

# Using Cognitive Dissonance to Evaluate Extension Impact in Rural Communities

Tatevik Markosyan<sup>1</sup>  
Catherine Sanders<sup>2</sup>  
Alexa Lamm<sup>3</sup>

## Abstract

*New approaches are needed when working in rural communities to identify and communicate holistic evaluation impacts related to community-based health promotion efforts of Cooperative Extension. Specifically, there is a lack of recorded long-term programmatic impacts of these programs, including behavior changes related to consuming nutritious and healthy food. The current study explored rural community members' experiences with cognitive dissonance in relation to decreased adult obesity and the adoption of healthier food consumption practices related to an extension health promotion program, as cognitive dissonance can help explain several motivational components of potential behavior change. Through a qualitative research design using a thematic analysis of focus group data, the authors observed an overall positive association between community members' experiences with cognitive dissonance, resulting in the acceptance of healthier food choices over inherited unhealthy practices, increased knowledge and awareness about nutrient-dense food, and increased physical activity. The cognitive dissonance framework revealed positive indicators of long-term programmatic impact related to food choice and consumption patterns. However, the analysis also indicated that while interventions improved access to resources, socio-economic barriers still existed that would ensure sustainability and depth of positive changes leading to long-term behavioral change in rural communities.*

## Introduction

Evaluation has long been an integral component of extension programming, as extension programs involve interrelated and multilayered measures for delivering educational and resource-based interventions aimed at community development primarily using public funds (Lamm & Israel, 2011; Seevers & Graham, 2012). These measures include but are not limited to needs assessments, program planning, design, and implementation that involve stakeholders in the process (Franz et al., 2015). Evaluating the impacts and sustainability of such multilayered approaches can be challenging and overwhelming due to their context-dependent nature, variability of methodologies and toolsets applied for measuring, as well as a different interpretation of concepts of impact and sustainability (Bélanger et al., 2012; Borron et al., 2019; Fernández-Díaz et al., 2017; Moldan et al., 2012).

Impact evaluations (IEs) generate evidence for greater accountability, innovation, and learning (Gertler et al., 2017). IEs strengthen program implementation quality, lead to more efficient interventions, increase program efficacy, and enhance accountability and visibility for results (Díaz et al., 2019; Gertler

---

<sup>1</sup> Tatevik Markosyan is a Doctoral Student in the Department of Agricultural Leadership, Education and Communication (ALEC) at the University of Georgia, 145B Four Towers, Athens, GA 30602, [tatevik.markosyan@uga.edu](mailto:tatevik.markosyan@uga.edu). ORCID# <https://orcid.org/0000-0002-6465-595X>

<sup>2</sup> Catherine E. Sanders is an Assistant Professor and Extension Specialist of Food Systems Communication in the Department of Agricultural and Human Sciences at the North Carolina State University, 221 Ricks Hall, 1 Lampe Dr., Raleigh, NC 27606, [catherine\\_sanders@ncsu.edu](mailto:catherine_sanders@ncsu.edu). ORCID# <https://orcid.org/0000-0001-5787-8752>

<sup>3</sup> Alexa J. Lamm is a Professor of Science Communication in the Department of Agricultural Leadership, Education and Communication (ALEC) at the University of Georgia, 132 Four Towers, Athens, GA 30602, [alamm@uga.edu](mailto:alamm@uga.edu). ORCID# <https://orcid.org/0000-0003-1999-8803>

et al., 2017). IEs of Extension programs continue to evolve and expand, requiring new methodologies, such as the appreciative inquiry approach, which help to improve the quality of conducted evaluations and demonstrate the holistic impact of Extension programs (Lamm et al., 2021; Lamm & Lamm, 2018). Furthermore, evaluators continuously search for innovative approaches and methodologies to better address the needs of the populations they work with and enhance the efficacy of implemented initiatives while accurately communicating the outcomes of behavioral change initiatives (Seevers & Graham, 2012). These efforts also include tackling evolving and complex challenges, responding to changing population demographics, and meeting the needs of non-traditional audiences (Narine & Ali, 2020).

Growing evidence suggests obesity remains one of the most significant challenges facing the public health system in the U.S., with an obesity prevalence increase of 41.9% from 2017 to March 2020 (CDC, 2020). Georgia has one of the highest obesity rates, with a 34.3% adult obesity rate (CDC, 2022). On a global scale, nutrition is at the core of the United Nations Sustainable Development Goal (SDG) 2 “End hunger, achieve food security and improved nutrition and promote sustainable agriculture” (United Nations, n.d.). The 2030 Agenda for Sustainable Development also recognizes the importance of prevention and treatment of non-communicable diseases and promotion of mental health and well-being, for instance, SDG 3 “Good Health and Wellbeing,” Target 3.4, where the respective measurement Indicator 3.4.1 is: “Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease” (United Nations, n.d.). The Centers for Disease Control and Prevention (CDC), through the High Obesity Program (HOP), aims to leverage community-based extension professionals to ensure access to healthier foods and safe and accessible places for physical activity in counties with an adult obesity rate of over 40% (CDC, 2020; Kahin et al., 2020). To address HOP’s primary objective, the Healthier Together (HT) project, a community-based health-promotion intervention, was designed by the University of Georgia. HOP program goals include enhancing access to nutrient-dense and healthy food, as specified in the CDC HOP Notice of Funding Opportunity (NOFO) Implementation Guideline’s referral to Dietary Guidelines for Americans 2015-2020 and which may help prevent or reduce the occurrence of diet-related chronic disease (Kahin et al., 2020; CDC, n.d.). For the purposes of this study ‘healthy food’ was aligned with and follows the CDC HOP Implementation Guidelines.

An impact evaluation approach was utilized throughout the HT project to measure change using an overall multilayer model of innovation measurement (Sanders et al., 2022). One of the primary formative evaluative findings indicated inconsistencies between community perceptions of themselves and why they were selected for the intervention (e.g., high adult obesity rates). The need to further study the cause of inconsistencies emerged during the formative evaluation and the first round of focus groups with community coalitions. One concept that emerged based on identified inconsistencies was cognitive dissonance. While the current study focused predominately on cognitive dissonance, exploratory perspectives on food access as a barrier to programmatic impact were studied further by Sanders et al. (Sanders et al., 2023). Thus, the current study aimed to explore coalition members’ experiences with cognitive dissonance and its subsequent impact on the HT project’s overarching target outcomes – decreased adult obesity rate and adoption of healthier food consumption practices. The current study aimed to explore the role of cognitive dissonance in fostering health promotion in rural communities to identify its role in program impact as well as better understanding disconnects between intended and actual behavior change, including challenges related to motivation, accessibility, and the surrounding context. This study aligns with and supports the vision of fostering healthy living through human nutrition program evaluation efforts and examining social dynamics in human sciences by focusing on program development and evaluation to promote community vitality (AAAE, 2023).

