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Journal of the National Extension Association of Family and Consumer Sciences

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Journal of National Extension Association of Family and Consumer Sciences President's Message

It is my pleasure to present to you the 2015 *Journal of NEAFCS*. This peer-reviewed journal is one way for our members to inform others in our field and related fields about our scholarly work as Family and Consumer Sciences professionals. The Journal highlights Research, Best Practices, and Implications for Extension Family and Consumer Sciences. It is also a valuable tool to help *you* stay current with programming, research, and methodology that is specific to our learning and teaching environment.

As you read the 10th volume of the *Journal of National Extension Association of Family and Consumer Sciences (JNEAFCS)*, I know you will discover informative and thought-provoking information in each article. Consider what you have to share with your colleagues about impacts that have resulted from your programming. Make it one of your professional goals for 2015-16 to submit an article for a future Journal issue.

Think about sharing JNEAFCS by forwarding the link along with a personal note to your administrators, local and state policymakers, advisory groups, and peers. Help them connect our efforts to the strong impacts we have across the nation such as reducing health care costs through our nutrition and health education programs. Extension work makes a difference! Research proves that!

Thank you to Co-Editors Jessica Hill of the University of Georgia Extension and Lauren Weatherford of West Virginia University Extension and Copy Editor Chris Kniep of the University of Wisconsin Extension for their hard work and dedication to the journal. My appreciation goes out to the members of the subcommittee, peer reviewers, and to our Vice President of Members Resources, Margie Memmott of the Utah State University Extension, for a quality, peer-reviewed, professional publication that helps preserve our valuable research and resources for the future.

I challenge you to *discover* new approaches to Extension education, *connect* the work we do to its public value, and stay *engaged* with NEAFCS through sharing this journal and perhaps by contributing to it in the future.

Sincerely,

Debby Mathews, President 2015 - 2016
National Extension Association of Family and Consumer Sciences

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Journal of National Extension Association of Family and Consumer Sciences

From the Editors

Here is your 2015 edition of the *Journal of National Extension Association of Family and Consumer Sciences* (JNEAFCS). JNEAFCS is a refereed journal. We appreciate the opportunity we have had to edit the journal this year and have learned a lot throughout the process. We look forward to serving you in 2016.

Please consider submitting a manuscript for the 2016 edition of JNEAFCS to promote yourself or one of your programs. The submission deadline is March 1, 2016. Choose a program where you can demonstrate impact. Have your colleagues read your manuscript to get input before submitting it to ensure it is of high quality.

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President's Message.....	2
2015 Officers.....	3
2015 Journal Editorial Subcommittee.....	5
2015 Peer Reviewers.....	7
From the Editors	8

Research

4-H Family Fun Nights: Creating Partnerships between Families, Schools, and Communities.....	11
Shannon Cromwell and Matthew Palmer	
Evaluating the Impact of SNAP-Ed Marketing Materials at Farmers' Markets	17
Mateja R. Savoie Roskos, Kelsey Hall, Tayla Lambright, Chelsea Norman, and Heidi LeBlanc	
Kids' cooking camps promote food safety and nutrition knowledge in Native American youth.....	25
Kelly Burdett and Julie Garden-Robinson	
Engaging Youth in the School Wellness Dialog.....	36
Luanne J. Hughes	
Food and Nutrition Practices and Education Needs in Adult Care Homes	47
Amanda L. Ford ¹ MS, Katie Conover ¹ BS, Nancy J. Gal ² MS, Wendy J. Dahl ¹ PhD RD*	

Implications for Extension

Using Storytelling and YouTube Videos to Teach Nutrition in an Online Environment.....	64
Rebecca M. Mills and Jeremy R. Hawkins	
Extension Family and Consumer Sciences: Before the Smith-Lever Act	70
Jan Scholl	

Youth Caregivers: An Urgent Call to Action.....83
Allison Goshorn

Strategies Across the Spectrum: Spectrum of Prevention as a Decision-Making Tool
in Extension94
Anne Dybsetter, Mary Schroeder, and Kelly Kunkel

Best Practices

A Successful Team Approach to Social Networking 100
Lisa Franzen-Castle, Alice Henneman, Kayla Colgrove, and Cami Wells

Research

4-H Family Fun Nights: Creating Partnerships between Families, Schools, and Communities

Shannon Cromwell and Matthew Palmer

Community-based programs that incorporate families, schools, and community agencies provide participants with opportunities to enhance communication skills, strengthen family relationships, and connect with the community. 4-H Family Fun Night events helped foster growth and life skills development among youth by creating a venue in which families could work as teams by completing fun, educational, hands-on activities. Quantitative survey results indicated that 4-H Family Fun Night events offered positive, structured activities that promoted communication and the strengthening of family bonds as well as provided a connection to the youth's school.

Extension professionals have the opportunity to educate and empower families and communities by developing, implementing, and sustaining successful community-based programs. Community programs lead to favorable circumstances in which youth are able to acquire personal and social skills as well as opportunities for physical, cognitive, and social/emotional growth and development (Eccles & Gootman, 2002). In addition, community-based programs that incorporate a parental component provide parents and families with opportunities to enhance communication skills and strengthen family bonds (Pancer, Nelson, Hasford, & Loomis, 2013). Furthermore, research suggests that participation in extracurricular, out-of-school activities in the company of caring adults is linked to higher self-esteem and lower depression (Fredricks & Eccles, 2006).

Programs consisting of partnerships among family, schools, and communities help youth achieve in future educational, employment, and civic responsibilities. Community programs that include a multilevel approach comprised of a family, school, and community domain have the ability to aid in the development of life skills, teamwork, and communication skills (Anderson, Sabatelli, & Kosutic, 2007). Incorporating a multilevel community-based approach into programming efforts has been found to contribute to an increase in the overall well-being of youth participants (Gordon & Cui, 2014; Trickett, 2009).

The inclusion of 4-H activities into community programs has been found to have a positive effect on life skills development (Boyd, Herring, & Briers, 1992; Ferrari, Hogue, & Scheer, 2004). 4-H youth development programs are grounded in the experiential learning model that encourages a "learn by doing" approach. The experiential learning process promotes life skills development by guiding youth participants through activities that foster growth, creativity, and discovery (Diem, 2001).

Another component of 4-H programs is the focus on four core essential elements: belonging, generosity, mastery, and independence. The 4-H Essential Elements go hand in hand with community programs by focusing on social, physical, and emotional well-being. Youth are engaged in partnerships with caring adults in a safe, inclusive environment (belonging); youth are actively engaged in hands-on projects with opportunities to share their skills with parents and family members (mastery); youth have the opportunity to set goals and apply their new knowledge to future activities (independence); and youth participate in projects that benefit their families and others (generosity) (Bledsoe et al., 2009; Samuel & Rose, 2011).

Purpose/Objectives

4-H Family Fun Nights were developed for families, schools, and communities, recognizing that family and community participation was necessary to effect lasting, positive changes for a youth's development. In addition, research indicated that community programs focusing on recreational and educational activities that promote child-parent relationships increased family involvement (Ihmeideh & Oliemat, 2015). Therefore, the purpose of 4-H Family Fun Night activities was to provide youth and their families with opportunities to connect with their local community and school through participation in educational, hands-on 4-H projects in a safe, inclusive environment. The objectives of 4-H Family Fun Night were to: 1) promote positive family interactions through hands-on activities; 2) encourage effective communication skills among family members; 3) strengthen family bonds through structured family activities; and 4) provide connections between youths' families and schools.

Method

4-H Family Fun Night events were held at seven elementary schools in rural communities throughout Sanpete County, Utah. The monthly events were held during the 2014-2015 school year, each lasting one and one-half hours and serving 4-H Afterschool Mentoring program participants in grades kindergarten through fifth and their family members. U.S. Census data (2015) indicate that Sanpete County has a poverty level of 15.7%. Due to the high poverty level, and to encourage participation from low-income families, Family Fun Night events were held free of charge to all 4-H Afterschool Mentoring youth participants and their families. A Temporary Assistance for Needy Families (TANF) grant from Utah's Department of Workforce Services covered expenses for monthly events at each of the seven schools.

4-H Family Fun Night Procedures

4-H Family Fun Night events were a collaborative effort between Utah State University Extension 4-H faculty and staff, North and South Sanpete School District administrators, and community agencies throughout the county. School principals supported Extension faculty and staff by providing monthly meeting space at each school. Additionally, community agency support was provided through program resources and lessons.

Monthly reminders were sent home with 4-H Afterschool Mentoring participants to encourage parents and siblings to attend the events. School principals supported the program by including postings in individual school newsletters. Each 4-H Family Fun Night event commenced with family members signing-in for the evening, followed by the Pledge of Allegiance and the 4-H Pledge. 4-H Afterschool Mentors then led the group in a short lesson that correlated with the monthly curriculum that was being taught during afterschool lessons, providing reinforcement and consistency for the afterschool members. Lessons were drawn from research-based developed curricula and through peer-reviewed state developed curricula that incorporated experiential learning techniques.

Hands-on activities that promoted teamwork and communication among all family members were introduced to participants, reinforcing the experiential learning model. Experiential learning activities differed each month, and consisted of arts & crafts, science projects, and teambuilding games, depending upon the monthly subject. Each monthly event also incorporated a physical activity component and healthy snacks were provided for all family members.

Incorporation of 4-H Essential Elements

It was important for Extension faculty, school administrators, and community agencies to incorporate the 4-H Essential Elements in every Family Fun Night event throughout the activities that were introduced to youth participants and their families. Partnerships with school administrators provided families with convenient, safe settings within their respective communities. Holding activities in schools also provided a connection between parents, youth, and school administrators.

Due to the fact that 4-H Family Fun Night events revolved around recently taught afterschool curricula, youth gained the opportunity to share and showcase the knowledge and skills that they had learned through afterschool sessions. 4-H Family Fun Night participants were encouraged to use the knowledge and experiences that they gained through participation in the activities and apply it to their personal lives. Families worked in concert to create projects that were donated to extended family members, school administrators, and community agencies.

Results

An Institutional Review Board (IRB) approved Qualtrics survey was emailed to 86 parents who had youth enrolled in the 4-H Afterschool Mentoring program. The purpose of the survey was twofold. First, the survey was intended to gauge parental opinions of their families' experiences with 4-H Family Fun Night activities. Second, parental responses were used to determine if 4-H Family Fun Night events met the program objectives. Parents were asked to assess their 4-H Family Fun Night experiences by indicating how much they agreed upon four statements using a Likert scale ranking their opinions based on the following options: 1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree.

The survey statements included the following: 1) 4-H Family Fun Nights provide positive, structured activities for my family; 2) 4-H Family Fun Nights provide

opportunities to communicate with my child(ren) through hands-on activities; 3) 4-H Family Fun Nights provide inexpensive opportunities to strengthen relationships and bonds among my family; and 4) 4-H Family Fun Nights provide my family with a connection to my child(ren)'s school.

4-H Family Fun Night Survey Results

Survey responses resulted in a 41% response rate with 35 parents completing the survey. Parents agreed that 4-H Family Fun Night activities provided positive, structured activities as well as opportunities to communicate through hands-on activities with mean scores of 3.82 and 3.74, respectively. Likewise, parents agreed that 4-H Family Fun Night events provided opportunities to strengthen relationships and bonds among family members with a mean score of 3.76. Finally, parents felt that 4-H Family Fun Nights activities provided their families with a connection to their child(ren)'s school with a mean score of 3.47.

Additionally, parents were asked two open-ended questions in order to determine the reasons for family participation in the events, and to determine if any positive changes had occurred within their families due to participation. Reasons for participation resulted in a reoccurring theme that focused around family togetherness and bonding. Parent responses included:

- “We enjoy the time together. It gives us somewhere positive to go.”
- “My children love it and it’s a safe place for them to feel independent.”
- “To spend some fun and quality time with my child while participating in wholesome (non-electronic) activities.”
- Parents also shared many positive changes that had occurred within their family due to participation in 4-H Family Fun Night events. Parent responses included:
- “Our kids have developed friendships and have expanded their talents.”
- “I have gained more patience with my children and let them have more hands on with other activities and they take turns more, and get along better.”
- “As a family, we have learned some new things, strengthened our ties to each other and to other families in the community.”

Summary/Discussion

4-H Family Fun Nights have demonstrated to be a successful community-based programming approach that fosters growth and life skills development among youth through the cultivation of partnerships among families, schools, and communities. Based on parent survey results, 4-H Family Fun Night activities: 1) promoted positive family interactions through hands-on activities in a safe environment; 2) encouraged the development of communication skills among family members; 3) strengthened family bonds; and 4) provided connections between families, schools, and communities. Community based programs that focus on the inclusion of these concepts, along with providing experiential learning techniques, can afford families with opportunities to connect while fostering growth and life skills development among youth.

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Research

Evaluating the Impact of SNAP-Ed Marketing Materials at Farmers' Markets

Mateja R. Savoie Roskos, Kelsey Hall, Tayla Lambright, Chelsea Norman, and Heidi LeBlanc

Many farmers' markets that accept SNAP benefits provide nutrition education for market patrons. However, few programs have conducted evaluations to measure the effect of their efforts. The Utah SNAP-Ed program collected data through a directly administered questionnaire to measure the impact of the food samples, recipe cards, and posters for patrons at two farmers' markets during the 2012 and 2013 market seasons. Our results suggest that recipe cards and posters are effective educational tools at farmers' markets. SNAP-Ed programs should consider using these nutrition-related educational tools at farmers' markets as a way to inform consumers about produce available at the market.

The number of farmers' markets across the United States has nearly doubled over the past 20 years with over 8,000 working markets in 2014 (United States Department of Agriculture 2014). Farmers' markets have recently been established to improve access to fresh fruits and vegetables in low-income neighborhoods (McCormack, Laska, Larson, & Story, 2010). Furthermore, many farmers' markets now accept federal nutrition assistance benefits such as Supplemental Nutrition Assistance Program (SNAP), which allow program participants to use their benefits for locally grown fruits, vegetables, and other SNAP-approved foods (Byker et al., 2012). In 2010, over \$7.5 million dollars in SNAP benefits were used at farmers' markets around the country (Dimitri, Oberholtzer, & Nischan, 2013). In 2014, 21 farmers' markets across Utah accepted SNAP benefits, which are expected to increase with demand in future market seasons (Utahns Against Hunger, 2014).

The Supplemental Nutrition Assistance Program-Education (SNAP-Ed) encourages nutrition education at farmers' markets as a way to increase knowledge, self-efficacy, and skills in purchasing, storing, and preparing fruits and vegetables (Parsons & Morales, 2013). Furthermore, recipe sampling is provided to influence consumers to become successful, long-term buyers of local produce at farmers' markets. The SNAP-Ed program through Utah State University Extension provides recipe sampling, recipes, and produce information posters at farmers' markets across the state.

OBJECTIVES

No study to date has determined if nutrition education coupled with recipe sampling through the SNAP-Ed program effects the use of the recipes and the purchasing behavior of farmers' market patrons. The objectives of this study were to determine the impact of SNAP-Ed materials through food sampling, recipe cards, and posters on farmers' market patrons, and to determine the overall quality of the SNAP-Ed booth at the farmers' markets.

METHOD

A convenience sample of respondents was collected from patrons who visited the SNAP-Ed booth at two farmers' markets in Utah. This sampling strategy is similar to those used at other farmers' markets (Hicks & Lambert-Pennington, 2014; Middleton & Smith, 2011). Roughly 200 to 250 patrons take a food sample from the SNAP-Ed booth weekly. To maintain the confidentiality of SNAP participants, individuals of all socioeconomic backgrounds were able to complete this questionnaire. This allowed the researchers to maintain confidentiality among SNAP participants.

