL STATUS

Single	20 (19%)
Married	85 (79%)
Divorced	2 (2%)

## EMPLOYMENT

Employed	64 (60%)
Homemaker	20 (19%)
Student	14 (13%)
Unemployed	9 (8%)





**TABLE 2**

Perceived Barriers &amp; Perceived Motivators

Perceived Barrier	Mean (Standard Deviation)	% of participants rated it as a barrier (score of 3 or higher)	% of participants rated it as a barrier with hijab (score of 3 or higher)	% of participants rated it as a barrier with no hijab (score of 3 or higher)
Lack of Time	3.67 (1.29)	78.3%	76.9%	83.3%
No Childcare at Gym	2.22 (1.58)	35.3%	38.8%	22.2%
Family Responsibilities towards children & family	3.34 (1.57)	70.1%	71.0%	66.7%
No access to female gym	2.53 (1.47)	52.3%	<b>58.2%*</b>	<b>31.6%*</b>
Inappropriate TV programs	1.45(0.95)	12.9%	13.4%	11.0%
Sexuality of Sports or Activity	1.75 (1.16)	17.9%	25.1%	11.1%
Modest Clothing	1.99 (1.33)	24.5%	34.3%	16.7%
Racial Harassment	1.44 (0.88)	12.8%	13.2%	11.1%
I don't know What to do at gym	1.81 (1.17)	25.6%	25.0%	27.8%
Lack of Role Model	1.62 (1.04)	17.6%	19.1%	11.1%
Lack of Social Support	1.90(1.20)	27.6%	25.0%	36.8%
Monetary Cost of Gym	2.29(1.37)	41.9%	41.2%	44.5%
Unknown Physical Activity Benefits	1.19 (0.54)	4.7%	2.9%	11.1%

**TABLE 2**

Perceived Barriers &amp; Perceived Motivators

Motivational Factors	Mean (Standard Deviation)	% of participants rated it as a Motivational Factor	% of participants rated it as a motivators with hijab (score of 3 or higher)	% of participants rated it as a motivators with no hijab (score of 3 or higher)
Stay in Shape	4.55(0.74)	98.9%	98.6%	100%
Stress Relief	4.15(0.99)	91.9%	89.7%	100%
Disease Prevention	4.15(1.02)	90.8%	88.4%	100%
Living Longer	3.72(1.30)	83.5%	80.6%	94%
Fun/ Recreation	3.23 (1.39)	71.3%	<b>63.8%*</b>	<b>100%*</b>
Social Benefits	2.32 (1.45)	39.1%	39.1%	38.9%
Islamic reference to physical activity	3.31 (1.29)	72.4%	75.4%	61.1%
<p>*Significant at the <math>p&lt;0.05</math> level</p> <p>**Significant at the <math>p&lt;0.001</math> level</p> <p>Mean indicates the average likert score of each barrier which was defined as 1 through 5 where 1 was not a barrier/motivator at all and 5 was an extreme barrier/motivator.</p>				



**TABLE 3**

Sequential Regression for Physical Activity

Table 3: Sequential Regression for Physical Activity										
		Light Leisure Time Physical Activity			Moderate Leisure Time Physical Activity			Vigorous Leisure Time Physical Activity		
Variable		Correlation between Control and PA	Correlation between Barriers and PA	Correlation between Motivators and PA	Correlation between Control and PA	Correlation between Barriers and PA	Correlation between Motivators and PA	Correlation between Control and PA	Correlation between Barriers and PA	Correlation between Motivators and PA
		$\beta$	$\beta$	B	$\beta$	$\beta$	B	$\beta$	$\beta$	$\beta$
Control Variables	Age	-2.54	-2.28	-2.31	-2.10	-1.38	-0.94	-0.79	0.44	0.78
	BMI	-0.72	-0.33	0.18	-0.65	1.68	1.49	0.84	5.00*	4.72*
	Income	9.39	12.05	7.21	-27.89	-19.0	-19.69	6.56	18.57	19.26
	Citizenship	-2.26	-0.54	-1.71	-15.50	-5.52	-6.29	-31.72	-13.62	-13.91
	Language	33.0	22.18	27.53	-19.26	-36.33	-39.54	19.22	4.29	0.45
	Employment	-13.3	-11.93	-5.23	3.50	1.89	4.65	15.01	7.66	8.05
Barrier Variables	Index Modesty	-	1.73	-1.00	-	-1.31	-2.10	-	-5.06	-4.97
	Index Mom	-	-3.05	-3.80	-	-10.86**	-10.66**	-	-17.50**	-17.14**
	Index Gym	-	1.62	1.45	-	3.74	3.40	-	-0.76	-0.98
Motivator Variables	Index Social	-	-	8.10	-	-	7.86	-	-	0.63
	Index Health	-	-	-12.00**	-	-	-3.20	-	-	3.94
* Significant at the $p < 0.05$ level										
** Significant at the $p < 0.001$ level										