### **Theoretical Framework**

The theoretical framework utilized was the theory of cognitive dissonance (Festinger, 1962). The theory of cognitive dissonance is rooted in social psychology but applied in various disciplines. The

terminological analysis explains the basis behind it - cognitive, the same as thinking or mind, and dissonance, denoting conflict or inconsistency (Stone et al., 1999). The theory suggests “1) dissonance is psychologically uncomfortable enough to motivate people to achieve consonance, and 2) in a state of dissonance, people will avoid information and situations that might increase the dissonance” (Stone et al., 1999, p. 183). Wicklund and Brehm stated that “[t]he relationship between two cognitive elements is consonant if one implies the other in some psychological sense” (Wicklund & Brehm, 2019, p. 2).

Stone et al. (1999) discussed that dissonance is a thought-provoking process leading to a desire to reduce dissonance. However, dissonance-reducing actions depend on the magnitude of the dissonance experienced (Wicklund & Brehm, 2019). Given dissonance is an uncomfortable state, people tend to achieve consonance either by changing behavior or seeking information that is consonant with existing behavior (Chaudhary et al., 2018). For instance, people continue to consume unhealthy food while being aware of its direct negative impacts on health. When experiencing dissonance by learning that eating vegetables and fruits help to lose weight, people may either start consuming more vegetables and fruits to achieve consonance or by justifying their behavior in other ways, such as feeling that it is costly to buy healthy food every day. However, it is difficult to explain a range of human behaviors and intentions through the lens of the theory solely due to the complexities of human information processing (Stone et al., 1999).

Cognitive dissonance is a state of mental discomfort resulting from conflicting beliefs, values, or attitudes. Factors for dissonance vary and may be traced to logical inconsistencies, cultural mores, generalizing specific opinions, and past experiences (Festinger, 1962). Freijy & Kothe (2013) identify five major paradigms triggering the state of dissonance, among which the “belief disconfirmation paradigm” and “induced compliance paradigm” (p. 311) inform this study further. According to the first hypothesis, when individuals are presented with information that contradicts their existing beliefs, it triggers a state of cognitive dissonance. If they are unable to modify their beliefs, they may respond by rejecting or denying the conflicting information. Alternatively, they may seek out others who share similar beliefs to restore a sense of consistency. In the case of the “induced compliance paradigm” when participants act in a manner that contradicts their existing attitude and are given minimal justification for doing so, they are expected to experience cognitive dissonance. It is suggested that dissonance can be alleviated by subsequently modifying future behavior or attitudes (Freijy & Kothe, 2013).

The theory has been previously applied to political election campaigns, and mental health studies (Cooper, 2019). Research indicated dissonance-based interventions have generally positive results when used for health behaviors (Freijy & Kothe, 2013). For example, Freijy and Kothe (2013) shared non-clinical health behavior changes under dissonance-based interventions, which successfully impacted behaviors such as water conservation, energy conservation, smoking cessation, reducing racism, and promoting generosity. The evidence supporting the efficacy of dissonance-based interventions is particularly strong in eating disorder prevention (Stice et al., 2011). However, there are few studies examining the effect of cognitive dissonance on food and nutrition. Cooper (2019) stated that contemporary research shows “an accelerating trend for dissonance to be translated to real-world problems from the business world to health, politics and more” (p. 7). Therefore, developing campaigns focused on the choices made to consume nutritious and healthy food needs to be explored further using dissonance as possible avenue for change (Ong et al., 2017).

Diverse disciplines have applied cognitive dissonance to study its effect on intentions and attitudes, leading to behavioral change (Acharya et al., 2018; Jeong et al., 2019; McGrath, 2017; Rothgerber, 2020). Theoretical and experimental studies of cognitive dissonance demonstrated how dissonance-based interventions trigger motivation, which is considered one of the essential factors for pro-health behavior (Cooper, 2019). Cooper (2019) stated,

The smoker wants to quit, the obese person wants to exercise and diet, and the sunbather, wants to be protected from skin cancer. Because these behaviors are pro-attitudinal rather than counter-

attitudinal, the best way to achieve change is to arouse the dissonance-based motivational drive of hypocrisy (p. 9).

With the recognition that dissonance-based interventions are generally positive for health behaviors, few evaluations incorporate concepts of cognitive dissonance when assessing behavior change in health promotion interventions. Furthermore, there are still limited studies on how cognitive dissonance influences healthy behaviors (Freijy & Kothe, 2013; Ong et al., 2017) and may provide insights for extension professionals working on health promotion initiatives.

### **Purpose and Research Questions**

The purpose of this study was to explore cognitively dissonant behavioral intentions and experiences of community coalition members in four of the counties involved in the HT program related to the overarching impacts: decreased adult high obesity and adoption of healthier food consumption practices. The specific research questions guiding the study were:

RQ1. What cognitively dissonant behavioral intentions and experiences did community members describe related to the HT program?

RQ2. To what extent did cognitively dissonant behavioral intentions and experiences affect the achievement of overarching HT programmatic outcomes?

### **Methods**

The current study used a qualitative research design through a thematic analysis of focus group data to “understand situations in their uniqueness as part of a particular context and the interactions there” (Patton, 2015, p. 1). Focus groups were conducted with community-based coalitions in Calhoun, Clay, Stewart and Talliaferro counties in Georgia, all of whom participated in the HT program. The focus group design was grounded in the social constructivism epistemology (Agius, 2013; Bandura, 2001; Fiske, 1995; Merriam, 2009). Social constructivism emphasizes the role of social interactions in constructing knowledge (Agius, 2013; Bandura, 2001; Fiske, 1995; Merriam, 2009). Crotty (2020) further elaborated “the ‘social’ in social constructivism is about the mode of meaning generation and not about the kind of object that has meaning” (Crotty, 2020, p. 55). In the context of HT study, semi-structured focus groups were chosen to facilitate the exchange of ideas and perspectives among community members. Grounded in social constructivism theoretical perspectives these focus groups aimed to explore the participants' shared understanding of the HT program and its impact within the socio-cultural, socio-economic context of their communities (Agius, 2013; Bandura, 2001; Fiske, 1995; Merriam, 2009). Social constructivism further outlines sampling of participants is aimed at facilitating the most thorough and valid representation of appropriate data, aiming to present a complete and detailed view of individual realities rather than a universally applicable approach (Boyland, 2019).

### **Background and Context**

The HT program is a comprehensive approach addressing issues related to high obesity in rural communities of Georgia. The project is funded through a cooperative agreement with the CDC's High Obesity Program, managed by the University of Georgia's College of Public Health and implemented by the University of Georgia Cooperative Extension. The project focused on community development through health promotion, specifically by implementing and maintaining community gardens, establishing grab-n-go coolers, partnering with food banks to increase the distribution of healthier food options to the communities. The project also promoted increased physical activity by renovating and connecting walking and mixed-use paths, establishing walkability signs, connecting everyday destinations, built or installed as a result of new or improved plans or policies.