Data was collected through a directly administered questionnaire given to attendees at two farmers' markets in 2012 and 2013. Directly administered questionnaires are "given to a group of people assembled at a certain place for a specific purpose" (Ary, Jacobs, Razavieh, & Sorensen, 2006 p. 387). The major advantages of directly administered questionnaires are the high response rate, low cost, and available assistance to the participant. Respondents received a \$2 token to spend at the farmers' market as incentive to participate. This study was approved by Utah State University Institutional Review Board (IRB) prior to data collection.

A panel of experts familiar with survey methodology reviewed the questionnaire to establish face and content validity. The questionnaire contained 12 questions adapted from previous studies (Guarino, 2008; Woods & Williamson, 2010). Respondents were asked about their familiarity with the SNAP-Ed program, their level of frequency with trying samples from the SNAP-Ed booth during the market season, their likelihood to buy produce sampled at the SNAP-Ed booth, and their use of SNAP-Ed recipes at home. Likelihood was measured on a 5-point Likert scale ranging from extremely unlikely to extremely likely with one being extremely unlikely. Respondents indicated their level of agreement with three statements about the SNAP-Ed recipe cards and three statements about the nutrition information posters on a 5-point Likert scale ranging from strongly disagree to strongly agree with one being strongly disagree. Four aspects related to the SNAP-Ed booth were rated on level of quality using a 5-point Likert scale of poor to excellent with one being poor. Information on their gender, age, participation in SNAP, and use of an EBT card at the farmers' market was collected. Cronbach's alpha was used post hoc to measure the reliability of the recipe cards, posters, and SNAP-Ed booth scales. A Cronbach's alpha score of .70 to .80 is an acceptable reliability score for a researcher-developed

questionnaire (Kline, 2000). The recipe cards scale had a value of .78; the posters scale had a value of .86, and the SNAP-Ed booth scale had a value of .85.

Data was entered into Microsoft Excel® and then imported into SPSS 19.0 for analysis. Frequency, standard deviation, and mean were reported for interval items. Frequency and percentage were reported for nominal and ordinal data.

RESULTS

A convenience sample of 235 respondents in 2012 and 163 respondents in 2013 for a total of 398 respondents were recruited for this study. The majority of the respondents were female ($n = 271$, 68.4%) and ranged in age from 18 to 82 with a mean of 36 years. More than half of the respondents ($n = 222$, 55.8%) were familiar with the state's SNAP-Ed program. When asked about their participation in SNAP, 8% ($n = 32$) answered "yes." Fifty-three percent of SNAP participants ($n = 17$) reported using their EBT card to make purchases at the farmers' market. Respondents indicated how likely they would buy produce as a result of tasting a sample at the SNAP-Ed booth at the farmers' market. Respondents were extremely likely ($n = 82$, 21.3%) and likely ($n = 188$, 48.8%) to buy produce as a result of tasting a sample. When asked their likelihood to use the SNAP-Ed recipes at home, most respondents reported being extremely likely ($n = 96$, 25.1%) or likely ($n = 205$, 53.5%) to use recipes provided by SNAP-Ed at the market.

Table 1 shows the sample size, mean, and standard deviation for each of the questions related to the poster, recipe cards, and the overall quality of the SNAP-Ed booth. Respondents reported they agreed to strongly agreed in the quality of the SNAP-Ed booth including the presentation of samples, service, and information provided. The recipe cards from the SNAP-Ed booth helped respondents feel more comfortable trying produce. The posters at the SNAP-Ed booth contained nutrition information and highlighted a fruit or vegetable that was featured in the food sample each week. Respondents agreed the posters helped them gain information about the featured produce; however, respondents neither agreed nor disagreed that the posters helped them improve their nutrition knowledge or know what questions to ask vendors about their produce.

DISCUSSION

Results demonstrate that nutrition education and recipe sampling are effective strategies for assisting market patrons with purchasing decisions while shopping at a farmers' market. No study to date has investigated the influence that SNAP-Ed nutrition education and recipe sampling has on the purchasing behavior, knowledge, skills, or self-efficacy of farmers' market patrons while shopping at farmers' market with EBT machines. However, the current study builds on recent literature that suggests recipe sampling influences consumers' knowledge, in addition to their purchasing and consumption behaviors (Olstad, Goonewardene, McCargar, & Raine, 2014; Schickenberg, van Assema, Brug, & de Vries, 2011).

A study conducted in a recreational sports setting found that recipe sampling increased the sales of the sample by 30%, even without price discounts or other financial benefits (Olstad et al., 2014). A similar study found a nearly 15% increase in healthy food purchases among neophobic young adults after receiving recipe samples of unfamiliar foods like fruits and vegetables (Schickenberg et al., 2011). A survey conducted in Kentucky of over 300 farmers' market patrons found that product sampling was more important to patrons than other amenities such as parking and market hours (Woods & Williamson, 2010). Future studies should investigate the value of other components of SNAP-Ed nutrition education at farmers' markets from the perspectives of the farmers.

Despite the strengths of this study, there were limitations.. The questionnaire used in this study was a self-reported instrument. Self-reported instruments are subjective measurement tools that increase the risk for bias and may cause over or underestimation of the data collected (Pratt, McGuigan, & Katzev, 2002). Data were collected on respondents at one time point; therefore, no follow-up data is available. Follow-up data on the long-term influence of the nutrition education, recipe sampling, and recipe cards would have strengthened the results of this study. Additionally, questionnaires were collected on farmers' market patrons of all socioeconomic backgrounds. To protect the anonymity of low-income patrons as required through the IRB at Utah State University, questionnaires were collected from any farmers' market patrons as opposed to identifying SNAP participants publicly for survey participation. Since SNAP-Ed generally provides nutrition education to low-income families receiving SNAP benefits or other assistance, collecting data only on individuals who used their SNAP benefits at the farmers' market would have provided data that is more specific to the program's target audience. Since a convenience sample was used for this study, the questionnaire results may not be generalized to the population or specifically to SNAP participants.

Findings of this study provide direct implications for SNAP-Ed programs at farmers' markets with EBT machines. SNAP-Ed programs may consider providing the combination of nutrition education, recipe sampling, posters, and recipe cards to farmers' market patrons to increase their knowledge, skills, and self-efficacy with purchasing, preparing, and storing fruits and vegetables purchased at the farmers' market. Future research should investigate the long-term influences of SNAP-Ed booths at farmers' markets on the market patrons and the sales of farmers who sell produce at the markets with EBT machines and SNAP-Ed booths. Future studies could incorporate follow-up phone calls or surveys several weeks after completion of the initial survey at the market to determine long-term changes in knowledge, skills, and self-efficacy of market patrons. Future studies could also investigate the long-term changes in the dietary intake of fruits and vegetables after participation in the SNAP-Ed booth.

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Table 1.

Assessment of Educational Materials and Service at SNAP-Ed Farmers' Market Booth.

Levels of Agreement with SNAP-Ed Booth Materials	<i>n</i>	<i>Mean (SD)</i>
<i>Recipe Card Questions^a</i>		
Recipe cards helped feel more comfortable buying produce	379	4.00 (0.91)
Recipe cards helped decide how much produce to purchase	379	3.71 (0.95)
Recipe cards helped plan future purchases at the Farmers' Market	379	3.91 (0.89)
<i>Poster Questions^a</i>		
Posters helped gain information about featured produce	162	4.02 (0.95)
Posters improved nutrition knowledge	162	3.81 (0.99)
Posters helped know what questions to ask vendors about their produce	162	3.51 (1.01)
<i>Booth Rating Questions^b</i>		
Presentation of samples	372	4.39 (0.77)
Recipe instructions	365	4.28 (0.88)
Service by booth workers	376	4.62 (0.70)
Information provided by booth workers	371	4.40 (0.84)

Note. SNAP-Ed indicates the Supplemental Nutrition Assistance Program-Education; *n* indicates the number of responses; SD indicates standard deviation.

^aValues are mean \pm sd points from a Likert scale (1= strongly disagree, 2= disagree, 3= neither agree nor disagree, 4= agree, 5= strongly agree).

^bValues are mean \pm sd points from a Likert scale (1= poor, 2= fair, 3= good, 4= very good, 5= excellent).

Research

Kids' cooking camps promote food safety and nutrition knowledge in Native American youth

Kelly Burdett and Julie Garden-Robinson

Native American youth frequently face poverty, as well as higher risks of diabetes, overweight and obesity. These youth often need to prepare snacks and meals for themselves and their families as their parents work long hours. One in six Americans experiences foodborne illness each year, but safe food handling can prevent this. Kids' Cooking Camps promote safe food handling among Native American youth as well as the concepts of MyPlate and the Four Winds Nutrition Model for balanced nutrition and healthy lifestyles. Children attending the cooking camps reported improved food safety techniques, and increased physical activity and knowledge of nutrition.

The Native American Community has experienced many health problems through the years. The U.S. Department of Health and Human Services, Indian Health Service (n.d.) lists these multifaceted issues on their website: substance use disorders, mental health disorders, and various behavior-related chronic diseases. Further, Native American youth are at significantly greater risk of obesity, diabetes, and other health complications than other children of similar ages across the nation (La Duke, Brown, Kennedy, Reed, Warner, & Keller, 2012; Health, 2013).

Deviation from traditional culture and life has contributed to obesity and diabetes rates that are higher than the national average (La Duke, Brown, Kennedy, Reed, Warner, & Keller, 2012). Some have attributed the increased disease prevalence to a lack of access to healthcare because of the lack of transportation and the distance between clinics and housing (Noren, Kindig, & Sprenger, 1998). Other challenges facing the Native American community that likely affect the obesity and diabetes rates are unemployment, poverty, lack of access to grocery stores, unavailability of fruits and vegetables, and perception of the expense of a fruit and vegetable-rich diet (Morris, Neuhauser, & Campbell, 1992; Giskes, Van Lenthe, Brug, Mackenbach, & Turrel, 2007).

Low income households are more likely to consume too few fruits and vegetables and too little dairy compared to their wealthier counterparts (Stewart & Blisard, 2006). Stewart and Blisard (2006) found low-income households view meat and bakery products as being more basic and desirable. Therefore, it becomes important to develop strategies to increase the consumption of and preference for fruits and vegetables and other healthful foods among low-income households, particularly those with children.

Nutrition and physical activity education, along with policy, systems and environmental changes, are keys to addressing health disparities experienced by people living in poverty, including many Native American youth. Native American youth living on reservations may be placed at greater risk for health conditions because of a lack of access to nutritious foods such as fruits and vegetables (Bustillos, Sharkey, Anding, & McIntosh, 2009). Several studies have found cooking camps to be beneficial in increasing consumption of and preference for fruits, vegetables, and whole grains, and consequently fiber; as well as improving children's reported self-efficacy (Hersch, Perdue, Ambroz, & Boucher, 2014; Walters & Stacey, 2009; Cunningham-Sabo & Lohse, 2014; Davis, Ventura, Cook, & Gyllenhammer, 2011; Cunningham-Sabo, Groth, & Lohse, 2011).

Hersch, Perdue, Ambroz, and Boucher (2014, p. 1) "suggest that cooking programs may positively influence children's food-related preferences, attitudes, and behaviors." Other researchers have taught cooking interventions in the classroom and used the experience to emphasize other topics taught in the classroom such as mathematics skills and fractions, reading ability as children read recipes, and social skills as the children interact to cook and eat together (Lukas & Cunningham-Sabo, 2011). The *Cooking with Kids* curriculum was developed to improve school meals and eventually became a full food preparation and nutrition curriculum for elementary-aged children (Walters & Stacey, 2009). The curriculum has been used in elementary schools since 1995 in a predominantly Hispanic population and has seen success in improving knowledge and preferences of children for targeted foods such as vegetables, however there is a gender difference indicating females are more likely to attend and participate (Walters & Stacey, 2009; Cunningham-Sabo & Lohse, 2014).

A similar program that focuses more on gardening, *LA Sprouts*, showed higher fiber consumption and improved anthropometric measurements of health such as lower blood pressure and weight in all children involved in its intervention (Davis, Ventura, Cook, & Gyllenhammer, 2011). However, the researchers noted that there is likely some gender bias among their youth indicating that males feel cooking is a female activity whereas gardening is for both genders (Davis, Ventura, Cook, & Gyllenhammer, 2011). Hersch et al. (2014, p. 5) states, "Longer programs can incorporate more cooking skills, provide in-depth nutrition education, and better incorporate a culture of wellness into the school, the community, or both." An intervention that combines adequate time, nutrition education, and native values is needed to promote improved health in Native American youth.

A camp experience can contribute to the overall learning and self-efficacy of children in a fun environment and a short time period. Beets, Swanger, Wilcox, and Cardinal (2007) found that a culinary camp improved food preparation skills, cooking knowledge, and perceived cooking ability. As with other interventions targeting children, the culinary camp used an experiential learning framework of teaching by doing. The cooking camps lasted just over a week and ran for four hours each day, yet participants showed statistically significant improvement in perceived cooking ability and knowledge of food preparation techniques (Beets et al., 2007). Similarly, a review

of studies by Hersch et al. (2014) examining the effects of cooking classes on school-aged children found that children were “more willing to try new foods if they had cooked or grown” them (p. 9), and each program covered in the review showed a “significant effect on [one] or more of its participants’ food-related preferences, attitudes, and behaviors (p. 4).”

Both school-based and summer-camp interventions show improved outcomes with parental involvement, possibly because parents are more able to reinforce the concepts at home after seeing them used in the classroom and camp settings (Beets et al., 2007; Cunningham-Sabo & Lohse, 2014; Walters & Stacey, 2009). However, involving parents in a curriculum is not always possible due to work and other time commitments. Cunningham-Sabo, Groth, and Lohse (2011) found that children and teachers in an experiential foods program showed strongest engagement during food preparation and tasting experiences, signifying the importance of a hands-on learning experience, even among primarily Caucasian children. The same study found that “a relatively brief experiential foods curriculum significantly improved fourth-grade student’s fruit and vegetable preferences, cooking attitudes, and cooking self-efficacy for students with no cooking experience” (p. S11). Programs with an emphasis on nutrition and physical activity can provide supplemental instruction for children whose schools may be unable to provide education and resources for health and wellness. Valenzuela et al. (2011, p. 190) reported that a children’s marathon and nutrition education program “filled an important gap in health education and physical education programming that did not exist” or had been cut in some schools.

Teaching kids’ cooking programs as a voluntary summer program provides an extra opportunity for children to participate in physical activities while gaining valuable life skills and knowledge such as safe food handling techniques, kitchen safety, proper use of kitchen tools, gardening, traditional food production methods, the movement of food from farm to plate, and basic cooking skills for home food preparation. The overall goal of the present project was to create and evaluate a curriculum that incorporated food preparation techniques, nutrition information, and physical activity in a culturally acceptable, fun-filled day camp for Native American youth. This study incorporated nutrition and physical activity lessons with cultural traditions in an existing kids’ cooking camp on a Native American reservation. Social Cognitive Theory (SCT) and the Precede/Proceed Model influenced the development of the lessons and camp (Bandura, 1997, 2001, & 2004; Gielen & McDonald, 1996; Green & Kreuter, 1999; KU Work Group for Community Health and Development).

Objectives

The overall purpose of this project was to determine the impacts of nutrition and food safety education when paired with some traditional messages of food preservation, growing food for a family, and sustainability. The objectives of the “Kids’ Cooking Camp” curriculum for participating children and parents were the following: 1) increase knowledge of MyPlate in Native American children, with an emphasis on making half the plate fruits and vegetables; 2) increase participants’ willingness to try

new foods, especially fruits and vegetables; and 3) increase reported food and kitchen safety behaviors in Native American children.

Method

Participants

Children who had completed grades two through six (ages 7 to 13 years old) were invited to attend a cooking camp at one of four locations on a rural North Dakota reservation.