# Online Training Influence on Food Preservation Behaviors

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**TABLE 1***Course structure*

<b><u>Core Lessons</u></b>	<b><u>Course Work</u></b>	<b><u>Supplemental Lessons</u></b>
<b>Causes and Prevention of Foodborne Illness</b>	Quiz/Chat/Discussion Board/Open Discussion	Nutritive Value and Cost of Preserved Foods
<b>Spoilage and Canning Basics</b>	Quiz/Chat/Discussion Board/Open Discussion	Miscellaneous Food Safety Preservation
<b>Canning Acid Food (Boiling Water Canning)</b>	Quiz/Chat/Discussion Board/Open Discussion	Preparing for and Coping with Emergencies and Disasters
<b>Canning Low Acid Food (Pressure Canning)</b>	Quiz/Chat/Discussion Board/Open Discussion	High Altitude Canning
<b>Canning Specialty Foods</b>	Quiz/Chat/Discussion Board/Open Discussion	Starting Right-Gardening for Success
<b>Freezing and Drying</b>	Quiz/Chat/Discussion Board/Open Discussion	Root Cellaring: Storing your Garden Harvest
	Final Exam/Retrospective pre-post survey	

**TABLE 2***Course Enrollee State of Origin*

<b><u>State of Residence</u></b>	<b><u>Number of Enrollees</u></b>
Oregon	129
Idaho	107
Colorado	100
Montana	28
California	21
New York	6
Washington	5
Nevada, Texas, Wyoming	3
Indiana, Kansas, Florida, Arizona, Canada	2
Minnesota, Missouri, North Carolina, Maryland, Utah, Wisconsin, Nebraska, North Dakota, New Mexico, Ohio	1





**TABLE 3***Participant Behavior Responses, n=116*

<b><u>Behavior</u></b>	<b><u>Learned</u></b>		
Used up to date, tested, research-based canning recipes and recommendations	67%		
Adjusted processing time for altitude when using a boiling water canner	40%		
Adjusted for altitude when pressure canning by increasing the pressure for your elevation	53%		
Added lemon juice or other acid when canning tomatoes and tomato products	55%		
Vented pressure canner for 10 minutes before processing	72%		
Followed the proper pressure canner cool down procedure	69%		
Processed all high acid foods in a boiling water canner according to research-based recommendations	49%		
Processed all low acid foods in a pressure canner according to research-based recommendations	58%		
When making home canned salsa, followed a tested research-based recipe and processed according to recommendations	74%		
<b><u>Behavior</u></b>	<b><u>Did Before</u></b>	<b><u>Will Do After</u></b>	<b><u>p-value</u></b>
Used up to date, tested, research-based canning recipes and recommendations	40%	96%	0.35973
Adjusted processing time for altitude when using a boiling water canner	55%	97%	0.12475
Adjusted for altitude when pressure canning by increasing the pressure for your elevation	41%	97%	0.08076
Added lemon juice or other acid when canning tomatoes and tomato products	47%	95%	0.54831
Vented pressure canner for 10 minutes before processing	31%	97%	0.95568
Followed the proper pressure canner cool down procedure	33%	97%	0.99125
Processed all high acid foods in a boiling water canner according to research-based recommendations	54%	97%	0.67722
Processed all low acid foods in a pressure canner according to research-based recommendations	38%	97%	0.02792
When making home canned salsa, followed a tested research-based recipe and processed according to recommendations	26%	96%	0.02143