HT is implemented through community coalitions consisting of community member representatives from multiple sectors, including healthcare workers, religious and educational institution

workers, local business owners, and active community members (Christens et al., 2021). Community-based coalitions share leadership, pertain decision-making roles, and utilize the group's strengths for local community development (Christens et al., 2021). The community coalitions of the HT project were organized voluntarily, with no limitations on the number of participants in each county. The HT community coalitions, organized at the initial phases of the project and consisting of community members were established to oversee the development, decision-making, and execution of community-level initiatives (Sanders et al., 2022). Members of the coalition voluntarily chose to engage in the HT project, driven by factors such as their community roles, connections with project and Extension staff, or a general interest in the implementation of a project in their community related to the health promotion (Sanders et al., 2022). The community coalition members were predominantly local community residents deeply rooted with social and cultural connectivity in their neighborhoods, possessing well-maintained networks and robust connections to their communities. In their collective learning efforts, the coalition members collaborated with and received support from extension professionals who had already been working in those communities. Further, community coalitions' efforts were supported by Extension specialists and respective faculty of the University of Georgia (Sanders et al., 2022). All community-based coalitions received funding through a cooperative agreement with CDC and University of Georgia which was utilized for establishing and maintaining community and school gardens, creating walking trails and signage, ensuring access to healthy and nutritious food through grab-and-go coolers, health-conscious meals from churches, schools, and nurseries (Sanders et al., 2022).

### **Data Collection**

Semi-structured four focus groups were completed during May and June 2022 in person and were conducted during the regular coalition meetings which helped to ensure extended participation of coalition members. Forty members of community-based coalitions in four counties engaged in the HT program participated in the focus groups. The focus groups varied in duration in each community-based coalition and lasted an average of an hour and a half. No data on demographics of community coalition members was collected due to the voluntary nature of coalition participation as well as conducting the focus groups as part of scheduled coalition meetings in the county. Additionally, due to the high turnover of coalition members, there was not a consistent membership roster available to calculate participation rates of coalition members in the focus groups. However, research findings in the context of community coalitions role in community development indicate that the engagement of individual participants in various roles within a coalition is likely to influence their perceptions of personal influence within the coalition, and when coalition participants collectively assume a greater number of roles it is likely to strengthen shared leadership and decision-making within the coalitions (Christens et al., 2021). In the context of community-based studies Creswell and Creswell (2017) emphasize the importance of prioritizing the depth and richness of insights over numerical representation in qualitative inquiry. Additionally, the emphasis is placed on gaining a profound understanding of participants' experiences, perceptions, and meanings rather than adhering strictly to quantitative metrics (Creswell & Creswell, 2017).

A moderator guide was developed using an appreciative inquiry evaluation approach, which focuses on appreciating the strengths of a program rather than its weaknesses (Lamm & Lamm, 2018; Preskill & Catsambas, 2006). Following the appreciative inquiry methodology, 12 questions were designed to capture a) the existing progress toward programmatic outcomes, b) provide an opportunity to share collaborative successes and achievements of the community coalition, and c) allow the participants to practice imagining and visioning the future of long-term impacts (Lamm & Lamm, 2018; Preskill & Catsambas, 2006). The moderator guide was reviewed and approved by a panel of experts in qualitative methodology, appreciative inquiry, and evaluation design. Institutional Review Board (IRB) approval was obtained from the University of Georgia (Protocol #00001060).

A trained qualitative researcher moderated the focus groups with a second moderator and notetaker present. Focus groups were recorded and transcribed verbatim by a third party.

### Data Analysis

Transcripts were analyzed using the qualitative analysis software - MaxQDA™. A thematic analysis was utilized to identify primary emerging themes within the data (Castleberry & Nolen, 2018; Denzin & Lincoln, 2011; Nowell et al., 2017). As a first level of coding, similar meaningful segments of data were identified and labeled with *open* codes to capture expansive units of data (Merriam, 2009). This phase was completed by the primary researcher. Through peer debriefing with other authors, open codes were grouped through a descriptive coding approach to identify recurring and consistent patterns (Saldaña, 2014). After the development of initial themes, a secondary analysis was completed to collapse and group subthemes under broader themes (Merriam, 2009). The coding and refinement process were tracked using an audit trail (Nowell et al., 2017). Data triangulation and peer debriefing were utilized to ensure the accuracy, coherency, and transferability of the findings (Lincoln & Guba, 1985). Specifically, during debriefings the primary researcher and other authors extensively discussed the research process by reviewing and analyzing the outcomes of the research, insights, and reflecting on the progress made. Notes taken during the focus groups were used as a form of member checking at the conclusion of each focus group and as a form of data triangulation for analysis (Lincoln & Guba, 1985).

### Subjectivity Statement

To ensure subjectivities were considered during the analysis, the following subjectivity statement is offered by the authors:

Primary researcher: “I am a second-year international doctoral student at University of Georgia studying impact evaluation and communication. My research interests include SDG-aligned impact measurement and management (IMM), data visualization, and evaluation outcome communication to wider audiences. I became fascinated with IEs ten years ago but started exploring the UN SDG-aligned IMM six years ago. Attending a land-grant university and accessing enormous scientific resources and human capital is a privilege that motivates and helps me cultivate my academic career. I grew up in a small rural village in Armenia, which I believe affected my research interests, specifically community development and collaborative efforts for local development through targeted educational and behavior change interventions. I also acknowledge that education and learning opportunities are true powers, thanks to which I was able to change my life drastically. Despite years of experience in the international development sector, this is my first practice analyzing community-health promotion data from rural communities in Georgia and applying the cognitive dissonance theory. While recognizing my passion and motivation to identify the long-term ‘impact’ of the HT interventions, as a researcher, the analysis was conducted objectively to the extent possible”.

The second author is an Assistant Professor of agricultural and science communication who received her Ph.D. at University of Georgia. She worked as an evaluator on the HT project for three years. Her research agenda focuses on understanding the role of identity in community-based programming, specifically how evaluation measurements, communication processes, and program impacts can affect participants’ individual and collective identities.

The third author is a Professor of science communication and had been serving as the evaluation specialist/lead on the HT project since its inception. Her research agenda focuses on identifying how to best educate and communicate about food systems with an emphasis placed on ensuring diverse voices are heard and valued. She has also served as either an extension agent or extension specialist for over 20 years.

### Results

Themes were identified based on responses to interview protocol questions. Guided and informed by the *belief disconfirmation* and *induced compliance paradigms* from the theoretical framework of cognitive dissonance, the respective themes were identified under each of research questions. In response to RQ1, three themes were identified: *processes of cognitive dissonance*; *knowledge gap* and *behavioral intentions and attitude change* related to food preference changes and increased physical activity.