Study Design and Intervention

A series of lessons were taught in the four-day cooking camps. Camps ran six hours per day, generally beginning mid-morning and continuing until mid-afternoon. Lesson topics included kitchen knowledge, kitchen safety, food safety, balancing a plate with MyPlate, eating on the run, eating right while eating out, preparing snacks and meals, label reading, gardening basics, food preservation, traditional food systems, and farm to plate. Children prepared two snacks and one meal with foods from the camp as a means of increasing their cooking knowledge, skills, and feelings of self-efficacy.

Lessons incorporated multiple topics to create a feeling of continuity throughout the camp and build upon previous material from day to day. Two lesson sessions were held between meal preparation and game times to teach the various topics. A camp schedule is included in Figure 1. Using an Institutional Review Board-approved protocol, participants completed a pre- and post-assessment for the overall camp to evaluate their eating habits, feelings of self-efficacy, and beliefs related to food safety, food preparation, and desire to learn about these topics. Participants also completed brief pre- and post-tests for each lesson to evaluate their baseline knowledge and any changes from the beginning to the end of the lesson.

The camp included physical activity breaks and energizers that reinforced lesson concepts. Some games asked pertinent questions related to the lessons, causing participants to think beyond the basic concepts of camp to apply the knowledge gained. Activity sheets, coloring sheets, and crafts were incorporated to strengthen the children's memories as they reflected on camp lessons and took the post-tests.

Data Analysis

SAS V9.3 (SAS Institute, Inc., Cary, NC) was used for the analysis. Fisher's exact test indicated differences of proportions from pre- to post-assessment. T-tests were run to test changes from pre- to post-test for each lesson.

Results

Forty children completed pre-assessments, and thirty completed post-assessments. Twenty children completed all tests and assessments. Knowledge

changes from pre- to post-test for each lesson are included in Table 1. Children reported significantly increased physical activity after camp ($t = 2.19, p = 0.0318$). Though fruit and vegetable consumption did not significantly increase ($t = 1.54, p = 0.1279$ and $t = 1.81, p = 0.0741$, respectively), the proportion of children who reported consuming fruits and vegetables most days or every day increased from 78% to 90% and 43% to 90% respectively. Children's consumption of low-fat or non-fat milk also approached significance ($t = 1.91, p = 0.0599$).

Children were more able to identify good sources of information to tell them about food safety and preserving food after the food safety, food preparation, and food preservation lessons. Tables 2 and 3 show changes in knowledge score from pre- to post-assessment and pre- to post-test for the lessons.

Summary

Some limitations of this study include: variation in the children attending camp each day, use of slightly different lesson materials, and adaptation of the lesson order from camp to camp to meet participants' interests. A third limitation is the small sample size among an isolated group of Native Americans, making this study less applicable to general audiences.

Children who participated in a four-day cooking camp showed improved knowledge scores related to current nutrition, food safety and physical activity concepts and trends toward increased fruit, vegetable and milk consumption. Longer summer camps in combination with school-based nutrition education could lead to greater knowledge gains and long-term behavior changes. Cooking camps show promise to promote behavior change with their continued implementation in Native American rural communities.

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Kids Cooking Camp's Schedule

9:30 – 10 a.m.	Welcome, ice breaker and snack
10 – 11:30 a.m.	Lesson, topics include: Food safety, Kitchen Knowledge, My Plate [food groups and serving sizes), Gardening, From Farm to Plate, Food Preservation
11:30 a.m. – 12:30 p.m.	Cook lunch and eat [making mealtime fun with good table manners and table setting]
12:30 – 1 p.m.	Story and activity/game
1 – 2:30 p.m.	Lesson continued
2:30 – 3 p.m.	Snack time...make and eat
3 – 3:15 p.m.	Survey and clean-up
3:15 – 3:30 p.m.	Activity/game
3:30 p.m.	Homeward bound!

See you tomorrow!

Figure 1. Cooking Camp Schedule

Table 1.

t-test Values for Knowledge Scores as Shown by Number of Correct Responses Pre-Survey to Post-Survey (Post-test minus Pre-test)

Question	Pre Sample Size [#]	Post Sample Size [#]	<i>t</i> -value	Probability
Balancing a Plate	30	28	2.87	0.0058*
Eating on the Run	29	19	3.38	0.0015*
Preparing Snacks and Meals/ Label Reading	32	33	0.44	0.6640
Get Started Gardening	27	27	2.85	0.0063*
Food Preservation	25	26	5.16	<0.0001*
Eating Right While Eating Out	22	23	2.11	0.0419*
Traditional Food Systems/ Farm to Plate	20	20	1.36	0.1806

Different children chose to attend camp each day. The different sample sizes indicate the number of participants present for the pre- and post-test. Post-tests were given after the lesson was taught, or the day after if time was short.

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Table 2.

Food Safety Questions included in Assessments

Question	Pre Sample Size [#]	Post Sample Size [#]	<i>t</i> -value	Probability
A pizza has been left out of the refrigerator all night. What should you do?	40	30	2.74	0.0092*
A chicken and rice dish has been in the refrigerator for over a week. What should you do?	40	30	1.85	0.0692

Different children chose to attend camp each day. The different sample sizes indicate the number of participants present for the pre- and post-test. Post-tests were given after the lesson was taught, or the day after if time was short.

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Table 3.
Food Safety Questions included in Lesson Tests

Question	Percentage Correct Response Pre	Percentage Correct Response Pre	Probability
What is the “danger zone” temperature range? (40° to 140°F)	53.13	66.67	0.1682
Which of these is a safe thawing technique? Thawing in the refrigerator	37.50	36.36	0.5558
What should you do with perishable foods if you aren’t consuming them right away? Refrigerate or freeze within 2 hours	31.25	51.52	0.0219*
Which of these are safe ways to preserve food for long periods of time (a month or more)? Canning (yes)	44.00	73.08	0.0483*
Which of these are safe ways to preserve food for long periods of time (a month or more)? Refrigerate (no)	40.00	65.38	0.0950
Which of these are safe ways to preserve food for long periods of time (a month or more)? Freeze (yes)	72.00	69.23	1.0000
Which of these are safe ways to preserve food for long periods of time (a month or more)? Dry (yes)	28.00	57.69	0.0483*
Which of these are safe ways to preserve food for long periods of time (a month or more)? Cook (no)	84.00	76.92	0.7265
Which of these sources could you trust to tell you about preserving food safely? USDA website (yes)	28.00	65.38	0.0115*
Which of these sources could you trust to tell you about preserving food safely? College or university website (yes)	36.00	46.15	0.5725
Which of these sources could you trust to tell you about preserving food safely? Tested recipe book (yes)	68.00	76.92	0.5414
Which of these sources could you trust to tell you about preserving food safely? Old recipe book (no)	84.00	92.31	0.4189

Which of these sources could you trust to tell you about preserving food safely? Memory (no)	56.00	84.62	0.0337*
How should canned goods be stored? Away from extreme heat or cold (yes)	40.00	84.62	0.0014*
How should canned goods be stored? Away from light (yes)	44.00	65.38	0.1637
How should canned goods be stored? Outside (no)	68.00	80.77	0.3487
How should canned goods be stored? In the garage (no)	76.00	88.46	0.2913
How should canned goods be stored? Wherever there is room (no)	52.00	80.77	0.0399*
How cold should a freezer be kept to store frozen foods? Below 0°F	28.00	65.38	0.0007*

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

NOTE to editors/reviewers: Pictures of the graphics used and the children with photo releases engaged in this program are available.

Research

Engaging Youth in the School Wellness Dialog

Luanne J. Hughes

Schools are recognized as a fundamental setting for providing children with a healthy environment where they can consume nutritious meals, snacks and beverages; get regular physical activity; and learn about the importance of healthy behaviors. The Healthy Hunger Free Kids Act of 2010 (HHFKA) outlined new, stricter nutrition standards for school cafeterias, while requiring schools to adopt a local wellness policy and convene an active council to assess the wellness environment, develop a school-wide plan and measure policy implementation. Youth can play an active role in establishing, assessing and implementing the school wellness policy and council. By using the *Students Taking Charge* school wellness assessment to identify school wellness priorities, the voices of students at two different schools produced a valuable perspective to support schools in achieving wellness goals.

Keywords: School Wellness, Youth Wellness Council, Youth Advisory Council, Childhood Obesity, School Lunch

Childhood obesity rates have continued to increase, due to a combination of factors that lead to excess caloric intake and inadequate physical activity. (Biro, F., & Wien, M. 2010). To address the concern of childhood obesity and its subsequent impact on chronic disease risk into adulthood, the Healthy Hunger-Free Kids Act of 2010 (HHFKA) established nutrition standards requiring schools to increase the availability of healthful food choices on their menus. HHFKA also mandates that schools establish active wellness councils to affect change on the overall school wellness environment. (USDA FNS 2010).

Youth provide valuable insights into understanding the impact of the obesity epidemic and identifying problem-solving interventions to combat it. They can share in developing healthy changes to the school environment and influencing their peers and families to join them in taking action and supporting change. (Jones, Spence, Hardin, Clemente 2011). Youth benefit when they actively contribute to their programs and communities. Not only do young people gain a stronger sense of agency (self-efficacy, better school performance, confidence), but they also garner a strong sense of belonging and connection to their communities (positive peer and adult relationships, social networks, social responsibility). (CDC 2012). Change happens fastest when youth and community work together and students are afforded the tools, training and trust to apply their creativity and energy to make changes in their own lives and in the future of their school and community. (Pittman, Martin & Williams, 2007).

Although the HHFK mandates the establishment of an active school wellness council, it does not specify or recommend the involvement of youth on this council. The purpose of the *Grow Healthy Youth Advisory Council* (YAC) project is to assist schools in developing a forum to engage youth in the dialogue of school wellness, particularly related to creating environments where physical activity and healthy eating are both accessible and encouraged.

Methods

The Department of Family and Community Health Sciences with the New Jersey Agricultural Experiment Station, Rutgers Cooperative Extension (FCHS) works with schools throughout the state to implement a variety of wellness programs, including developing and implementing school wellness policies and wellness councils. In response to an emailed invitation issued by FCHS, two schools were selected to take part in the YAC project. An overview of the schools and their goals for participation is summarized in Table 1.

FCHS Educators with Rutgers Cooperative Extension worked with two schools to establish YACs, train student members and their faculty advisors to assess school wellness needs, and develop recommendations to include in school wellness plans. Because of time and scheduling constraints and a desire to avoid encumbering additional expense or staff workload, YACs were integrated into existing programming. Mannington Elementary School integrated the YAC into the Gifted and Talented Program, as one component of a school-wide wellness initiative. (This school serves grades K-8; Gifted and Talented students are in grades 6-8).

At Wenonah Elementary School, administration invited all sixth grade students to participate in an initial YAC needs assessment and a wellness club as one of the schools enrichment classes. (See Table 2.) In the absence of any pre-existing wellness initiative, this school desired to use the YAC and wellness club as a way to introduce wellness into the school culture.

By encouraging each school to identify a structure that best accommodated them, it was easy to garner support and interest. This project was approved by the Institutional Review Board of Rutgers, the State University of New Jersey. Families were given the opportunity to have their children “opt out” of the YAC project, if desired. All invited students in both schools participated.

FCHS used the Massachusetts Action for Healthy Kids team-developed *Students Taking Charge* (STC) toolkit to establish an active youth advisory council and empower students to present ideas, insights and input on nutrition and physical activity recommendations at their schools. STC equips students with a youth survey to assess youth opinions and beliefs regarding the school wellness environment. The six modules in the STC toolkit were adapted from the Centers for Disease Control’s School Health Index and were designed to examine various aspects of the school’s

health environment. The modules include:

1. School Health and Safety Policies and the Environment
2. Health Education
3. Physical Education and Other Physical Activity Programs
4. Nutrition Services
5. School Health Services
6. Family and Community Involvement

While the kit is geared towards secondary students, FCHS faculty/staff previously pilot tested the kit with students in grades 3-6. The abbreviated pilot version worked well with elementary school students, and FCHS was comfortable using the tool once again. (Hughes, Savoca, Greci 2015). As in the pilot, FCHS chose to focus on only 2 of the 6 modules of *STC*, due to the students' ages, amount of time required to complete the modules, and schools' identified priorities of nutrition and physical activity. The student survey was modified to include questions that focused on student satisfaction with school nutrition services, physical education class and other physical activity programs. FCHS distributed the *STC* assessment tool to students at their first meeting. Working with the students on a question-by-question basis, FCHS explained each question and answered student questions to clarify assessment questions and to assure complete understanding. In each school, YAC members were encouraged to answer the questions honestly and seriously. After completion, surveys were collected and submitted to FCHS educators for review and analysis.

Results

Based on the results of the *STC* assessment (See Table 3.), students in both YACs identified a series of recommendations. There were similar trends in the recommendations presented by both schools:

1. In general both YACs felt positive about physical activity at school. However, both groups rated variety and quality of foods offered as being only somewhat satisfying. Identified concerns were addressed in future meetings. In addition to the *STC* assessment, FCHS encouraged students to consider how they might spread messages about healthy eating, nutrition and physical activity by hosting or participating in events and programs that could inspire their school community to make healthier choices.
2. Both YACs recommended that schools examine policies and procedures for lunch monitoring of the younger grades, to assess options for keeping the cafeteria floor clean after younger children eat. Suggestions included having maintenance department sweep in between lunches, teaching children to clean up after making a mess, teaching children how to make less mess, etc.
3. YAC members at both schools indicated strong support for physical education (PE) class. When asked about indoor recess, YACs reported that indoor recess was not activity-based, and tended to be more sedentary in nature. Board games,

“chatting,” Wii games (for younger grades only) and reading were listed as typical example of indoor recess activities.

4. Both YACs suggested that some PE equipment/supplies could be made available to classes to help create a more active indoor recess environment. Currently, equipment was not accessible. Students recommended increasing student activity via using materials/supplies to create obstacle courses, activity stations and running/walking trails – both indoors and outdoors – for recess.
5. YAC members reported that teachers at both schools were actively developing policies and programs to increase physical activity at school. They recommended more wide-scale implementation of these activities:
 - Using outdoor activities to reward academic or behavioral successes
 - Establishing recess, before- and after-school walking clubs
 - Using novelty *Fitness Finder*® charms to reward students who reach wellness milestones
6. Both YACs compiled comprehensive lists of “healthy foods” they’d like their schools to offer in the cafeteria. The term “healthy” was not qualified, but YAC members gave thoughtful responses: smoothies, granola, fruit (bananas, grapes, strawberries, kiwi, oranges, peaches, mangoes), salad, vegetable soup, yogurt, frozen yogurt, gluten-free foods and cereal.

Discussion

The results of the YAC assessments indicate that elementary school youth are able to provide responsible, insightful appraisals of the school wellness environment. Likewise, youth are able to offer viable, reasonable and feasible suggestions to enhance nutrition and physical activity at school. Upon completion of the *STC* assessments, YACs learned that their schools had acquired grant funds to implement wellness activities. Using their results, YAC members worked with FCHS and adult school wellness team members to develop four key outcomes:

- PE Supply List – Using the YAC-generated list, adults and youth worked together to expand and refine a list of PE materials/supplies to use during indoor and outdoor recess. Policies were developed to assure that supplies would be available during recess, not restricted to PE class.
- *Healthy Me* Enrichment Program – A permanent addition to one school’s enrichment curriculum is a class that promotes wellness via nutrition education, cooking and gardening. Now in its fourth semester, the class is one of the school’s most popular enrichment program and boasts a waiting list of students who wish to join.
- Both schools have prioritized the need to offer after-school programs that incorporate nutrition and physical activity into their curriculum, using cooking, gardening, active play and taste-testings to promote wellness.