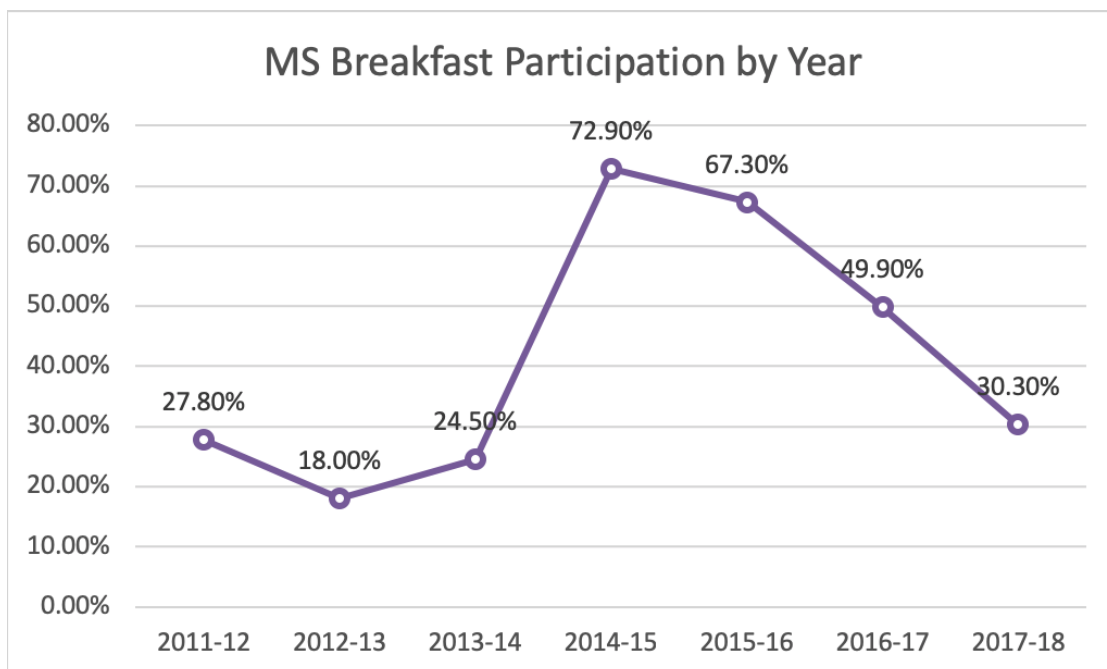
# Breakfast After the Bell: Understanding the Student Experience



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Table 1





# Encouraging College and Career Readiness by Incorporating STEM Education into Family Engagement Activities



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# My TIME to Eat Healthy and Move More: A Parent/Child Curriculum



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**Table 1.**

## Demographics

	<b>Completed  Both  (Analysis dataset)</b>	<b>Pre only  (Excluded from analysis dataset)</b>
<b>n</b>	<b>44</b>	<b>42</b>
<b>Race &amp; Ethnicity (%)</b>		
American Indian or Alaska Native and White	1 (2.3)	0 (0.0)
Asian and White	1 (2.3)	0 (0.0)
Black or African American	6 (13.6)	4 (9.5)
Hispanic	11 (25.0)	11 (26.2)
White	25 (56.8)	27 (64.3)
<b>Age categories (%)</b>		
20-30	19 (43.2)	23 (54.8)

31-40	19 (43.2)	16 (38.1)
41-50	4 (9.1)	3 (7.1)
51-60	2 (4.5)	0 (0.0)
<b>Female (%)</b>	4 (9.1)	1 (2.4)

**Table 2.**

Paired T-test Results Comparing Pre-test and Post-test Outcome Results on Behavioral Changes

	<b>Fruit Amount</b>	<b>Vegetable Amount</b>	<b>Fruit Kind</b>	<b>Vegetable Kind</b>	<b>Exercise Time (hour)</b>	<b>Physically Active Time (hour)</b>	<b>Sedentary Time (hour)</b>
	<b>M(SD)</b>	<b>M(SD)</b>	<b>M(SD)</b>	<b>M(SD)</b>	<b>M(SD)</b>	<b>M(SD)</b>	<b>M(SD)</b>
Pre	1.51 (.85)	1.74 (.91)	.66 (.48)	.77 (.42)	2.26 (6.58)	15.85 (22.65)	11.79 (14.11)
Post	1.99 (.9)	2.08 (1.19)	.93 (.25)	.86 (.35)	6.62 (21.43)	34.3 (34.67)	12.09 (11)
Mean differences (p- value)	0.48***	0.34*	0.27***	0.09*	4.37	18.45***	0.3
% people who showed improvement of outcomes after program	50	40.9	27.3	13.6	40.9	68.2	31.8

p-value ranges: \*\*\* <.001 < \*\* < 0.1 < \* <.05





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# Collaborating to Meet the Professional Development Needs of Nutrition Extension Educators at a National Level