Furthermore, three major themes emerged in relation to RQ2: *acceptance; awareness, learning and knowledge* and *challenges*. These themes helped describe the extent to which cognitively dissonant behavioral intentions and experiences affected the achievement of overarching HT programmatic outcomes, specifically decreased adult obesity rate and adoption of healthier food consumption practices. Table 1 provides an outline of the themes and subthemes that were used to answer each of the research questions.

**Table 1**

*Research Questions and Associated Themes and Subthemes*

<b>Research Question</b>	<b>Interview Protocol Question</b>	<b>Theme</b>	<b>Subtheme(s)</b>	
<b>What cognitively dissonant behavioral intentions and experiences did community coalition members describe related to the HT program?</b>	Please, describe the history of your community, either the county as a whole or your individual city or community.	Processes of Cognitive Dissonance	Perceptions around obesity and framing of communities	
	How does history affect daily activities in the community?		Fear and uncertainty New information Learning opportunities	
	How the history of the community is relevant to HT?	Knowledge gap	Gap for the younger generation	
	What do you believe was the greatest thing that has come from creating HT community coalitions?		Cultural heritage Pre-existing values and beliefs	
	What do think has been the best thing that has happened over the past year in HT and the community?	Behavioral intentions and attitude change	Change of eating habits	
	Can you describe anything you have seen regarding members of the community engaging in physical activity over the past year?		Healthier food during events Food preference changes	
	Can you talk about any informal or formal changes that you're aware of with nutrition in your community?	Acceptance	Eye-opening taste Increased physical activity	
	What role has HT played in any of these nutritional changes?		Increased access to locally produced healthier food Trust	
	<b>To what extent did cognitively dissonant behavioral intentions and experiences affect the achievement of overarching HT programmatic outcomes?</b>	How has access to healthy food changed in your community?	Awareness, learning and knowledge	Mindset change Attitude change
		How do you believe changes to physical activity, nutrition and access to healthy food have been accepted by the community?		Increased awareness about healthier food Curiosity and interest among community members
How can HT better connect or more deeply connect with community members' values, beliefs, and lifestyles?		Challenges	Affordability Lack/Scarcity of access	
Projecting three years from now, what's your ideal vision for what this community coalition has accomplished? What story do			Communication gaps Sustainability	

---

you want to be able to tell about your community?  
 What effect has the work of the coalition, or the work of HT in this community, has it had on communities outside of your community?

---

**RQ1: What cognitively dissonant behavioral intentions and experiences did community coalition members describe related to the HT program?**

***Processes of Cognitive Dissonance***

The identified *Processes of Cognitive Dissonance* were associated with participants inability to modify their existing beliefs about labeling of their communities as obese, accept new information and concepts of HT leading to immediate response of rejecting or denying the conflicting information. Participants expressed concerns, personal negative associations, and experiences of cognitive dissonance related to *perceptions of obesity and framing of their communities as obese* introduced by HT.

When discussing perceptions of obesity, Marvin stated, “Hey, we are an obese county. We’ve been designated as that and you know why? It’s not being taught in the school...” Another participant explained they experienced cognitive dissonance by stating, “It cannot be because we know, we don’t want to say it, that we an obese community. We don’t want say that. But we know that guidelines of the program is just to help us...”

Another statement related to framing their community as obese was from Anna expressed by a comparison with neighboring communities. She said, “[c]ause they’re living in these communities that are not overweight. They have access to everything they need...”

Several participants expressed their struggle with the word “coalition” through its associations with *fear and uncertainty*. Mia stated, “...I realize here that people are scared of the word coalition. They either don’t know what it is or it sounds too scary.” Another participant added, “[w]hy do I want to come to the coalition meeting? That sounds scary.” Donna described, “[b]efore working with Extension, I have never heard of the word coalition. To be honest, never heard of it.”

Participants also had issues with the acceptance of *new information* considering it as foreign, while discussing their experiences with healthier food, collaborations within the community coalitions and community members. Emily said, “[b]ut we tend to be paranoid or skeptical about things we don’t know, people who don’t know, new people coming in. So, I think they had a class here once. It was on herbs. They taught a class on herbs.”

Participants also experienced dissonance with some of the *innovative approaches*, specifically the community gardens for rural, small communities, as one of the main HT outputs to address healthier food choices and availability in the community, Cilian stated,

...so the idea of a community garden is a struggle, because it’s a foreign idea. In urban communities, they just thrive, but in our kind of community, it’s like, I don’t know how to deal with being a part of a group of people growing a bunch of stuff. What does that mean? So it’s still a struggle to get people involved, even though I think I have a lot of friends who see it and think it’s wonderful. But they don’t get involved.

Pre-existing schema associated with healthier food sometimes conflicted with community members’ acceptance of *new opportunities and experiences* offered through HT. Mateo stated, “[t]he problem is trying to get those people to break free of [the] rural America[n] ‘pull it up by your own bootstraps’ kind of culture. And so everybody is a rugged individual, and prides themselves on doing

everything themselves, and figuring out everything themselves, and fixing everything themselves.” Additionally, Harper said,

They've been here, raised their families here, they have their grandkids here now. This is their home. This is what they know. I don't want to say that they don't see anything wrong with it, but they have what they have and they make it work.

### **Knowledge Gap**

Data analysis also indicated participants from the different communities experienced a *knowledge gap* as a barrier to increasing healthier eating behaviors. However, participants expressed that HT helped address their knowledge gap, by creating opportunities to collaborate with community coalition members through establishing and maintaining community gardens in rural communities, learning about nutritious and healthier food by attending cooking classes, having opportunities to consume healthier food through grab-n-go coolers. Bob stated,

Just teaching that, the basic stuff, I didn't know that for a long time. It wasn't until I started working with Extension that I knew that was something that would be a healthier way to do things. Yes. It tastes better, especially when you get those seasoned green beans out of the can with all the seasoning and stuff already in it but rinsing it does help lower the sodium and all the preservatives and stuff in it.

Given the limited awareness, particularly among younger generations, the participants highlighted the necessity and significance of disseminating the acquired knowledge to younger community members and children. This demographic often lacks basic information about the food they select, making it imperative to educate and provide them with essential knowledge. Rose explained,

...[s]how the kids that not everything comes from a can. French fries doesn't come from a freezer. It comes from potato that does come from the ground. Potato chips were a potato at one point and how to get to those points. How does a potato chips become a potato chip and healthier options then what Lays gives you out of a bag? So that they can, not only one, try to eat healthier and have a healthier lifestyle but two, possibly show their parents how to eat healthier.

Melissa added, “...[t]he kids today don't have that connection. I go to the grocery store. I remember one time, one of the girls, she had chicken strips talking about she didn't realize what a whole, fried chicken looked like.”