Limitations

Limitations of this project include the selection of “pre-arranged groups of

students” to serve on YACs. Inviting students with a clear interest in health and wellness to serve on the YAC could enable a more thorough needs assessment and implementation plan. Likewise, involvement of only older students (Mannington’s Gifted and Talented program or Wenonah’s 5th grade), limits diversity of opinion, perspective and needs.

Conclusion

Student engagement in school wellness has been shown to increase student acceptance in a variety of health-related areas. The students involved in this project demonstrated commitment to the topic of wellness and offered valuable insights into the wellness wants and needs of students. By incorporating YACs into an existing school program – enrichment program, Gifted and Talented, student government or similar group, schools can engage students in the wellness conversation without additional time and cost.

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Table 1 – Demographics of YAC School

	Mannington Elementary School	Wenonah Elementary School
Size (#Students)	182	251
Location	Rural	Suburban
School Nutrition Model	National School Lunch & Breakfast Programs	Pack-Only District Twice weekly, Home & School Association offers “Hot Lunch Day,” where students have the opportunity to purchase either a hot dog or pizza, typically accompanied by empty-calorie sides.
Kitchen	Full Kitchen Receives Satellite Meals	No Kitchen
Goal	Expand <i>Grow Healthy</i> school wellness initiative Garner student support for increasing fruit/vegetable consumption and opportunities for increasing physical activity	Identify a balanced approach to “Hot Lunch Day” by creating a plan that bridges two existing lunch philosophies -- “100% healthy” foods served vs. fast foods and snack foods – by developing a more active, student-driven wellness initiative Identify options for increasing physical activity

Table 2: Student and Faculty Involvement in YACs

School	Students Grade 6	Students Grade 7	Students Grade 8	Teacher Support	Other Support
Mannington Elementary G&T Program	4 Total 2 Female 2 Male	3 Total 2 Female 1 Male	2 Total 1 Female 1 Male	Gifted & Talented (1) Science (1)	
Wenonah Elementary 6 th Graders	42 Total 23 Female 19 Male	N/A	N/A	6 th Grade (2) Phys. Ed. (1) Spanish (1)	Principal (1)

Table 3 – Results of *Students Taking Charge Assessments*

Topic		Wenonah	Mannington
1.	Teachers & staff care about your physical health & emotional well-being	48% -- Yes 36% -- Mostly 17% -- Somewhat	50% -- Yes 50% -- Mostly
2.	Satisfaction with the health education at school	52% -- Very Satisfied 43% -- Somewhat Satisfied 5% -- Somewhat Dissatisfied	50% -- Very Satisfied 50% -- Somewhat Satisfied
3.	In the past month during your PE class, you were active or moving around..:	79% -- Most/all of class time 19% -- About ½ class time 2% -- Some (less than ½) class time	100% -- Most/all of class time
4.	Enjoy PE	83% -- Yes 14% -- No	100% -- Yes
5.	Rate the variety of school-sponsored physical activity programs	24% -- Extensive Variety 64% -- Moderate Variety 9.5% -- Very Limited Variety	67% -- Moderate Variety 33% -- Very Limited Variety
6.	Accessibility of enrichment opportunities mentioned above	62% -- Most/all are easily accessible 29% -- About ½ are easily accessible 10% -- Less than are easily accessible	83% -- Most/all are easily accessible 17% -- About ½ are easily accessible
7.	Participated in 1 or more school-sponsored physical activity programs in past 12 months	88% -- Yes 12% -- No	50% -- Yes 50% -- No
8.	Foods purchased in school's a la carte selection in the past week	N/A	Chips Cookies Ice Cream Water
9.	Healthy products in school meals and a la carte offerings are appealing	55% -- Most or all 17% -- About ½ 17% -- Some (less than ½) 2% -- None	67% -- Some (less than ½) 33% -- About ½
10.	In the past 2 weeks, had enough time to eat school	N/A	50% -- Some (less than ½) of days 50% -- I don't eat school

	breakfast...:		breakfast
11.	In the past 2 weeks, had enough time to each school lunch...:	43% -- Most or all days 26% -- About ½ of days 17% -- Some (less than ½) of the days 5% -- None of the days	67% -- Most or all days 16.5% -- About ½ of days 16.5% -- I don't eat lunch at school
12.	How often is school's cafeteria clean and pleasant?	43% -- Most or all of the time 31% -- About ½ of the time 14% -- Some (less than ½) of time 12% -- Never	50% -- About ½ of the time 33% -- Some (less than ½) of time 17% -- Never
13.	Satisfaction with variety and quality of foods offered	22% -- Extremely satisfied 54% -- Somewhat satisfied 17% -- Somewhat dissatisfied 5% -- Extremely dissatisfied	67% -- Somewhat satisfied 16.5% -- Somewhat dissatisfied 16.5% -- Extremely dissatisfied

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Research Brief

Food and Nutrition Practices and Education Needs in Adult Care Homes

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ABSTRACT

Objective: To determine the food and nutrition practices and education needs of adult care home staff.

Methods: A 29-item telephone survey of adult care home staff, exploring food and nutrition education, supplement use and menu planning was conducted in 26 U.S. states.

Results: Of respondents (n=501), 63% reported having at least one resident > 70 y. Food safety education was received in 67% of homes, menu planning in 60%, texture-modified food preparation in 51%, and special diets in 69%. However, 19% of respondents noted that no food and nutrition education had been received in the past two years. The survey indicated infrequent use of supplements and evaluation of menus by a registered dietitian was uncommon.

Conclusions and Implications: Food and nutrition education is needed in the nation's adult care homes. Extension programming to meet this educational need may result in improved food acceptance and wellness of adults in care. **(word count: 149)**

Key Words: adult care home; texture-modified food; pureed food; nutritional supplement; older adult

INTRODUCTION

The demographic of the United States' population continues to change and the cohort of ageing adults is projected to rapidly increase from the year 2010 to 2050.¹ The Administration on Aging estimated that in the year 2011 people over the age of 65 represented approximately 13% of the U.S. population and by 2040 will represent 21%. The population of individuals 85 years of age and older are predicted to triple from approximately 5.7 million in 2011 to 14.1 million in 2040.² With an aging population, there are increased medical and care needs and often special nutritional considerations. Approximately 70% of individuals 65 years of age will require some form of long-term care (LTC) in their lifetime.³ LTC can be provided at home, in the community, in an assisted living or in nursing homes, and encompasses a variety of services that includes medical and non-medical care to people who have chronic illness or disability or unable to perform activities of daily living.⁴

An adult care home (ACH) is a type of LTC defined as “homes [that] operate in local communities, where people engage in social interactions as they get help with personal care, medications and health-related activities, money management, housekeeping, and transportation to appointments.”⁵ The process of licensing ACHs depends on the state and the certifying/licensing agency in the state. These small residential care homes may be termed differently depending on the state. Oregon and Washington are credited with establishing and designing this specific model of long term care and refer to these facilities in their respective states as adult foster care (AFC).⁵

Malnutrition and weight loss are prevalent in older adults requiring care, often arising among residents in nursing homes, assisted living facilities, and other LTC facilities.⁶ In these individuals, malnutrition is strongly associated with reduced quality of life and morbidity, and can result in hospitalization, increased days of hospitalization, increased care and mortality.⁷ With the rise in the aging population, the number of seniors with severe disabilities, defined as having three or more limitations in activities of daily living, also increases.⁸ Seniors with severe disabilities are at highest risk of long term care admission and often also experience muscle weakness, low physical activity levels, and unintentional weight loss.^{8, 9}

Residents of LTC may not obtain adequate intakes of energy and many nutrients. Cass and Bryant demonstrated that 15.7% of LTC residents lost 5% of their body weight over the course of a one-month study.¹⁰ Research conducted by Lengyl et al demonstrated that out of 48 LTC residents living in five different homes, 70% of residents presented with inadequate intakes of folate, magnesium, zinc, vitamin E, and vitamin B₆.¹¹ Furthermore, mean intakes of calcium, vitamin D, and dietary fiber fell below recommended levels.¹¹ A more recent study of elderly living in 11 long term care homes, found energy intakes averaging approximately 1500 kcals. About 30% had protein intakes below the RDA, and low intakes of calcium, magnesium, zinc and vitamins E, B₆, and folate were reported.¹² Poor nutritional status of older adults in care is strongly associated with a reduced quality of life and higher morbidity.⁷

There are multiple influences that contribute to malnutrition in older adults in care. Three

significant contributors to malnutrition include dysphagia (difficulty with chewing and swallowing), lack of nutrient dense foods and poor menu quality.¹³ Residents suffering from dysphagia often require a texture-modified diet. In LTC settings, residents on a texture-modified diet have significantly lower dietary and fluid intakes compared to residents on a standard texture diet.¹⁴ Wright et al compared the 24-hour dietary intake of older adults consuming a texture modified diet to those who consumed a normal/standard diet while in hospital.¹⁵ Those individuals on the standard hospital diet consumed an average of 1461 kcal/day, compared to those on a texture-modified diet who only consumed 926 kcal/day. Almost all (93%) of the individuals on the texture-modified diet did not meet their recommended intake of protein compared to approximately 40% on the standard diet.

The Department of Health and Human Services Administration of Ageing assesses complaints based on the National Ombudsman Reporting System (NORS) and reported that quality, quantity, variation and choice of food is among the five most frequent complaints made by residents or family members.¹⁶ Failure to maintain adequate nutritional status among residents may be partially attributed to dissatisfaction with menu options and inadequate nutrient density of the food offered. Additionally, resident intake may be further compromised by therapeutic diet restrictions due to preexisting medical conditions.⁶

According to a U.S. Senate Special Committee on Aging report, “the goal of long-term care is... to attain and maintain an optimal level of functioning”.¹⁷ As suboptimal nutrition

contributes to loss of function¹⁸, this responsibility should be met by providing appetizing, nutritionally-adequate food to meet nutrient requirements of residents. Due to the high needs of this population, food alone may not meet their needs and supplementation may be required.¹⁹ Providing food and nutrition education to staff of care homes, especially those involved in food preparation and meal planning, may be necessary to promote evidenced-based nutrition and dietary practices and thereby, optimal intake and wellness of residents. The aim of this study was to determine the food and nutrition practices and educational needs of staff of adult care homes in the United States, specifically focusing on the use of menus, nutritional supplements and texture-modified diets.

METHODS

The questionnaire was modified from a pilot study of <blinded for review>'s ACHs.²⁰ The 29-item questionnaire explored the food and nutrition practices and education needs of adult care homes (ACHs) in the United States. Questions covered topics such as food and nutrition education, menu planning, nutritional supplement use, and perceived food quality. Lists of ACHs were obtained from the licensing agencies websites from 26 states. The American Association of Retired Persons (AARP) Public Policy Institute reported, that in 2009, there were 29 states with regulations to license or certify this type of facility.⁵ The states that were not included in the survey did not have a public list of ACHs or at the time of the survey, did not license/certify this type of facility. Only ACHs with active licenses and published telephone numbers were considered for survey participation. Homes deemed inactive, in review or in litigation

were excluded. Telephone contact was attempted with every third home and homes were asked to complete the questionnaire via telephone interview. Respondents answered the questionnaire at their discretion and could skip questions or stop at any point. Contact with homes was attempted a maximum of three times. Ethics approval for the study was sought and deemed exempt by the Institutional Review Board 2 at the University of <blinded for review>.

RESULTS

A total of 501 questionnaires were completed, representing services to 2,186 residents of ACHs in 26 states (Figure 1). Of the homes that study coordinators spoke to a staff member, the response rate was 46%. Of respondents, 39% identified their job title as “owner” and 33% as “assistant/caregiver”. The ACHs reported the number of current residents living in the facility ranged from 1 and 10 residents, averaging 4.4 ± 2.5 (mean \pm SD) residents. Sixty-three percent of the ACHs reported caring for at least one resident over 70 years of age.

Food and Nutrition Education

Nineteen percent of respondents reported that staff involved in meal planning, food preparation and/or meal service had received no education in the last two years on any of the following topics: food safety, meal planning, special diets such as diabetic or gluten-free, texture-modification of foods or nutritional concerns of the elderly. Sixty-seven percent of respondents reported that they had received some form of training in

the last two years on food safety, 60% on meal planning, 69% on special diets such as diabetic or gluten-free, 51% on texture modification of foods (e.g. pureed, ground, minced, etc.), and 55% on nutritional concerns of the elderly.

Respondents felt strongly that further food and nutrition education for the ACH staff was needed. A need for education on special diets such as for diabetes and gluten-free was indicated by 74% of homes, 69% responded that education on nutritional concerns of the elderly was needed, and 57% needed education on preparing texture-modified food. Forty-six percent of homes that had residents with chewing or swallowing problems expressed an interest in furthering their education on how to properly modify the texture of food. Additionally, 52% of homes that had at least one resident over the age of 70 showed in interest in learning more about nutritional concerns of the elderly. Of homes that had a menu, 34% were interested in further education on meal planning, and of homes that did not yet have a menu, 33% responded that they needed education on meal planning. Suggestions regarding other possible nutrition education topics they felt are needed included fiber, supplementation, healthy eating, high blood pressure control, water intake, low-sodium diets, obesity prevention, and portion control.

Respondents were asked about their preferred method of receiving future food and nutrition education, if it were to be provided to them. Respondents indicated a food and nutrition resource manual or binder with background information and teaching resources most frequently (41%), followed by on-site training (35%), an instructional DVD or flash drive (27%), and online access to resources and video tutorials (26%). Study

coordinators noted that respondents indicated that their available time was extremely limited so a resource manual or binder would provide a resource that they could reference at their convenience. Additionally, some respondents mentioned having limited computer and/or internet access, thus limiting the usefulness of online resources.

Menu Planning

Sixty-eight percent of respondents reported following a menu at the ACH, and 22% reported that they had no training on menu planning. Of the ACHs that reported following a menu, 61% reported that a registered dietitian was not involved in creating and/or evaluating the menu and 37% reported that staff had not received training in meal planning in the past two years. Of the homes that did not report following a menu (32%), only 27% reported needing training on meal planning.

Special Diets

ACHs were asked about their residents and specific dietary considerations such as texture- modified foods. When asked if any residents have chewing and/or swallowing problems, 38% of ACHs responded "yes." Only 58% of these ACHs served pureed foods to residents, whereas 62% served ground/minced foods, and 46% served thickened beverages. Of the ACHs that reported serving pureed foods to one or more residents, 97% were preparing "homemade" purees and 9% reported that they served any pre-packaged, commercially available pureed meals/foods to residents. Of homes that reported having at least one resident with a chewing and/or swallowing problem, 41% had received no education on the preparation of texture-modified foods.

Nutritional Supplements and Fortification

The use of commercial nutritional supplements such as Boost® or Ensure® was reported by 43% of the ACHs. Few ACHs offered homemade energy or protein shakes (25%) and fewer added protein powders to foods or beverages (13%). Fiber or bran was added to foods or beverages at some ACHs (24%). At 51% of ACHs, no residents received a fiber supplement and no fiber was added to foods or beverages. Eighty-one percent of ACHs had at least one resident taking a daily multivitamin/mineral supplement. However, of the 15% of ACHs that did not have any residents receiving a daily multivitamin/mineral, almost half (47%) had residents over 70 years of age. Additionally, 22% of ACHs reported that none of their residents were taking a vitamin D or calcium supplement.

Perceived Food Quality

The respondents' perceptions of food quality at their homes were of interest. The respondents were asked to report their beliefs about the food quality at the ACH using a Likert-type scale with responses ranging from poor to excellent. None of the ACHs reported serving food that is "poor" or "below average" based on the question, "Is it appetizing?" The most common response to this question was "excellent" (43%). Respondents noted that they were typically responsible for meal planning and food preparation at the ACHs.