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**TABLE 1**

*Post-session, Post-series, and Six-month Survey Questions of Knowledge and Application of Topics.*

Post-Session survey	As a result of this webinar, I increased my knowledge of:
	Modifiable factors associated with risk for dementia and/or Alzheimer's Disease
	<ul style="list-style-type: none"> <li>• Strongly Agree</li> <li>• Agree</li> <li>• Neither Agree nor Disagree</li> <li>• Disagree</li> <li>• Strongly Disagree</li> </ul>
	The current evidence for diet (lifestyle) as a preventive for cognitive decline, incident dementia and Alzheimer's Disease
	<ul style="list-style-type: none"> <li>• Strongly Agree</li> <li>• Agree</li> <li>• Neither Agree nor Disagree</li> <li>• Disagree</li> <li>• Strongly Disagree</li> </ul>
	As a result of this webinar, I plan to apply the knowledge gained to:
	<ul style="list-style-type: none"> <li>• Teach or present on topics related to brain health</li> <li>• Create educational materials related to brain health</li> <li>• Better answer clientele questions on brain health</li> <li>• Discuss or provide training to extension volunteers</li> <li>• Provide training and support to extension paraprofessionals</li> <li>• Create blogs, newsletter articles, or social media content</li> <li>• Apply to personal use</li> <li>• Other, please specify</li> </ul>



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Post-Series  
survey

Was the material presented relevant for your educational programming?

- Very relevant
- Somewhat relevant
- Neutral
- Not relevant

When you think of the series as a whole, were the presentations:

- Very Good
- Good
- Average
- Below average
- Poor

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Six-month  
follow-up  
survey

How did you apply the knowledge gained through your participation in *Diet Dilemmas*?

- Did not use information
- Increased ability to teach general nutrition
- Increased ability to teach on popular diets
- More confident in presenting information on popular diets to clientele
- Used information to improve personal eating pattern
- Used information in creation of educational programming
- Used information to create blogs, newsletter articles, webpages, and social media content
- Used information to train extension volunteers
- Used information to train extension paraprofessionals
- Other, please specify





**TABLE 2**

*Demographics of Post-series Survey Respondents.<sup>1</sup>*

Participant Characteristics	Diet Dilemmas <sup>2</sup> (n = 160)	Brain Boosters <sup>3</sup> (n = 105)
<b>Age, y</b>		
21 to 30	19%	9%
31 to 40	15%	16%
41 to 50	20%	28%
51 to 60	29%	21%
61+	17%	26%
<b>Years in Extension</b>		
Less than 5	41%	37%
6 to 12	23%	26%
13 to 20	18%	16%
Over 20	17%	15%
Not in extension	1%	6%
<b>Sessions Attended</b>		
One	12%	21%
Two	27%	18%
Three	25%	27%
Four	33%	16%
Did not participate	3%	18%

<sup>1</sup>Survey sent to all registrants.

<sup>2</sup>29% response rate of 546 registrants.

<sup>3</sup>38% response rate of 279 registrants.



**TABLE 3**

*Participant Responses to Open-ended Questions.*

What went well...	What could be improved...
"Loved each of the topics presented! Thank you for offering this series. I have already been able to use the information in some of my nutrition presentations to the community."	"Great information presented, though it seemed some findings were not fully accepted by all reputable organizations so it makes me hesitate when providing the information that was shared with us."
"I have learned so much from the webinars that I've heard. I usually listen to them at least twice to make sure I get the information. During the senior citizen fitness classes that I lead, I try to include nuggets of information that I learn from your webinars."	"I'm not all that much of a science person, so a lot of [the speaker's] information sailed over my head. But it was interesting, nonetheless, and I agree that diet should always be looked at as curative, along with advances in medicine."
"Great info and knowledgeable speakers. As practicing registered dietitians, we get a lot of questions about these fad diets and it's challenging to find time to sift through all the evidence. Thank you for making this available. Great resource!"	"The webinar was informative but research-heavy. I would've liked how those studies can be translated to be used with clientele."
"As a commodity board representative, I plan to incorporate this information into literature and presentations to discuss how our food product fits into various dietary patterns associated with positive health outcomes."	"We were not able to hear the first speaker. The second speaker also had some audio problems."
"Valuable information and perspective about dietary approaches guides and strengthens my volunteer role with at-risk community."	"Great topic, but did not appreciate nor do I think [the speaker's] political commentary is appropriate."





## National Extension Association of Family & Consumer Sciences

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