### **Behavioral Intentions and Attitude Change**

While discussing HT interventions related to healthier and nutritious food choices and increased physical activity, participating coalition members' *cultural heritage, pre-existing values and beliefs* acted as both barriers and enablers impacting behavior change related to the HT intervention. Henry explained, “...[w]e love fried food... That is a barrier because we're having to teach people that...[y]ou need to go easy on the fats and the carbs and you need to go more to the vegetables, refresh your food.” Grayson stated,

The idea of asking someone to change habits or traditions is challenging. It's easy to ask or to present the idea, or even to present the benefits, but the idea of doing without sugar, or doing without fried foods... I grew up like this. You know, that's how it's always been... [s]o, even though there's an educational component and better foods are provided, the mindset, the idea of changing that habit, is where the challenge is with all of us in everything we do.

Several participants described how their choices and perceptions of healthier and nutrient-dense food were highly dependent on heritage. Daniel explained, “...there's opportunity there to introduce healthy items. How well it's received, again, goes back to tradition.”

Participants described *behavioral intentions and attitude changes* they observed in the communities related to food preferences and physical activity engagement. Sophia stated, “I'm starting to see fruit

showing up at meetings, an alternative to the gooey booey sugary desserts. And you start to see things like baked chicken instead of fried chicken...”

Experiences with cognitive dissonance were diminished when presented with innovative approaches, such as availability of locally produced fresh vegetables from community gardens, changes of traditional food recipes, following healthy nutrition and healthy dietary choices and habits, incorporating locally produced fresh vegetables in community events, giving preference to fresh produced vegetables over prepackaged frozen foods, leading to acceptance and resolving experiences related to framed obesity. Oliver described, “[y]ou’re seeing people take advantage of these things. I’ve taken advantage of them. I’ve said this before, I will say it again, in the last couple of years, I’ve lost over a hundred pounds” (Marvin). Vida added, “The most eye-opening thing for some people has been the taste of fresh vegetables. They haven’t had a fresh pea or mostly tomatoes and cucumbers and squash and zucchini and stuff like that.”

Several participants stated that these changes had ripple effects and community residents showed early signs of acceptance and mindset shifts, described as “...[b]ut it’s getting good response... [a]nd we got more people doing their own yard gardens now” (Oliver). Rachel explained, “when you’re used to eating a certain way, and especially in a culture, right? You’re still eating what you’re eating, but you’re eating it in a healthier manner than what you were in the past.” Flora stated that “... [we] wanted to see how it would take effect to see a healthy alternative to a little snack at a ball game. And they went through over 500 pieces of fruit and we did that...” Daisy stated,

We try to incorporate some of the food from the garden into [an event]. And there’s a lot of things that people been here for years and they haven’t eaten or whatever. People didn’t realize that...they were very delicious...[I]ntroducing that to a lot of people, they couldn’t believe it. Basically, the only stuff they know is collards and cabbages. So we’ve been doing kale and some other type from the garden and stuff and people come out and get some of ... They come back and get some of the collards or whatever. They come back, want some more, say what some different taste. They enjoyed it and they come back and try to get some more.

Greyson stated, “I do know people who have bought freezers so that they could put food up. And they began to see the necessity of having homegrown, home-produced food as opposed to prepackaged”.

Cognitive dissonance also motivated many community residents to take action to reduce the distress by describing positive experiences and increased physical activities especially among the older generation of residents. These changes were associated with locally improved infrastructures, including access to safe walking trails, refurbished and renovated local parks, established signages. Tucker said, “[y]ou can go there any time of day, in the evening late, you see somebody walking around.” John described, “Well, we have two walkers that walk in Springfield every day. About seven o’clock. They’ve been doing it for, I don’t know how long now. But they religious about it. And I think one of them is 82.”

## **RQ2: To what extent did cognitively dissonant behavioral intentions and experiences affect the achievement of overarching HT programmatic outcomes?**

### ***Acceptance***

One of the major themes was the *acceptance* and *acknowledgement* of HT impacts by community coalition members. Experiences described evolved not only on a personal level, but also beyond immediate connections and networks of coalition members. It was noted that due to “built trust,” “confidence,” and “relationships,” the acceptance and recognition of HT impacts by community became easier. Participants also described how dissonance was resolved due to buy in into HT, specifically it was stated that increased accessibility led to mindset and attitudes changes. Descriptive adjectives “excellent,” “nice,” and similar denotations about locally produced of locally produced fresh vegetables were used. Wyatt said,

...[G]iving us the mindset to think healthier and to get more involved with our health. A lot of us, myself included have all kind of health issues. So trying to teach us how to maintain our health is very, very [important].

In one of the counties, focus group members experienced a very proud moment when describing acceptance and sharing of locally produced fresh vegetables. Scott stated,

It was over 900 pounds. I tried to reach a thousand, but we didn't quite make it. Of course, what people took without marking them was probably over a thousand, but it's over 900 pounds of stuff we got out of there last year.

### ***Awareness, Learning, and Knowledge***

Another theme identified was the *awareness, learning, and knowledge* in the communities about healthier and nutritious food and increased physical activity. Several focus group participants from different communities discussed the nutritional changes because of awareness and learning, as well as improved accessibility. Ava said,

...[T]hey're asking each other, or they're sharing recipes. So, that's what I think has been a big change when we talk around nutritional factors, is that people are engaging and they're curious about wanting to change or to try something different.

For the majority of participants, awareness and learning was associated with diversification of recipes they were used to, dissonance resolving by experiences of new taste and "liking" of that taste, while also thinking about "how healthy that new thing was." "Curiosity" and increased "interest" to learn among community members was also discussed by participants. Owen described, "...[w]ith people changing their, you know, change a menu item out here. Change something out for something that probably tastes the same but is probably a little better for you" (Cecil).

Participants also described experiences about "sharing knowledge" or "giving people new insights" to consider about healthier food. They described this impact by stating that "awareness around food and nutrition, and what we're supplying to people to eat, and feeding this stuff to the community" is a major impact. It was also noted that "...we are growing, and we are gaining knowledge. It might not seem like it sometimes, but we [do]" (Deborah).

While dissonance played a role in behavior change, participants felt that more was needed to transition awareness into action, "...[p]eople's mindsets are changing, but they're at a point where they don't know what to do with it. So, we need coached, we need nutritionists, we need dieticians" (Loretta).

### ***Challenges***

Participants also described cognitively dissonant experiences related to *challenges*, which was a major emerging theme with subthemes on *affordability, lack or scarcity of access, communication gaps* and *sustainability*. Most concerns shared related to affordability were described through "costly", "expensive", concepts. Gabriel said, "[I] think the access may be getting a little better... especially in the community outside of their stores, but the availability of being able to afford that [is hard]." Wyatt stated,

But right now, the cost seems to be the biggest concern whenever you get into a healthier diet and healthier lifestyle, but we are increasing the availability to some of this, but around here it's tough if you want to go get some organic anything.