DISCUSSION

The results of this national survey suggest that a significant number of ACHs are lacking education on menu planning, special diets, preparation of texture modified foods, and nutritional needs of older adults. Supplementation of fiber, calcium, and vitamin D is not common among residents of ACHs, although there is significant evidence that residents of LTC facilities have intakes of these nutrients that fall well below requirements.^{12,19} Although there is evidence of a lower rate of all-cause mortality reported in elderly people receiving oral protein and energy supplements²¹, these supplements were not commonly provided. However, not all ACHs had residents over the age of 70 years and therefore, may not have a need for supplementation. For those ACHs that care for older adults, increasing knowledge about their nutrient requirements and supplementation needs may lead to improved health outcomes for these residents.

Menu complaints are common in LTC including ACHs.¹⁶ The results of this study suggest that many ACHs do not have standard menus and those that do, may not have received education in the development of menus. In addition, lack of registered dietitian/nutritionist consultation is common. These may be factors contributing to menu complaints by residents and family, and dissatisfaction with menu may contribute to poor intake and malnutrition in residents.

The findings of this study demonstrate that ACHs may need additional evidence-based education pertaining to texture modified foods and preparing acceptable foods for those individuals with special needs or dysphagia. ACHs that had residents with chewing or swallowing problems often did not provide residents with texture-modified foods.

Furthermore, many homes that were providing texture-modified foods did not have education on the topic in the last two years. Individuals with dysphagia are at particular risk of malnutrition²² whereas achieving acceptable texture-modified foods is challenging.²³ Provision of texturally appropriate and appetizing foods to residents requiring texture modified diets may promote improved nutritional status and better health in these residents.

ACHs in the U.S. need access to applicable food and nutrition educational resources. Overall, staff members expressed a willingness to further their education on nutrition topics, particularly those relevant to current residents. Delivery of educational material/resources in the form of convenient manuals, in-services and potentially comprehensive online resources are needed.

Providing educational programming/resources to staff of ACHs may be an effective way to improve the nutritional well-being of older adults and others with special needs in care. Improving the knowledge and skills of staff responsible for the planning and preparation of foods provided to older adults and individuals with specialized dietary needs in care may result in improved menu acceptance, improved quality of life and improved general wellness of residents.

Overall, ACH staff members were receptive and indicated a need for additional nutrition education. However, respondents voiced concerns regarding time constraints and demanding schedules. Likely for this reason, the preferred method of education was most often a resource manual or binder. However, hard copy manuals become

outdated. Respondents did express that if the material could be accessed at their convenience, when specific nutrition information was needed, it would likely serve the greatest benefit. While a binder was indicated as the preferred method, online access to resources represents a method to disperse up-to-date education to the masses on a national level with limited funds.

A proven method to disseminate reliable food and nutrition information is through the national Cooperative Extension System.²⁴ This system is in place to disseminate “useful, practical, and research-based information to rural areas and communities of all sizes,” according to the National Institute of Food and Agriculture.²⁴ Much of the educational needs of ACH staff could be met by appropriately trained Extension professionals. As educational requirements and regulations differ among states⁵, Extension professionals would need to allow for flexibility in programming.

This study had limitations. Although we determined how many homes surveyed cared for residents over the age of 70 years, we did not survey the general demographical characteristics of the remaining residents. It is not known how many homes cared for individuals who may have other issues, such as immobility and disabilities that may place them at increased nutritional risk.

IMPLICATIONS FOR RESEARCH AND PRACTICE

There may be significant food and nutrition skill and knowledge gaps of staff in ACHs,

such as related to the preparation of texture-modified foods and nutritional concerns of older adults in care. ACH staff reported a desire to increase their skill/knowledge level and these outcomes suggest that resources available nationally is required to meet the deficiencies. These educational needs may be met with Cooperative Extension Services. As the major barrier identified by respondents was a lack of time for education, it would be imperative that educators address this barrier when developing and implementing curriculum.

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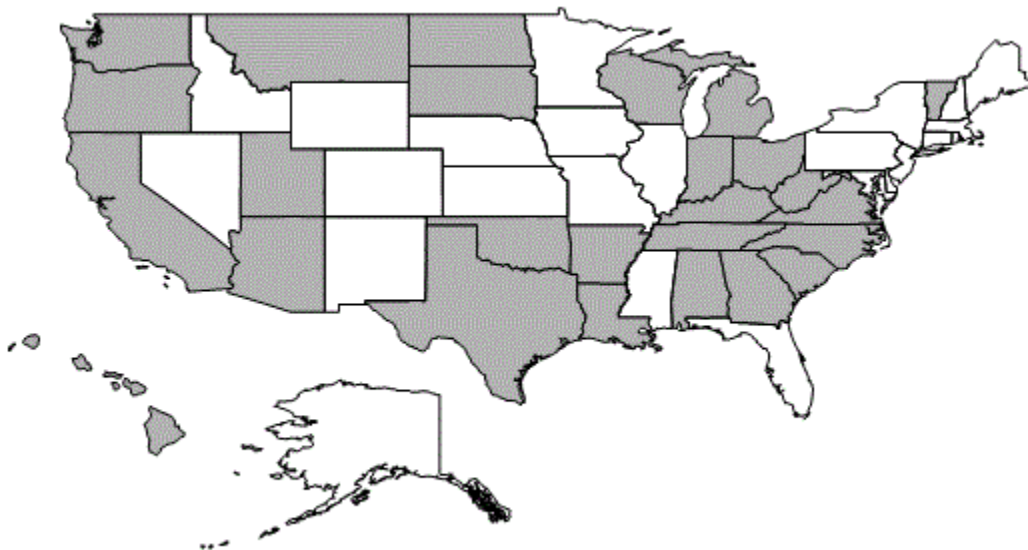


Figure 1: Adult family care homes surveyed in states indicated in grey. (Note: <blinded for review> data is published elsewhere²⁰)

Implications for Extension

Using Storytelling and YouTube Videos to Teach Nutrition in an Online Environment

Rebecca M. Mills and Jeremy R. Hawkins

In fulfilling the mission of the Extension Service to provide useful and practical information to the public, a challenge arises when geography prevents participants from using services due to distance or a desire to have their programming solely online. This challenge can be overcome through distance education. Using examples employed in two separate courses, storytelling and YouTube videos are discussed as effective strategies for delivering nutrition content in an online environment. These methods not only make the content readily available but also memorable.

Obesity rates are a growing problem throughout the United States. According to Center for Disease Control and Prevention statistics (“Overweight and Obesity,” 2015), more than one third of adult Americans are obese. The associated obesity related conditions of type II diabetes, heart disease and stroke cost an estimated \$147 billion dollars annually. To compound this issue, 17% of children ages 2 – 19 are also obese, a statistic that has held constant since 2003 – 2004 (“Overweight and Obesity,” 2015). Improvements in these rates have improved in the 2 – 5 age group, but a concern still remains.

A number of programs have been created in an attempt to combat this trend. For the adult population, individuals are encouraged to know what their body mass index is and how that relates to their overall fitness level. They are encouraged to live at a healthy weight, emphasizing that it is a lifestyle that is needed, not just a diet. There is also an emphasis on moving more and being generally physically active (“Overweight and Obesity,” 2015). Similar programs exist for children as well. The National Football League sponsors the NFL Play60 campaign, encouraging children to be physically active at least 60 minutes each day (“NFL Play 60!” 2015). The *Let’s Move!* initiative, championed by First Lady Michelle Obama, includes information about healthy eating and exercise, as well as ways to promote the need for these within individuals, families, schools, and communities (“Let’s Move!,” 2015). Inherent in all of the ideas presented is the need for proper education.

The mission of the Extension Service is to extend “useful and practical information” to the public (Smith-Lever Act, 1914, p. 1). In recent years technology has changed the way participants learn (Schuster, 2012), with some audiences seeking only information online. Reaching large geographical areas creates another hurdle as participants are prohibited from participating due to distance. One challenge is to create nutrition education that can be accessed through distance

education. It can be effectively done (Campbell, Koszewski, & Behrends, 2013), but the Extension service is at a crossroads when it comes to delivering programming and creating relationships in a digital age (Diem, Hino, Martin, & Meisenbach, 2011). With this in mind, the objective of this paper is to outline two methods of instruction utilized in separate courses that we have found success using in an online environment: storytelling and YouTube videos. We will introduce the pedagogical basis for each and provide a couple of examples of how we have used them successfully to teach different principles of nutrition.

Storytelling

In the chapter entitled “Teaching by Distance Education” in the book *McKeachie’s Teaching Tips* (2006), Andrew Northedge discusses the need to develop a teaching narrative. He states,

The teaching and learning process works only because human beings are able to make meaning together, allowing teachers to lend students the capacity to construct meanings they cannot yet achieve unaided. But whereas in a classroom you can share “live” meaning face-to-face within the frame of reference of your common surroundings, with distance education you have to resort to other, more “literary” devices, such as stories, pictures, diagrams, and vivid examples. Without these meaning carriers, your explanations are wasted on students. They simply cannot make your arguments work in *their* heads. If you link these meaning carriers together, you create a *teaching narrative* that drives and supports your student’s thinking as they work through the course. (p. 294)

This idea is further supported in the manual *Teaching, No Greater Call* (1999). Therein we learn the importance of using stories to illustrate principles and how stories can “teach important lessons or clarify abstract ideas” (p. 181) while keeping students attention in a manner that few other approaches can. In this way, principles that are taught become more memorable. The authors also emphasize the need to make sure that the students understand whether the story is real or fictional.

By way of an example, the importance of proper hydration could be emphasized using the following story:
Johnny was the foreman on a wild land firefighting crew. He and his crew were dispatched to a fire burning in a remote portion of their fire district. They arrived near the fire at approximately 1330. Current air temperature was 96°F and a relative humidity of 6% with very little wind. Due to the location of the fire, the crew had to hike in approximately 3 miles. Not knowing what resources they would need upon arrival, the crew prepared 2 backpack water pumps (5 gallons of water or approximately 40 pounds) and their chainsaw (saw with associated equipment weighed approximately 25 pounds). As they only certified sawyer on the crew, Johnny grabbed the chainsaw.

The fire was burning in a ravine adjacent to the White River. The crew set out to hike

next to the river, but the terrain made that impossible very quickly. The easiest route of travel ended up being up and down several steep ridgebacks, with some of the grades being in excess of 50% with as much as 500 feet in elevation change. The combination of the hot, dry temperatures with the very little wind and the additional weight of the supplies they were carrying tired the crew quickly. Approximately half way to the fire two crew members began to feel the effects of heat exhaustion. They had already consumed the potable water they had brought with them. A decision needed to be made – continue on to the fire or return to their engine.

With this story as a base, facilitation questions can then be asked. Potential questions could include:

- What role does proper hydration play in thermoregulation?
- What effect did the hot, dry temperatures with little wind have on these firefighters?
- How much fluid would they need to consume to overcome the effects of the work they have performed?

These questions are such that the student can answer them from a distance, either synchronously via Skype or a similar platform or asynchronously via email or some other submission software. As a facilitator of this instruction we would want to make sure they have access to the resources to answer these questions. Although not all students can readily relate to the rigors of firefighting and the terrain described, the use of a vivid example such as this, as described previously by Northedge, would help bring the principle alive for them, helping them to remember why hydration is important. The relatability of the student to the stories told is a challenge inherent in the use of storytelling. This is best overcome by having instructors with experience in the field who can draw upon their background to illustrate points in a manner that the students can understand and relate to.

YouTube Videos

In a separate endeavor, the Wellness Wisdom video series was created to supplement ongoing county employee wellness challenges. County employees were unable to leave work during the day to attend nutrition classes, but still wanted to receive information to help with the challenges. The videos became a way to keep the challenge participants engaged in the challenge by awarding points for participation, and motivating them to watch for future videos. This created a “portal for frequent connections with the learner” and “more in-depth learning experiences” (Case, Cluskey, & Hino, 2011).

There are currently seven videos in the Wellness Wisdom series on a variety of nutrition and overall health topics. The length of each video is between 8 and 13 minutes. The slides were created in PowerPoint and incorporate a balance of graphics and text with a voice-over script added using Camtasia. Blevins and Elton (2009) observed that using this approach (PowerPoint with Camtasia) yielded “optimal results for short sessions” wherein instruction was given. Each video includes a list of

references and is designed around evidence-based practice. The videos were created as stand-alone resources, meaning they do not build on one another or make reference to dates or events around which they were created. The information is timeless and appropriate for multiple applications.

A benefit to having the videos on YouTube is ease in sharing them and the expanded reach of the material. Each time a new video was created, a link was emailed to all participants and it was also posted on social media. As a publically available resource, other extension colleagues in neighboring counties and states may also access them for use in their programming. Video analytics show that these online resources have reached more people (to date 474 views of the entire video series) than have ever attended face-to-face nutrition-related programming conducted by Extension in our rural area (typical enrollment 10 – 20 per course).

The most popular video (144 views) in the series is *USU Extension Wellness Wisdom: Herbs and Spices* (Mills, 2013). In *Herbs and Spices* there is information about what herbs and spices are, including their health benefits, where to get them, considerations on growing, buying, and storing them, as well as cooking tips. This video has a wide variety of applications. For example, a newly diagnosed diabetic could watch the video to learn how to retain flavor in their cooking while adjusting recipes to meet specific dietary requirements. Another application is for culinary students or 4-H youth groups to enhance their food preparation skills while realizing that healthy eating can be enhanced and more enjoyable by incorporating the principles taught in the video.

Another popular video in the series is *USU Extension Wellness Wisdom: Breakfast* (Mills, 2013). Topics include why breakfast is important, what types of food to include, and tips on creating a healthy breakfast. This video has been used as a resource for parents of school-age children to help them understand the connection between breakfast and their child's success in the classroom. It can also serve as a resource for school nutrition managers as they operate breakfast programs in schools or retirees and senior citizens whose dietary needs change as they age.

Conclusion

The challenge of delivering nutrition content to a broad population is a real thing. The Extension Service is tasked with providing this programming but time commitments and geography are common hurdles for those who can benefit from these services the most. Utilizing storytelling and YouTube videos in our programming are two methods to not only make the information readily accessible but also memorable. The impact associated with approaching programming in this manner will be determined over time as the participants apply what they have learned to their individual lives.

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Implications for Extension

Extension Family and Consumer Sciences: Before the Smith-Lever Act

Jan Scholl

Nutrition education coupled with gardening activities for children and families can have lifelong implications for health. An eight-lesson “Spillin’ the Beans” curriculum including nutrition lessons, gardening activities, and taste testing was piloted in two childcare centers with 43 families and their preschool-age to early-elementary-age children during a summer growing season in the Midwest. Pre and post surveys of parents/caregivers showed significant improvements in knowledge related to nutritional attributes of beans, increased consumption of beans among the families, and trends toward improved attitudes related to gardening. Sensory testing of recipes revealed positive ratings and willingness to try less familiar foods among children.

The passage of the Smith-Lever Act in 1914, establishing a national Cooperative Extension Service, was a hard won proposition taking many years. Prior to this time, the Morrill Act of 1862 provided grants of land that could be sold to develop colleges and universities for agricultural education. As there was little scientific basis for agriculture (little knowledge upon which to give this instruction), the Hatch Act of 1887 set up experiment stations to test practices, provide recommendations, and create farmer’s institutes. Yet, no real aid came to individual farmers with specific agricultural problems.

In the late 19th century, agricultural societies, Chautauqua, in New York and other states and the Grange (Patrons of Husbandry), advocated for farmers and developed educational programs and correspondence courses. Finally, in 1914, the Smith Lever Act was passed.

But, why were programs for farmers’ wives included in this legislative act? This is an important question as Cooperative Extension became one of the earliest major employers of professional women in the United States and, with similarly employed men, these programs continued throughout the 20th century and into current times.

Objective

The purposes of this study were to determine when Extension family and consumer sciences (FCS) started and to document factors, within the historical context in which Cooperative Extension was developed, that affected the decision to include these home economics programs in the Smith-Lever Act of 1914.

Methods

Unlike previous accounts of farm women, including Jellison (1993), Holt (1995), Neth (1995), and Jones (2002), this study reviewed legislation, government reports, institutional records, bulletins, films, and historical accounts of demonstration agents hired prior to 1914. The study also builds on earlier work of Stuphin and Hillison (1999) and Comer, Campbell, Edwards and Hillison (2006) and Scholl (2013).

Primary (original) sources of information were located in archival collections at the National Agricultural Library (Beltsville, MD), the Harvard-Radcliffe Schlesinger Library (Cambridge, MA), Archives II (College Park, MD), the Library of Congress, the University of Florida, Cornell University, Montana State University and Penn State University libraries; and the Gallatin Pioneer Museum of Bozeman, Montana. Legislative discussion of the many bills leading up to the Smith-Lever Act were investigated as were publications of early Extension workers who wrote retrospectively about their experiences.

More than 35,000 documents, photographs, books, news article, scrapbooks, etc. were reviewed. All references were examined using a method outlined by McCulloch and Richardson (2000) to provide a rigorous comparison of each source for historical accuracy.

Terms and Definitions

Home Demonstration and Home Economics

Though the current designation of the profession is Extension family and consumer sciences and some historians favored domestic economy, euthenics, and human ecology, the early terms home demonstration and home economics are used in this paper.

University Extension

The beginning of Cooperative Extension work (referred to as *Extension* in this article) evolved in many areas of the country at the same time. In addition to the Morrill and Hatch Acts, there was *university extension*. University Extension became popular in 1873 at the University of Cambridge (Roberts, 1891) and this concept of outreach was brought to the U.S. in the 1890s (James, 1892). The earliest mentions include: a law thesis (Mathews, 1892) and an Epsilon Sigma Phi presentation (Vorhees, 1892).

Findings

Early Extension Home Economics

Dorcas in the Bible may have been the first to start educational programs for rural women. Women gathered to sew under her skillful tutelage (Hill, 1958).

Ann McGinty rode into Fort Harrod, Kentucky on September 1777 with little more than a spinning wheel tied to her horse (Shackleford, 1971). She realized that the finery brought to the New World would not last long and flax for linen would require a few years to take hold in the fields. So, she spun wild nettles and devised a loom to weave the cloth.

During the Civil War, Southern homes and farms were often looted, making life difficult for the women remaining on the land. As slaves were freed, women had to develop household skills or pay for additional help.

In 1842, Catharine Beecher wrote a *Treatise of Domestic Science* and Ellen Richards (1899) helped improve the safety of food and water in the home. Mother's clubs and reading circles were organized for mutual aid. University Women organized in 1890 with child study as its major purpose. The first Mother's Congress was in 1897.

The National Household Economics Association, begun in 1893, addressing 'every department of home and social life,' but dissolved in 1903 and incorporated into the General Federation of Women's Clubs. Individuals attending the Lake Placid Conference in 1899 worked an additional ten years to establish the American Home Economics Association (AHEA).

Speeches and Exhibits

In the 1890s and 1900s, women generally did not speak to a "mixed" audiences of men and women. Yet, New York Cooking School superintendent, Juliet Corson, drew thousands to farmer's institutes due to the thrifty nature of her cookbooks, including *Fifteen Cent Dinners for Families of Six* (Corson, 1889).

Two other women who spoke on the conditions of the farm wife were Clara Colby and Matilda Fletcher. Colby believed that a better life was accessible to progressive rural women. In a 14-page speech at the Wisconsin State Agricultural Society (1881), Colby addressed the problems of the farm wife: early marriage, poverty, overwork; the moral failings resulting in a life lacking in social grace; the effects of patriarchal control of household finances, farm wives' isolation, and the lack of opportunity for self-improvement and a community of supportive peers.

At the 1873 Nebraska State Fair, Matilda Fletcher warned, 'Have a care girls whom you marry' and presented the sad story of a farmer who mowed down the flowers planted by his wife because he believed they were a 'sinful waste of time.'

Unlike their husbands, farm women had few conveniences in the home. Many had to haul water from outside the home a dozen or more times a day to cook, clean,

and wash clothes (Scholl, 2001). A fair exhibit created by Mignon Quaw of Montana, warned: "Is Wife No. 1 Working for her Husband's Second Wife?" (Cooley, 1919; Gallatin Pioneer Museum, c1920). Quaw and others (Florida Department of Agriculture, 1927) developed 'cemetery exhibits' with epitaphs such as the following (p.83):

Here lies the wife of Hiram Green
Whose hubby wouldn't buy her a washing machine
But, now that her life over a wash tub she has spent
He hastened to buy her a monument.

Here lies the wife of Solomen Pen
Died doing the weekly wash for ten.

Literature

The plight of the farm wife was also found in literature. In *The Storied Sea*, Wallace (1883) wrote the following: "There are thousands of women who will live and die before long... sunburnt, flat chested, high shouldered farm wives; patient women with hard hands and soft hearts, whose unwritten lines bear a pathos unspeakable. They have buried their early wishes, hopelessly cherished now [and] the passionate longing has faded into a tender, lingering regret." (p.4)

Legal Action, Medical and Congressional Reports

But, it was not just the speeches or the literature that indicated a need to assist farm women. The *Central Law Journal* (Grounds for Divorce, 1893) stated that a man was entitled to divorce his wife though he compelled her to: care for five cows, churn (while she nursed a baby), work in the garden, and eat only rye flour, refuse potatoes, mackerel, mush, and pickled pork. A hand written note was jotted in the margin, "it is no wonder that farmer's wives go crazy...."

For this indeed was the case. Kirkbride (1893) disclosed, that among similar institutions, the Pennsylvania Hospital for the Insane in Philadelphia had reported, since it was founded in 1841, that their "largest number of cases were farm wives, widows, and daughters" (pp. 15-20).

Caldwell (1914) recalled an Indiana farmer of 54 years known for his good farming methods. But, "the inefficient home, involving poor food, irregular hours for meals (sometimes their omission), doors open with passive welcome to poultry..." led to disease and of the five family members, only the farmer and son, were left.

Some farmers' daughters delayed marriage--even fleeing the farm--to work in factories (Excerpts...1850s to 1910). When they married 'nine times in ten' it was to a mechanic in preference to a farmer (Moran, 2002).

One could argue that these conditions had existed for centuries. What made the difference in obtaining legislative assistance for the farm wife at this particular time?

By the end of the 1890s, agricultural administrators recognized that farm families were moving to cities at an alarming rate. In his 1897 report to Congress, Secretary of Agriculture, James Wilson, said: "In the great work of helping the women of our land, nearly half of whom are toiling in the homes upon our farms, this Department believes it has a large duty to perform. For whatever will be effective in raising the grade of home life on the farm, in securing the betterment of the farmer's family, and the surroundings with the refinements and attractions of a well-ordered home, will powerfully contribute alike to the material prosperity of the country and the general welfare of the farmers"(p. 54). Theodore Roosevelt (1902) declared to Congress: "The farmer should realize that the person he most needs to consider is his wife...if she does her duty she is more entitled to our regard even than the man who does his duty, and the man should show special consideration of her needs."

Education was changing, away from classical training in Greek and Latin, to a more practical focus. While other educators recommended that young women in higher education "have more Greek and less gravy" (p. 58), Iowa State College president, William Beardshear (1902) believed in domestic education to "create wholesome red-blood that shall nourish the brain, sustain the muscle, and the soul, creating a 'magnanimous' livelihood." He concluded with, "The skillet is mightier than the sword!" (p. 65)

Beginnings in the Northeast

By 1899, nearly all of the land-grant colleges had home economics departments. Yet, academic home economics programs were curtailed at Cornell University for many years. This situation actually created an opportunity to provide programs for farm women.

Receiving over 5,000 positive responses to a survey about needs of farm households, University Extension educator, Liberty Hyde Bailey obtained funds from the legislature to hire a coordinator to address these concerns (Roberts, 1899).

Thus, Martha Van Rensselaer was employed in 1900 and created a reading course for farmers' wives. This was not the first correspondence course in the country, but it was the first that allowed women to ask questions and find science-based solutions to problems. The course, featured topics, such as *Saving Steps* (Van Rensselaer, 1901), based on a 1900 New York Times study of a homemaker who 'traveled' seven thousand steps per day caring for her family.

Over several decades, Martha may have reached as many as 100,000 women as the courses were re-printed by Chautauqua and newspapers in many states. Doctors, preachers, and other service professionals received the materials as well.

Because of Martha's efforts, home demonstration became central to the Extension program (Holt, 1995). Her connection to the federal level grew when colleague, Liberty Bailey, served as a representative to the Association of American Agricultural Colleges and Experiment Stations. This organization reported that this was the first time in history (U.S. Congress, 1905) that the federal government had shown any desire to help the farm women lessen their burden. In 1906, Bailey was elected president of this group and, in 1908, Theodore Roosevelt appointed him to head the national Country Life Commission (Bailey & Roosevelt, 1909). Bailey's knowledge of Van Rensselaer's work and the farm wives' letters was important to the introduction of Extension programs for farm women in many states.

Influences in the South

In 1902, John D. Rockefeller endowed the General Education Fund, which supported early Extension activities in the South. Morris Jesup funded a moveable school, called the *Jesup Wagon*. This wagon traveled to farmers and farm wives who would benefit from close contact with experts and innovations (Martin, 1921). In 1906, African American, Thomas Campbell was hired by the United States Department of Agriculture (USDA) to coordinate the Jesup Wagon project (USDA, 1921; Evans, 1925) in several states. He taught black and white farmers, farm wives and their children (Campbell, 1914-1946).

Between 1903 and 1911, Seaman Knapp, former college president and landowner, was employed to conduct agricultural programs for USDA. Though best known for the boll weevil demonstration on a farm in Terrell, Texas (Knapp, 1905), Knapp also trained Extension educators to work with youth and farm wives. At the first conference held at USDA, he told agents not to enter homes and inform the farmer they were there to teach his wife to cook. He felt that practice was condescending. He preferred to approach families through mother-daughter clubs who grew tomatoes and canned or sold the produce.

Based on the success of tomato clubs, McKimmon (1945) determined that the first home demonstration agents appointed by USDA were: Marie Cromer (South Carolina), Ella Agnew (Virginia), Susie Powell (Mississippi), Virginia Pearl Moore (Tennessee) and Jane McKimmon (North Carolina). Yet there were others. Dora Dee Walker of South Carolina, for example, was proclaimed "the first home demonstration agent in the world" (Tombstone, 1951).

Annie Peters (Hunter) started in 1911 and is recognized as the first African American home demonstration agent (Scholl & Finchum, 2012). Among many contributions, she established community canning centers near Boley, Oklahoma.

Between 1911-1914, the earliest Extension homemaker clubs were formed in rural areas. Traveling libraries were also established to improve culture and interaction among farm women.

Early home demonstration professionals visited farm homes by foot, wagon, and rail. Presentations were given at whistle stops and many train cars were outfitted with household equipment on a grander scale than the moveable schools (Scott, 1965). The 'fireless cooker' (Huntingdon, 1908) and 'iceless refrigerator' (USDA, 1917; Reese, 1918) were among these popular innovations.

The work of the early Extension workers did not go unnoticed by legislators. Between 1909 and 1914, sixteen to sixty (depending on the source) different legislative bills were submitted for some type of federal aid for Extension work (USDA Hearings, 1959). In 1913, Raven and Barrows independently surveyed college programs and USDA conducted the first national survey of farm wives (published in 1915). USDA also produced the first of 400 educational films in 1913 (USDA, 1913; Perkins, et al., 1926; Scholl, 2001).

1914 and Beyond

When the vote for the Smith-Lever Act became critical, Martha Van Rensselaer was the national president of AHEA (Personal communication, 2007). She advocated effectively, strengthening the legislation for farm women. After 1914, she developed national food conservation programs with Herbert Hoover to support the military and ameliorate the widespread starvation in Europe. Considering what Extension professionals and farm women were able to contribute during the First World War and the Great Influenza Epidemic in 1918, it is fortunate that Cooperative Extension programs for farm women came along when they did.

Discussion

Though some homemakers complained that the government was spending money for single women to 'teach them how to cook and raise a family,' the new agents were excellent coordinators of community efforts and provided emotional, 'uplifting' support for farm women. Participants received resources and participated in cultural events. Earning additional money from produce and eggs, they often found a little independence. In fact, some farm women considered their home demonstration educator, "a slice of heaven come to earth in a Tin Lizzie" (Frysinger, 1919, p. 8).

In terms of equal rights for women, these early Extension home demonstration agents were a source of inspiration. They were among the first women to drive cars, occupy offices, and preside at meetings. Extension work gave early African American educators, such as Campbell and Peters, opportunities for professional development with white educators (Wilson, 1919) nearly half a century before civil rights legislation was enacted.

It is not known whether the true motivation of USDA and Theodore Roosevelt was to help farm women, aid farm productivity, or prevent the migration of farm people into the cities. What is significant is that USDA considered them business partners with their farmer husbands. Congress supported this new method of practical

education and proposed programs for all homes, not just those on the farms. In the hundreds of pages of legislative rhetoric, there was no mention that programs for farm wives should be to eliminated or reduced.

In 1914, U.S. Representative Gilbert Haugen of Iowa said, “All are agreed that with prosperity on the farm, we have prosperity in the city, in the shops and the mills. With close [hard] times on the farm, we have close [hard] times in the cities, crumbling banks and factories. All our interests are in common. We go up and down together. Why not take this important step? Why not provide in this bill, for education in home economics – not simply cooking, but in every science conducive to making homes better and more attractive” (p. 2449).

The co-authors of the Smith-Lever bill clarified their support. Hoke Smith, U.S. Senator from Georgia (1914) remarked: “It [the Smith-Lever bill] extends the work in the home in the line of domestic science; but it certainly is not expected that the instruction shall be given exclusively to persons upon whose land or in whose house the instruction is given” (p. 2903). Asbury Lever, U.S. House Representative from North Carolina, who could have been remembered for many accomplishments in his lifetime, had these words inscribed on his tombstone: “Here rests him, first to bring the existence of the rural woman as the moving force in rural life” (Tombstone 1940).

Conclusion

This paper affirms that concerns for farm women predated the Smith-Lever Act. Between the 1860s and 1914, agricultural research, educational changes, and the woman’s movement parallel the development of the home economics profession and Extension programs.

Over the years, family and consumer sciences agents have provided valuable like-skill information. It is important that we recognize these valuable contributions we’ve made and will continue to make to families.

Early Extension efforts integrated programs for black and white Americans and introduced rural communities to innovations and new role models. Organizations, lecturers, fiction, films, legal action, surveys, federal appointments, and institutional reports documented the situational needs of homemakers which led to the inclusion of Extension home economics in the Smith-Lever Act.

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Implications for Extension

YOUTH CAREGIVERS: AN URGENT CALL TO ACTION

Allison Goshorn

Approximately 1.4 million youth are family caregivers and their numbers are expected to increase as reliance on the family becomes a part of the national health care policy. Twenty-two percent of dropouts from middle/high school are due to caregiving. One study used a work-family interface model to explore how some employed family caregivers used positive behavior to promote their wellbeing. This model could be used to understand and support youth family caregivers. An urgent call to action goes out to Extension professionals who can respond with research, education and other extension activities.

Rosalynn Carter, former First Lady of the United States, said “There are four kinds of people in the world: those who have been caregivers, those who are caregivers, those who will be caregivers, and those who need caregivers” (Rosalynn Carter Institute for Caregiving, n.d.). What people might not know is that approximately 1.4 million of these caregivers were or are children aged 8 to 18 (National Alliance for Caregiving, 2005). While youth caregiving can significantly help the family, it can also take a toll on the children in this challenging role. This article reviews several studies and reports that explored family caregiving and sounds an urgent call to action to Extension professionals.