Despite increased awareness, learning, and new practices of sharing recipes for healthier food, dissonance evolved around the cost of nutritious food. Samuel explained, "...[y]ou don't realize it until you get to buying the stuff, how much it costs." Rae stated, "... I know it's difficult on the stores too, because when they have [fresh and healthier] stuff come in there, it's expensive for them to put it in the stores."

Scarlett described, "I think that's kind of one of the challenges... being able to put together a healthy meal and still being able to afford it..." Emma added, "And from my perspective too, it's hard to tell people to eat healthier foods when what you've got is what you've got."

The existing context and reality of “poor” and “small” communities affected the ability of communities to diversify their food choices. Jack said,

Given the fact that we are one of the poorest counties in one of the poorest sections, in one of the poorest states in the nation, that’s an issue. And we have a lot of people who live below the poverty level in this county. And unfortunately that limits their choices in what they buy. They can choose quick, canned, cheap, carb heavy, fat heavy, or they can go fresh vegetables, expensive. How am I going to keep it? I don’t have a refrigerator, that kind of deal. And those are our barriers.

“Small” and “poor” community concept was referenced in relation to “lack or scarcity of local sources to healthier and nutritious food” and was described through statements on that “...there’s no stores in the county” or “the other barrier is the fact that we are so small that... the only grocery store [city] has, actual grocery ... If you can call it that, is the Family Dollar.” Benjamin, stated, “...[s]o what churches give away basically, and the food banks and then the community garden does is, really their only access to fresh vegetables. There’s nowhere to buy food here. So you basically have to leave town to be able to do that. And if you’re a poor person... you have no way to get there...”

Many participants discussed both internal and external communications gaps hindering and limiting their abilities enlarge community engagement, increase more awareness in their communities and engage with new partners for sustainability perspectives on HT interventions. It was stated that “[out of] 1500 people in the county [we have] 15 to 20 at our community garden. That’s just a very small percentage. I don’t know if it’s people are shy or they think they’re going to have to pay or... I don’t know what makes the difference, but it’s there.”

Cognitively dissonant patterns on communication issues were voiced through “frustration”, “lack of coordination” or “mismanagement of community gardens”. Carter described these experiences by stating,

The only problem I see about the whole situation, and I hate to be the negative person in the room, but even with the community gardens over there, my husband does most of the work over there. But then when he goes to go out there and get some of it, it’s already gone. Elijah added, “[t]here’s a gap and nobody communicates with each other.”

### Conclusions and Recommendations

Behavior change is a goal of many Extension programs, and cognitive dissonance plays a role in the adoption of new behaviors (Acharya et al., 2018; Jeong et al., 2019; McGrath, 2017; Rothgerber, 2020). The study found that, overall, community members had a positive experience with cognitive dissonance as a driver of behavior change leading to greater acceptance of healthier food choices, as outlined by project goals (Kahin et al., 2020), over non-nutrient-dense food consumption practices, increased knowledge, learning, and awareness about nutrient-dense food, positive behavioral change intentions, positive attitude changes, and actual behavior changes such as increased physical activity. The results supported the findings from Freijy and Kothe (2013) that dissonance-based interventions are generally positive for the adoption of healthier behaviors.

Specifically, the results indicated participants had pre-existing schema associated with heritage, cultural and traditional preferences of food choices, which influenced their preferences for healthier and nutrient-dense food. The findings indicated that many participants experienced cognitive dissonance associated with the choice of healthier food combined with a lack of knowledge and awareness about nutritious food. These experiences sometimes were also justified by the rural, small and retired community. Thus, the justification of existing thoughts and beliefs about healthier and more nutritious food complies with the theory of cognitive dissonance (Festinger, 1962).

The findings also indicated participants experienced concerns, personally negative associations, and experiences of cognitive dissonance related to perceptions around obesity and framing of their communities as obese. Perhaps new information and innovative approaches introduced by HT for rural communities were sources of cognitive dissonance for many participants affecting their thoughts and emotions and leading to fear associated with new concepts and approaches piloted in their communities. This implies these experiences were uncomfortable enough to motivate coalition members to decrease cognitive dissonance by choosing healthier lifestyles and nutritious food to lose weight and become physically more active (Stone et al., 1999). However, these negative and personal discomfort experiences were not eliminated since it was also possible the participants were experiencing dissonance during the discussions, trying to balance their negative experiences of such framings, mainly because they still struggled with acceptance of framing of their communities as obese. Cognitive dissonance also motivated many community residents to act to reduce cognitive distress by describing positive experiences of increased physical activities, especially among the older generation of residents.

The findings also indicated participants described behavioral intentions and attitude changes observed in the communities related to food preferences and physical activity engagement mainly. Expressed behavioral intentions and attitude changes evolved not only on a personal level but also beyond immediate connections and networks of coalition members. In most cases, these changes took place due to the acceptance and recognition of HT impacts by the community, increased awareness, learning, and knowledge about healthier and nutritious food, as well as improved accessibility and availability of resources, including access to safe walking trails, refurbished and renovated local parks, and established signages accelerated behavioral changes in local communities.

Despite positive and healthier patterns chosen to reduce dissonance, the findings also indicated dissonance could only influence behavior changes to a point. Behavior changes were limited by affordability and cost of nutritious food, as well as gaps and challenges related to sustainability of HT interventions. The identified challenges remained a major issue for participants leading to cognitive dissonance. It was likely that many participants would escape or avoid these experiences to eliminate cognitive distress, by defaulting to previous, known behaviors and traditions (Festinger, 1962). According to Festinger (1962), resolving dissonance by relying on previous, comfortable, and well-known behaviors, known as escapism or avoidance, may lead to decreased long-term impacts of HT interventions and lack of ownership for community assets and resources introduced by HT.

An applied implication of this study is that dissonance-based behavioral change interventions may inform and guide extension impact evaluators to eliminate inconsistencies in formative and summative evaluation outcomes when working with rural communities. The application of cognitive dissonance theory in evaluation projects, as exemplified by the Healthier Together (HT) study, offers a better understanding of the complexities underlying behavioral intentions and experiences within health promotion interventions. The theoretical framework provided valuable insights into the motivational drivers that influence community members' responses to initiatives, emphasizing the need for interventions to address cognitive conflicts effectively. As exemplified in literature review the application of cognitive dissonance theoretical framework to evaluation projects is limited and to enhance the utilization of cognitive dissonance in evaluation projects, it is recommended to integrate this theory into the program design phase and prior to implementation. Anticipating potential conflicts and tailoring communication strategies to align with community values can promote a more receptive environment for health-related changes. Furthermore, the findings of this study can inform evaluators to enhance the efficacy of behavioral change interventions in rural communities by eliminating sources of dissonance caused by chosen interventions for targeted communities. Based on the findings of the current study, strategies to effectively address sources of dissonance could involve targeted and regular communication of programmatic evaluation results to

community coalitions, ensuring early dissemination of findings to facilitate the adoption of prompt programmatic adjustments and ultimately improve sustainability.