Who are the Family Caregivers?

Family caregivers may be neighbors, friends, partners or relatives who provide on-going help (full-time or part-time) and assistance to people who are ill, frail, or disabled (Next Step in Care, 2015). The care recipients could be adults or children who have a chronic illness or disability, or a frail or cognitively impaired older person (Next Step in Care, 2008).

Most people know an adult friend or family member who is or has been a caregiver – but what about a child or teen? Studies show that children as young as eight years old are providing care for their families. Twenty-nine percent (65.7 million) of the U.S. adult population (National Alliance for Caregiving, 2015) and 1.3 – 1.4 million youth are family caregivers (National Alliance for Caregiving, 2005). The number of young caregivers comes as a shock to many. This feeling is understandable as these youth are referred to as the silent or hidden caregivers due to a lack of visibility and awareness of their situation.

Youth are often in caregiving roles due to the absence or inability of an adult family member. While there are a variety of reasons for adult family member's inability to serve as a caregiver, one is employment. Twenty-two million or 14.6% (, n.d.) of the approximately 130 million American workers (Thompson, Smith, & Bybee, 2005) are also family caregivers.

The number of family caregivers, including youth, will likely increase as reliance on family support networks is expected to be a major part of the national health policy in the United States (American Medical Association, n.d.). Family caregiving helps care recipients and caregivers avoid the costs of home care or nursing home services. The estimated value of unpaid family caregiving services is \$350 - \$450 billion dollars, and 2.4% or \$8.5 billion is the youth caregivers' contribution (Viola, et al., n.d.). That is almost twice the cost of paid home care and nursing home services combined (Caregiver Action Network, n.d.) and equal to Wal-Mart's total sales in 2009 (Feinberg, et al., 2011). While family caregiving provides a valuable service, its negative impact can be far-reaching.

What is the Impact of Caregiving?

Gail Hunt, President and CEO of the National Alliance for Caregiving, noted many young caregivers are from low-income, single-parent households. Almost a third of youth caregivers help a loved one with at least one activity of daily living (e.g. bathing, dressing or feeding). It is not unusual for youth caregivers to fall behind in school, lose sleep, and struggle with anxiety or depression. Sadly, few tell their teachers about their caregiving responsibilities and 58% report that they are too worried to concentrate on their schoolwork. Most of these children note having high levels of stress, losing friends and being unable to participate in afterschool activities. (National Alliance for Caregiving, 2005).

Several studies investigated the impact of caregiving and on school participation and performance. One study, commissioned by the Bill and Melinda Gates Foundation, found that 22% of high school dropouts are due to caregiving demands (Bridgeland et al., 2006). In a second study, Pakenham and colleagues (2006) found that caregiving youth were at an increased risk for excessive absences from school. A third study looked more closely at the relationship between caregiving and academic performance of Latino youth and found that that middle school students, boys, and those with families that spoke Spanish in the home appeared to be more impacted by their caregiving role (Diaz et al., 2007).

In a recent study, Goshorn (2013) explored the potential positive behaviors used by some adult working family caregivers to promote their performance, health and well-being despite the challenges of family caregiving. The guiding theory for this study was Voydanoff's (2008) Fit Perspective of the General Conceptual Model of the Work-Family Interface (FPGCMWFI). The model is based on seven constructs (context, demands, resources, boundary-spanning strategies, balance, fit/linking, and performance and wellbeing) that are described in Table 1. Ten employed family

caregivers participated in a semi-structured interview that was based on the seven constructs.

Goshorn's (2013) key finding was that employed family caregivers used a variety of resources and strategies to engage in health-promoting behaviors that were intended to enhance their work-family-caregiving performance and wellbeing. One inference, based on this study, is that adult family caregivers may use youth caregivers as a resource or boundary-spanning strategy to help meet their demands in the work-family-caregiving domains. In turn, the youth must use strategies and resources to meet the demands of their school-family-caregiving domains. The teen who chronically misses school or shows up late for 4-H meetings may not be lazy or irresponsible; they may be in charge of getting a grandparent with Alzheimer's disease to take their medications. Caregiving families may need help in finding resources and strategies to balance the work-school-family-caregiving demands.

The Case of Jose: How do the FPGCMWFI Constructs Apply to Youth Caregivers?

The case of Jose is a fictional, composite profile based on commonly reported characteristics of youth caregivers. Voydanoff's (2008), constructs presented above and defined in Table 1, are illustrated in this case using a construct based question.

Context. Jose is a 13-year-old male enrolled in a traditional middle school. He lives in a rural, single-parent home where Spanish is the primary language. Jose is a youth caregiver for his sibling and aging grandfather. His sibling was injured while serving in the military, and his grandfather has Alzheimer's disease.

Demands. Feeling isolated from friends and school activities is common for Jose, and he worries about how to manage meals, medication and complex medical care for his sibling and grandfather.

Resources. Jose's worry and isolation could be mitigated if ample resources such as other caregivers,; academic support programs,; and training to manage meals, medications, and complex medical care are available and accessible.

Boundary-spanning strategies. Strategies such as a combination of home-based and traditional school, use of technology, mentors with disease/condition-specific experience, youth caregiver coalitions and affiliation with supportive organizations (e.g. 4-H or faith-based) are resources that could help Jose navigate the boundaries between the school-family-caregiving domains.

Fit/balance/performance/wellbeing. Key people (e.g. family, friends, healthcare providers and professionals) in Jose's life need to use a variety of assessment tools to determine his perceived level of caregiver burden and wellbeing (fit/linking) and then identify interventions that support his success, health and wellbeing (balance, performance/wellbeing).

Responding to the Call to Action: What is Extension's Role?

Extension is committed to research, education and other interventions that are critical to responding to the multiple needs of youth caregivers like Jose and others.

Extension's network of land-grant institutions is uniquely positioned to answer the call to action on behalf of youth caregivers and their families. This exceptional capacity to respond is evidenced through the work of The National Extension Association of Family and Consumer Sciences (NEAFCS) and eXtension.

According to its website, NEAFCS educates and recognizes Extension professionals who improve the quality of life for individuals, families and communities. The organization provides education in food preparation, food safety, nutrition, financial management, healthy lifestyles, home and work environment, safety, and relationship and parenting skills. (NEAFCS, n.d.)

eXtension's Family Caregiving Community of Practice builds on the land-grant universities tradition by creating, including, and linking to educational resources for family caregivers. Extension faculty and staff at the local, state and national levels have worked cooperatively with numerous partners to bring researched-based information to family caregivers. These partners include AgrAbility, Association on Aging, The Brookdale Foundation Group, Center for Medicare and Medicaid Services, Easter Seals, Generations United, National Alliance for Caregiving, Caregiver Action Network (formerly National Family Caregivers Association) and the Rosalynn Carter Institute for Caregiving. (eXtension, n.d.)

What is 6-F?

The 6-Fs represent six practical action steps Extension educators and others can take to inform stakeholders about youth caregivers' needs and to use resources and interventions to make a positive difference in families and communities. The 6-Fs are based on Goshorn's (2013) findings regarding the utility of Voydanoff's (2008) FPGCMWFI and the assertion that this model may apply to youth caregivers attempting to navigate the student-family-caregiving domains. The 6-Fs are focus, find, form, fit, figure and future research.

Focus. Establish a community-based coalition of advocates to focus on youth caregiving issues. Communities can unite to assess needs, pool resources, develop strategies and evaluate the impact. The Caregiving Youth Project (CYP), launched by Connie Siskowski, founder and president of the American Association of Caregiving Youth, is one example. A 2002 survey of sixth to twelfth-grade youth (Boca Raton, Florida) showed that 50% were contributing to the care of someone with a medical need. This community had a higher than average incidence of people needing assistance from family caregivers. In response to this need, the CYP was implemented in two middle schools and then in 2007 was expanded to eight with funding from the Robert Wood Johnson Foundation. Students were assessed annually to determine their caregiving responsibilities and then referred to community resources for individual and family support. One CYP success story was the increased number of caregiving students that a) graduated from high school and b) enrolled in post-secondary schools. (Jablow, 2013).

Find. Assess the unique needs of the youth and families and find available

resources for meeting the demands. Examples of useful tools and resources are: a) technology (iPhone Apps for Caregivers, remote monitoring, games for fitness, medication management, and care coordination), b) school accommodations (tutors, online and home school options) c) personal care services (meal preparation, respite care, and medication management) and d) disease specific information through mentors, support groups and websites.

Form. Form programs and services that support and nurture youth caregivers and their families. Goshorn (2013) found a general consensus supports the notion that positive relationships with others (e.g. teachers, health care providers, youth group leaders, friends, and family) are critical to a caregiver's sense of fit or that "I got this" feeling that positively contributes to performance and well-being. Creating opportunities for affiliation with others through classes, coalitions, focus groups, health fairs, health screenings, hotlines, and mentoring promote connection, confidence, and well-being. Brown et al., (1999) stressed the importance of providing health-promoting programs at a time and place convenient to caregivers and their families (e.g. home, neighborhood, church or school).

Fit. Use Voydanoff's (2008) Fit Perspective of the General Conceptual Model of the Work-Life Interface as a framework for assessment, program planning, and evaluation. Train key stakeholders to understand the constructs, defined in Table 1, and design construct-based questions to promote ongoing assessment and intervention.

Figure. Figure refers to the on-going need to measure the impact of effort made by individuals, organizations, and communities. Health promotion initiatives should show a return on investment and may be measured by any number of criteria such as absences, dropouts, knowledge and skill gained in delivering complex medical care, number of mentoring hours, or reduction in exposure to prescription medication.

Future. Future research on the experiences of youth caregivers is needed as few studies have explored this issue. Studies that replicate Goshorn's (2013) study or the CYP (Jablow, 2013) would be useful.

Summary

The approximately 1.4 million youth caregivers are playing a significant role in family caregiving but at a great cost to their academic performance, health and overall wellbeing. It is time to sound the urgent call for action to address these issues and answer with research, education and other activities that will improve caregiver quality of life. A previous study using the Fit Perspective of the General Conceptual Model of the Work-Life Interface was presented as a useful model for working with adult family caregivers and may offer potential for working with youth as well; additional research is needed. Also, the 6-F model presents a framework for assessment, intervention, and evaluation. Further research is needed as few studies have studied the needs of youth caregivers.

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Table 1: Constructs, Definitions and Questions Based on the Fit Perspective of the General Conceptual Model of Work-Family Interface (FPGCMWFI)

Construct	Definition	Construct-Based Question
Context	The environments in which the individuals live, work, study and give care.	What is the context of the youth/family situation?
Demands	The psychological or structural claims associated with role requirements, expectations and norms to which the individual must respond or adapt by exerting mental or physical effort.	What demands are impacting the youth/family?
Resources	The psychological or structural assets that are available and may be used to facilitate performance, reduce demands or generate additional resources and can improve role performance, quality, and well-being when used.	What resources are being used or could be used by the youth/family?
Boundary-Spanning Strategies	The actions taken by individuals and families to reduce or eliminate the mismatch between work and family demands and resources.	In what ways are or could the youth/family reduce the mismatch between school-family-caregiving demands?

Balance	The global assessments made by an individual about the sufficiency of resources to meet the demands such that participation in the different roles is successful.	How confident is the youth/family in their ability to satisfactorily meet the school-family-caregiving demands?
Fit/Linking	The cognitive appraisals made by an individual about the effects of one domain on the other. These appraisals are used by the individuals to determine whether an experience is or has the potential to effect their well-being in positive or negative ways.	Does this situation have an overall positive or negative impact on the youth/family's performance and wellbeing?
Performance/Wellbeing	The global assessments made by an individual about how the outcomes of their various roles impact their performance and wellbeing.	How successful is the youth/family in their school-family-caregiving efforts?

Graphics and Pictures



A youth caregiver, a care recipient and a family caregiver.

Note: The author, Allison Goshorn, was an employed family caregiver for her mother (shown above center) for six years. Also, her two elementary-aged daughters were youth caregivers (youngest daughter shown above left). A family friend and caregiver is shown above right.

Implications for Extension

Strategies Across the Spectrum: Spectrum of Prevention as a Decision-Making Tool in Extension

Anne Dybsetter, Mary Schroeder, and Kelly Kunkel

Spectrum of Prevention is emerging as a viable framework and decision-making tool for assessing, developing, implementing, and evaluating Extension programming. As an organizing framework, the Spectrum of Prevention focuses on opportunities for programmatic intervention. Extension can adopt this framework as a decision-making tool to enhance programming and ensure positive impacts across multiple levels of the Spectrum. Extension Educators can use the Spectrum of Prevention to maximize impact even with limited resources by strategically addressing environment, systems, and policy along with individual behavior.

Extension programs are grounded in education for public benefit. In Health and Nutrition programming, that has often meant teaching knowledge, behaviors and skills to individuals, communities, and service providers. However, as population-wide, chronic disease prevention approaches have become preeminent, Extension work in Health and Nutrition has been heavily influenced by frameworks that consider systems and environments in addition to individuals and communities. The Spectrum of Prevention is one such framework that “identifies multiple levels of intervention and encourages people to move beyond the perception that prevention is about teaching healthy behaviors” (Prevention Institute, n.d.)

Other theoretical frameworks have also stressed the importance of environment and policy in obesity and diet-related health. For example, the social ecological model includes environmental settings, sectors of influence, and social/cultural norms and values (U.S. Department of Agriculture [USDA] & U.S. Department of Health and Human Services [DHS], 2010, p. 56). Many of these frameworks focus on health *behaviors*: “The core concept of an ecological model is that behavior has multiple levels of influences” (Sallis, Owen, & Fisher, 2008, p. 466). While closely related, the Spectrum of Prevention focuses not on behaviors but rather on *interventions* to improve public health, highlighting “the importance of ‘upstream’ strategies such as changing community or organizational environments, practices, and policies” (Kumanyika & Obarzanek, 2003, p. 1269).

The USDA’s guidance for the Supplemental Nutrition Assistance Program - Education (SNAP-Ed) in fiscal year 2013 for the first time referenced the social ecological model and allowed implementation of policy, systems, and environmental

changes, “comprehensive, multi-level interventions,” and “community and public health approaches to improve nutrition” (USDA, 2012, p. 8). As a result, health and nutrition efforts across the country moved to consider a broader range of potential interventions. In this emerging context, a decision-making tool is needed to select among multi-level, public health approaches, identifying suites of strategies most likely to be efficient and effective. In University of Minnesota Extension Center for Family Development’s Health and Nutrition programs (Health and Nutrition), we are testing the usefulness the Spectrum of Prevention as just such a decision-making tool. In this article, we will discuss findings and implications using examples from food and nutrition programming for child care settings.

Programmatic Context

In recent years, Health and Nutrition programs have been impacted by developments at both national and state levels. Developments at the national level included changes to the SNAP-Ed Guidance as described above, as well as the Healthy, Hunger-free Kids Act of 2010 and the 2014 Farm Bill. In Minnesota, developments at the state level included the Minnesota Food Charter and the stabilization of funding for Minnesota’s Statewide Health Improvement Program. These developments all point in the direction of large-scale social change for population-wide health improvement, and consequently demand broad, cross-sector coordination. At the same time, however, funding has been uncertain and in many cases restricted.

In response to these developments and challenges, Health and Nutrition implemented significant operational changes in 2014. Positions were re-organized and regionalized, job responsibilities were changed to include new approaches, and the number of staff was substantially reduced. Teams and work plans within Health and Nutrition were re-aligned across programs. A collective impact approach was embraced, resulting in a ramping up of partnerships and collaborations with diverse organizations and agencies. During this process, a Health and Nutrition “Portfolio Plan” was developed to serve as a business plan, outlining current and future work, with a sharper focus on public health approaches. Throughout both Health and Nutrition’s operational changes and the creation of the Portfolio Plan, the Spectrum of Prevention has been the new organizing framework.