In the context of the Healthier Together (HT) project, where the aim was to decrease adult obesity and promote healthier food consumption practices, socioeconomic status (SES) and healthier food choices availability were crucial determinants. Cognitive dissonance, as explained in the theoretical framework (Festinger, 1962), arises from conflicting beliefs, values, or attitudes. If individuals faced barriers such as low SES or limited healthier food choices availability, this could potentially contribute to dissonance. Limited healthier food choices availability, especially in areas with higher obesity rates, may restrict access to nutrient-dense options. In such scenarios, cognitive dissonance might manifest as individuals were aware of the benefits of healthier choices but face practical challenges in implementing them. However, it is essential to recognize that cognitive dissonance is complex and influenced by various factors. People may not automatically make healthier choices even with barriers removed. While addressing SES and healthier food availability barriers was crucial, sustained behavior change may require additional interventions, such as targeted education, community support, and addressing psychological factors contributing to dissonance. Further studies could explore how removal of socioeconomic and healthier food choices availability barriers may alleviate cognitive dissonance, potentially enabling individuals to make healthier choices.

Limitations of the study include an inability to generalize based on the qualitative nature of the study (Patton, 2015). In addition, the data is limited to community coalition members and, therefore, is not representative of the entire population of the four counties. However, the coalition members are those most involved with HT and therefore provide insights into community dynamics that would not otherwise be attainable. Another limitation of the current study is that the programmatic goals of what is healthy eating were not interrogated beyond the scope of this study. Programmatic goals operationalized healthy food as defined by CDC HOP Notice of Funding Opportunity (NOFO) Implementation Guideline's referral to Dietary Guidelines for Americans 2015-2020. Future research should examine the assumptions used in developing programmatic goals around healthy eating and the impact of those assumptions on programmatic success.

Based on the findings, it is recommended to continue exploring the long-term effect of cognitive dissonance as a factor when promoting healthier eating behavior choices and increased physical activity. Specifically, further studies should target exploring psychological and motivational aspects of residents in rural communities to eliminate cognitive dissonance related to new information and innovative approaches/methodologies implemented through Extension interventions. It is also recommended that similar interventions consider eliminating, or at least decreasing, socio-economic barriers that would ensure sustainability and the depth of positive changes leading to long-term healthier behavioral change in rural communities. Because of the integral role of both behavior change and evaluation in Extension programming, demonstrating the impact of Extension programs on the general public through novel evaluation approaches is key for continued funding and programmatic success (Lamm & Israel, 2011).

## References

- Acharya, A., Blackwell, M., & Sen, M. (2018). Explaining preferences from behavior: A cognitive dissonance approach. *The Journal of Politics*, *80*(2), 400–411. <https://doi.org/10.1086/694541>
- Agius, C. (2013). Social constructivism. *Contemporary Security Studies*, *3*, 87-103.
- Al-Jawaldeh, A., & Abbass, M. M. S. (2022). Unhealthy dietary habits and obesity: The major risk factors beyond non-communicable diseases in the eastern Mediterranean region. *Frontiers in Nutrition*, *9*, 817808. <https://doi.org/10.3389/fnut.2022.817808>

- American Association for Agricultural Education (AAAE). (2023). *AAAE Research Values*.
- Amini, M., Djazayeri, A., Khosravi, M., & Shafaatdoost, M. (2020). Promotion of physical activity to prevent non-communicable diseases: An advocacy paper. *International Journal of Preventive Medicine, 11*, 124. [https://doi.org/10.4103/ijpvm.IJPVM\\_130\\_20](https://doi.org/10.4103/ijpvm.IJPVM_130_20)
- Andress, L., & Fitch, C. (2016). Rural health inequities and the role of Cooperative Extension. *The Journal of Extension, 54*(3), Article 26. <https://tigerprints.clemson.edu/joe/vol54/iss3/26>
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*(1), 1–26. <https://doi.org/10.1146/annurev.psych.52.1.1>
- Bélangier, V., Vanasse, A., Parent, D., Allard, G., & Pellerin, D. (2012). Development of agri-environmental indicators to assess dairy farm sustainability in Quebec, Eastern Canada. *Ecological Indicators, 23*, 421–430. <https://doi.org/10.1016/j.ecolind.2012.04.027>
- Borron, A., Lamm, K., Darbisi, C., & Randall, N. (2019). Social impact assessment in the cooperative extension system: Revitalizing the community capitals framework in measurement and approach. *Journal of International Agricultural and Extension Education, 26*(2), 75-88. <https://doi.org/10.5191/jiaee.2019.26206>
- Boylard, J. (2019). A social constructivist approach to the gathering of empirical data. *Australian Counselling Research Journal*. Retrieved 12 January, 2024, from <https://www.acrjournal.com.au/journal?id=18>
- Castleberry, A., & Nolen, A. (2018). Thematic analysis of qualitative research data: Is it as easy as it sounds? *Currents in Pharmacy Teaching and Learning, 10*(6), 807–815. <https://doi.org/10.1016/j.cptl.2018.03.019>
- Centers for Disease Control and Prevention. (2022). *Adult obesity prevalence maps*. National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity. <https://www.cdc.gov/obesity/data/prevalence-maps.html>
- Centers for Disease Control and Prevention. (2020). *High Obesity Program*. <https://www.cdc.gov/nccdphp/dnpao/state-local-programs/hop-1809/high-obesity-program-1809.html>
- Centers for Disease Control and Prevention. (n.d.). <https://www.cdc.gov/nccdphp/dnpao/state-local-programs/pdf/HOP-Implementation-Guide-508.pdf>
- Chaudhary, A. K., Lamm, A. J., & Warner, L. A. (2018). Using cognitive dissonance to theoretically explain water conservation intentions. *Journal of Agricultural Education, 59*(4), 194–210. <https://doi.org/10.5032/jae.2018.04194>
- Christens, B. D., Byrd, K., Hartigan, L. A., & Speer, P. W. (2021). Participatory roles in community coalitions: Associations with perceptions of influence on decision-making. *Community Development, 52*(3), 365–381. <https://doi.org/10.1080/15575330.2021.1874455>
- Cooper, J. (2019). Cognitive dissonance: Where we've been and where we're going. *International Review of Social Psychology, 32*(1), Article 1. <https://doi.org/10.5334/irsp.277>