During this same time period, Health and Nutrition Extension Educators initiated a greater emphasis on programming in child care settings. With the goal of increasing impacts on the health of young children, the team needed to make programming decisions about audience, content, objectives and evaluation, all within the capacity of a sharply-reduced staff. As Extension Educators undertook an initial assessment and began making decisions, the Spectrum of Prevention began to be used as a decision-making tool and increasingly served as a way to identify “comprehensive solutions” required by “complex problems” (Cohen, 1999, p. 203), even in the context of limited resources.

Applying the Spectrum

Health and Nutrition’s early strategies in the child care setting were modeled on University of Minnesota Extension’s strong history of developing and implementing trainings for the school food service (SFS) setting. Educators recognized that the successful SFS trainings could be adapted to other audiences who--like school nutrition professionals--were changing menus and practices to align with the 2010 Dietary Guidelines. Because changes anticipated to the Child and Adult Care Food Program (CACFP) used in child care settings were expected to be similar to those to the National School Lunch Program, Extension conducted an initial assessment to determine nutrition training needs of child care providers. The initial assessment took place just as Health and Nutrition began referencing the Spectrum of Prevention framework.

Table 1 <i>Child Care Programming Throughout the Spectrum of Prevention</i>	
Level of Prevention	Child Care Programming
6. Influencing Policy and Legislative Action	Explore opportunities to educate professionals and policy makers about how current and potential policies impact the health of young children.
5. Changing Organizational Practices	Include in all child care trainings a section on incorporating healthy eating and active living policies in the provider’s policy handbook.
4. Fostering Coalitions and Networks	Participate in the statewide Child Nutrition and Wellness Advisory Board and statewide Farm to Child Care coalition.
3. Educating Providers	Offer in-person and online trainings about nutrition and food skills for child care providers. Provider train-the-trainer materials.
2. Providing Community Education and 1. Strengthening Individual Knowledge and Skills	Provide general community and individual education through Health and Nutrition’s webpage and Facebook page.

In response to the initial assessment, a nutrition training modeled on SFS trainings was developed specifically for child care providers. As the training was piloted, Extension Educators reviewed the Spectrum of Prevention for opportunities to enhance the sustainable impact of the program. (See Table 1 for levels of the Spectrum and examples of child care programming.) In addition to the in-person training (Educating providers, Level 3), a component was added to encourage providers to draft healthy eating policies for inclusion in their child care handbooks (Changing organizational practices, Level 5). At the same time, Health and Nutrition educators and leadership made the decision to invest time and resources to support two statewide

coalitions related to child care environments (Fostering coalitions and networks, Level 4).

These positive experiences motivated the team to have the Spectrum of Prevention in hand while planning a new assessment of the child care environment, which will identify needs and opportunities that span multiple levels. For example, at the local level, this may mean increasing the sustainable impact of trainings (Educating providers, Level 3) by fostering local or regional coalitions of providers and health advocates (Fostering coalitions and networks, Level 4). Examples at a statewide level include contributing resources to the Farm to Child Care Coalition (Fostering coalitions and networks, Level 4) to increase Farm to Child Care activities around the state (Changing organizational practices, Level 5), or studying and reporting on how other states' policies impact Farm to Child Care programs (Influencing policy, Level 6).

Lessons Learned

While applying the Spectrum of Prevention as a decision-making tool, lessons were learned in all phases of Extension programming: assessment and planning, program development, and evaluation. When used as a guide to assessment, the Spectrum suggests new questions for consideration, for instance: How do child care provider networks influence feeding practices? How do child care quality-rating systems influence food environments? How do other states' child care policies impact childhood obesity prevention program? While planning programs, the Spectrum offers a system for prioritizing interventions to best use limited staff and resources by highlighting programs with the greatest opportunity for impact at multiple levels.

In the program development phase, partnering with coalitions and networks (Level 4) can enable Health and Nutrition to work with other agencies to change organizational practices (Level 5) and educate about relevant policy (Level 6). For example, by participating in the statewide Child Nutrition and Wellness Advisory Board, Extension Educators have become part of a web of support that includes child care licensing, CACFP, the child care quality-rating program, Head Start, and many other organizations invested in healthy environments for young children. When paired with Extension's strong history and expert role in implementing programs for behavior change at Levels 1, 2 and 3 of the Spectrum, the coordination made possible by Levels 4, 5 and 6 sets the stage for wide-scale health changes.

Finally, in the evaluation phase, development of tools to measure outcomes is ongoing. Health and Nutrition currently has proven expertise in evaluating programming at Levels 1, 2 and 3, and the Health and Nutrition Research and Evaluation team is currently developing tools to evaluate programming at levels 4, 5 and 6. A web-based toolkit has been created that provides samples of evaluation instruments for work at all levels; for example, tools such as ripple-effect mapping and reciprocity mapping are available to evaluate outcomes of coalitions and networks (Level 4).

Implications for your work

To optimally use the Spectrum of Prevention in your Extension programming, start by aligning current programming with the levels of the Spectrum. Determine which levels of the Spectrum are addressed, and identify gaps and opportunities to expand work across additional levels. When utilizing the Spectrum of Prevention in your work, consider:

- All levels of the Spectrum are important. Your work may lie more heavily at certain levels due to mission of the work, staffing capacity or community readiness.
- Organizations can successfully collaborate with other agencies and groups to address all levels of the Spectrum. For example, Extension cannot lobby for policy (Level 6) but can provide research, education and information about policy implications to address public needs.
- The Spectrum of Prevention can guide expansion and enhancement of current programs by identifying new approaches and new opportunities for collaboration.
- The Spectrum of Prevention can be utilized as a business-planning tool for current and future programs.
- The Spectrum of Prevention can be used as a tool for reporting to stakeholders such as advisory committees and boards. As an organizing framework, the Spectrum can clarify Extension's educational impact across the range from individual to community to policy.

Conclusion

The Spectrum of Prevention is emerging as a viable framework and decision-making tool for assessing, developing, implementing, and evaluating Extension programming. Considering environment and socio-cultural influences is not new to Extension, but the Spectrum of Prevention offers a framework for focusing on intervention opportunities. University of Minnesota Extension Health and Nutrition has adopted this framework as a decision-making tool to enhance programming and ensure positive impacts at multiple levels. The Spectrum can be used by Extension Educators to maximize impact with limited resources by strategically considering environment, systems, and policy along with individual behavior.

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Best Practices

A Successful Team Approach to Social Networking

Lisa Franzen-Castle, Alice Henneman, Kayla Colgrove, and Cami Wells

This article explains how our Extension team analyzed and used social media to collaboratively increase our outreach and effectiveness while lessening the amount of work for individual team members. It provides best practices for team involvement on sharing and using Facebook, Twitter, and Pinterest accounts.

Social networking is about engaging with others through interactions on various forms of social media. Use of social networking and social media in public and private sectors continues to grow as a means of sharing information. Social networking sites were used by 74% of online American adults as of January 2014 (Pew Research Center, 2014). Multi-platform use is rising with 52% of online American adults using two social media sites, which is an increase of 10% since 2013 (Duggan, Ellison, Lampe, Lenhart, & Madden, 2015a). The daily time spent on social networks, according to a Global Web Index survey, has risen from 1.61 to 1.72 hours from 2012 to 2014 (Mander, 2015).

Purpose

With 92% of business marketers using social media, up from 86% in 2013, the question has moved from whether to use social media to what types and how often (Stelzner, 2014). As marketers of education, Extension workers need to be in the social networking arena. Our purpose was to analyze and use social media that our Extension Food, Nutrition, and Health Team (hereafter referred to as the FOOD Team) could use collaboratively to increase our outreach and effectiveness and thereby lessen the amount of work for individual team members.

Method

The target audience was adult users of social media interested in food, nutrition, and food safety. Through social media, the team connected directly with consumers and with professionals who shared information with other professionals or consumers. FOOD Team members had their own individual professional social media accounts as well as shared Facebook, Twitter, and Pinterest accounts. This practice increased our social media options in the following ways:

- Designated team members shared responsibilities and decreased the time involved in managing social media.
- The public had more choices — they might connect with a specific Extension educator(s) or with an organizational account.
- Team members not directly contributing to a specific shared account were able to repost, repin, and retweet other team member's work.
- By sharing the responsibility for social media, there was more time to create engaging and visually appealing posts.

The ultimate goal of social media marketing is to drive people to a website or blog for more information and utilization of the product. Tweets of 140 characters, Facebook posts, and Pinterest pins limit the amount of information that can be shared. Great web content is not like the *field of dreams* where if you build it people will come. Social networking is designed to drive users to websites for additional information. Our social networking applications included active links to our websites or blogs for further educational information.

A description of and access to all of the social media sites, including newsletters and blogs, is housed on one web page. Before this web page, there was no simple way of telling others (general public and other Extension colleagues) how to easily connect with us. For marketing purposes, a printed handout was created and distributed at meetings describing how to electronically connect with our various social media, blogs and newsletters.

The team approach evolved over time with a core group of 4 nutrition Extension staff (one Extension specialist and 3 educators), starting with Facebook in winter 2012, Pinterest in spring 2012, and Twitter in fall 2013. The team used a monthly web-based food-themed calendar (focused on food and health related national days, weeks, and months) (Colgrove, Henneman, & Franzen-Castle, 2014) as an informal master calendar, had a coordinated newsletter and food news authorship sign-up, and coordinated staggered due dates for content contribution from other members. Primarily, information was personally developed by Extension staff. Other information that was shared was from organizations/associations that are from the US government (e.g., USDA, CDC, FDA), other university Extension offices, commodity food groups, and research-based nonprofit institutions (e.g., American Heart Association, American Diabetes Association). Posting frequency depends on team member capacity and what is practical. According to Lee (2015), it is recommended on average to post 5 times per day to Pinterest, 3 times to Twitter, and 2 times to Facebook. Specific reasons why platforms were chosen, how they were used, and number of additional team members (which included Extension specialists, educators, and assistants) are provided below along with a description of each. By designating various people to help with different types of social media, overall involvement was shared by the entire team (Table 1).

Reasons for Selection of Specific Social Media Applications for Team Use

Pinterest. Collectively there were 17 group Pinterest pinboards in our team account. The group pinboards were established using Pinterest’s online directions (Pinterest, n.d). Designated staff with expertise in a certain area pinned to both their personal and group Pinterest pinboards at the same time. Depending on the board topic, there were anywhere from 1 to 11 pinners sharing a pinboard, with an average of 5 pinners per board. This practice broadened the exposure to the pins and lessened the amount of time any single person needed to pin.

Reason for choosing Pinterest. Pew Research Center data indicates 28% of American adult Internet users (22% of the entire adult population) use Pinterest (Duggan, Ellison, Lampe, Lenhart & Madden, 2015b). The “Food and Drink” category is the most popular category on Pinterest among men and women, making it a natural platform for sharing food, nutrition, and food safety information (Chang, Kumar, Gilbert, & Terveen, 2014).

Facebook. Five FOOD Team members shared the responsibility for posting to the Team’s Facebook page. Other team members further shared the information through personal and county Facebook accounts.

Reason for choosing Facebook. A Pew Research Center survey (Duggan et al., 2015b) found Facebook remains by far the most popular social media site, with 71% of American adult Internet users and 58% of the entire adult population on Facebook. It is considered the “home base” for people who use only one site. Approximately 80% of those who use only one site use Facebook (Duggan et al., 2015a).

Twitter. Four team members shared tweets relevant to the FOOD Team through both group and personal accounts. Twitter describes how to connect multiple Twitter accounts in its social media dashboard application, TweetDeck (Twitter, n.d.). The Team created a group hashtag for ease of retweeting posts. This simplified and increased our outreach.

Reason for choosing Twitter. Twitter is another social networking application that continues to grow and is particularly popular among the college-educated. Twenty-three percent of online American adults currently use Twitter, up from 18% in 2013 (Duggan et al., 2015b). Twitter especially helped us network with other professionals.

Enhancement of Group Social Media Efforts through Images

Social media research indicates using images in posts increases effectiveness through generating more Facebook “likes” (Corliss, 2012; Ross, 2014) and getting more retweets (Cooper, 2013; Rogers, 2014). Pinterest is also structured entirely around images. By collaborating, less time is spent by each individual creating engaging images and the quality images may be easily shared. The same image is optimized for other social media outlets (Figure 1) with an online design platform that quickly creates photo layouts suitable for the web, social media, and print (Canva, n.d.). This application helps size photos to the correct dimensions for various forms of social media, adds text, and includes various design elements.

Findings

The team approach to social media amplified our efforts in the following ways: 1) easier to share posts with quality images that other staff can use; 2) different team members have varied networks that otherwise would not be reached; 3) access to different areas of expertise to create high quality posts in a variety of nutrition and health-related areas; and 4) share the responsibility of posting over a variety of time slots throughout different times of the day and week. Our team chose to use specific social media platforms as a driver back to our website with the intent of increasing pageviews. Since implementing a team approach, Google Analytics revealed visits to our websites from various social media applications have continued to increase. Data from August 2012 compared to 2014 show about a 67% increase in the number of pageviews due to social media (13,000 versus 21,658). Followers and likes for our FOOD Team group accounts were (as of December 2014):

- **Pinterest:** 5,245 followers across 17 boards.
- **Twitter:** 120 followers of team account plus 3,623 additional followers of the four team members whose tweets reach both the FOOD Team Twitter account and their own.
- **Facebook:** 456 “likes.”

Discussion

By using a group approach to social media, the FOOD Team was more effective. We began by having team members most familiar with a specific form of social media do the initial posting, pinning, or tweeting from a team account. Next, we provided hands-on training and practice to help other team members learn how to use social media. When working as a team, it was important to emphasize that everyone does not have to become proficient in all forms of social media. Rather, members chose one or two forms of social media in which they wanted to become especially skilled.

As with all team efforts, specific challenges were faced throughout the process. The team did not have a formal master calendar for social media postings and this is something our team is going to develop in the future to further enhance and coordinate social media efforts. There were attempts to do larger group trainings around social media, but we found that small group and one-on-one trainings were more effective due to varying levels of comfort with and adoption of technology. Also, a strategy that was found to be more effective was having a smaller core group to coordinate and manage team social media accounts and then incorporate other team members at large to help provide content. In the future, our team is going to explore how to better engage with other research-based and unbiased entities and groups through reposts, likes, and comments. The team has also started looking at ways to evaluate social media marketing (Franzen-Castle & Henneman, 2012), how to encourage others to repurpose materials to digital platforms (Franzen-Castle, Henneman, & Ostdiek, 2013), whether online content may be impacting behavior (Henneman & Franzen-Castle, 2014; Franzen-Castle, Henneman, Brison, Schneider-Miller, Urbanec, Losey, & Jones, 2015), and how online information distribution and access is changing (Henneman, Franzen-Castle, Colgrove, & Singh, In Press).

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Table 1

Table 1	
<i>Summary of Social Media Shared by Team</i>	
<u>Social Media</u>	<u>Method of sharing</u>
Pinterest	Team Pinterest account with pinboards shared by designated team members with expertise in that area. Other team members repinned from the Team account to their individual and county Extension pinboards.
Facebook	Team Facebook account with selected team members designated as administrators who could post to the board. Other team members shared content from this team board to individual and county Extension boards.
Twitter	Team Twitter account with selected team members connecting this account with their own Twitter account through TweetDeck so they could post to both at the same time.



Pinterest



Twitter



Facebook

Figure 1: Optimizing images for different forms of social media (relative shapes and not sized to scale). Photo illustrations created by author, Alice Henneman, from personal original photos.