- Crotty, M. J. (1998). The foundations of social research: Meaning and perspective in the research process. *The foundations of social research*, 1-256.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage Publications.
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The SAGE handbook of qualitative research* (4th ed.).
- Diaz, J., Chaudhary, A. K., Jayaratne, K., & Warner, L. A. (2019). Program evaluation challenges and obstacles faced by new extension agents: Implications for capacity building. *Journal of Extension*, 57(4), Article 26. <https://tigerprints.clemson.edu/joe/vol57/iss4/26>
- Fernández-Díaz, M. J., Rodríguez-Mantilla, J. M., & Jover-Olmeda, G. (2017). Evaluation of the impact of intervention programmes on education organisations: Application to a quality management system. *Evaluation and Program Planning*, 63, 116–122. <https://doi.org/10.1016/j.evalprogplan.2017.04.005>
- Festinger, L. (1962). *A theory of cognitive dissonance* (Vol. 2). Stanford University Press.
- Freijy, T., & Kothe, E. J. (2013). Dissonance-based interventions for health behaviour change: A systematic review. *British Journal of Health Psychology*, 18(2), 310–337. <https://doi.org/10.1111/bjhp.12035>
- Franz, N., Garst, B. A., & Gagnon, R. J. (2015). The Cooperative Extension program development model: Adapting to a changing context. *Journal of Human Sciences and Extension*, 3(2), 2. <https://doi.org/10.54718/CWEZ3223>
- Fiske, S. (1995). Social cognition. In A. Tesser (Ed.), *Advanced Social Psychology* (pp. 53-87). McGraw-Hill Humanities/Social Sciences/Langua.
- Gertler, P. J., Martinez, S., Premand, P., Rawlings, L. B., & Vermeersch, C. M. (2016). *Impact evaluation in practice*. World Bank Publications.
- Gómez, C. A., Kleinman, D. V., Pronk, N., Wrenn Gordon, G. L., Ochiai, E., Blakey, C., Johnson, A., & Brewer, K. H. (2021). Addressing health equity and social determinants of health through Healthy People 2030. *Journal of Public Health Management and Practice*, 27(Suppl 6), S249–S257. <https://doi.org/10.1097/PHH.0000000000001297>
- Healthy People 2030. (n.d.). Retrieved November 29, 2022, from <https://health.gov/healthypeople>
- Jeong, M., Zo, H., Lee, C. H., & Ceran, Y. (2019). Feeling displeasure from online social media postings: A study using cognitive dissonance theory. *Computers in Human Behavior*, 97, 231–240. <https://doi.org/10.1016/j.chb.2019.02.021>
- Kahin, S. A., Murriel, A. L., Pejavara, A., O’Toole, T., & Petersen, R. (2020). The High Obesity Program: A collaboration between public health and Cooperative Extension services to address obesity. *Preventing Chronic Disease*, 17. <http://dx.doi.org/10.5888/pcd17.190283>
- Lamm, A. J., & Israel, G. D. (2011). An organizational approach to understanding evaluation in Extension. *Journal of Agricultural Education*, 52(4), 136-149. <https://doi.org/10.5032/jae.2011.04136>

- Lamm, A. J., & Lamm, K. W. (2018). Considering an appreciative approach to international extension evaluation. *Journal of International Agricultural and Extension Education*, 25(4), 74–82. <https://doi.org/10.5191/jiaee.2018.25406>
- Lamm, A. J., Rabinowitz, A., Lamm, K. W., & Faulk, K. (2020). Measuring the aggregated public value of extension. *Journal of Extension*, 58(6), Article 6. <https://tigerprints.clemson.edu/joe/vol58/iss6/6>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.
- McGrath, A. (2017). Dealing with dissonance: A review of cognitive dissonance reduction. *Social and Personality Psychology Compass*, 11(12), e12362. <https://doi.org/10.1111/spc3.12362>
- Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.
- Moldan, B., Janoušková, S., & Hák, T. (2012). How to understand and measure environmental sustainability: Indicators and targets. *Ecological Indicators*, 17, 4–13. <https://doi.org/10.1016/j.ecolind.2011.04.033>
- Narine, L. K., & Ali, A. D. (2020). Assessing priority competencies for evaluation capacity building in extension. *Journal of Human Sciences and Extension*, 8(3), 4. <https://doi.org/10.54718/OKVW8622>
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis. *International Journal of Qualitative Methods*. <https://doi.org/10.1177/1609406917733847>
- Ong, A. S.-J., Frewer, L., & Chan, M.-Y. (2017). Cognitive dissonance in food and nutrition—A review. *Critical Reviews in Food Science and Nutrition*, 57(11), 2330–2342. <https://doi.org/10.1080/10408398.2015.1013622>
- Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). SAGE Publications, Inc.
- Preskill, H., & Catsambas, T. T. (2006). *Reframing evaluation through appreciative inquiry*. SAGE Publications, Inc.
- Rothgerber, H. (2020). Meat-related cognitive dissonance: A conceptual framework for understanding how meat eaters reduce negative arousal from eating animals. *Appetite*, 146, 104511. <https://doi.org/10.1016/j.appet.2019.104511>
- Saldaña, J. (2014). Coding and analysis strategies. In P. Leavy (Ed.), *The Oxford handbook of qualitative research* (pp. 580–598). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199811755.013.001>
- Sanders, C. E., Lamm, A. J., & Borron, A. (2022). Exploring identity-oriented evaluation for rural community development: A constructivist grounded theory approach. *Community Development*, 0(0), 1–22. <https://doi.org/10.1080/15575330.2022.2120510>
- Sanders, C. E., Markosyan, T., Gibson, K. E., Byrd, A. R., & Lamm, A. J. (2023). Improving sustainable food access and availability in rural communities: An assessment of needed resources. *Sustainability*, 15(7), 6293. <https://doi.org/10.3390/su15076293>

Seevers, B., & Graham, D. L. (2012). *Education through Cooperative Extension* (3rd ed.). University of Arkansas Bookstore.

Stone, G., Singletary, M., & Richmond, V. P. (1999). *Clarifying communication theories: A hands-on approach* (1st ed.). Wiley-Blackwell.

Stice, E., Rohde, P., Shaw, H., & Gau, J. (2011). An effectiveness trial of a selected dissonance-based eating disorder prevention program for female high school students: Long-term effects. *Journal of Consulting and Clinical Psychology, 79*(4), 500–508. <https://doi.org/10.1037/a0024351>

United Nations. (n.d.). *SDG Indicators - SDG Indicators*. Retrieved November 29, 2022, from <https://unstats.un.org/sdgs/metadata?Text=&Goal=3&Target=3.4>

White, M. (2007). Food access and obesity. *Obesity Reviews, 8*(s1), 99–107. <https://doi.org/10.1111/j.1467-789X.2007.00327.x>

World Health Organization. (2018). *Global action plan on physical activity 2018–2030: More active people for a healthier world*. World Health Organization. <https://apps.who.int/iris/handle/10665/272722>

Wicklund, R. A., & Brehm, J. W. (2019). *Perspectives on cognitive dissonance*. Psychology Press. <https://doi.org/10.4324/9780203767672>

Yau, A., White, M., Hammond, D., White, C., & Adams, J. (2020). Socio-demographic characteristics, diet and health among food insecure UK adults: Cross-sectional analysis of the International Food Policy Study. *Public Health Nutrition, 23*(14), 2602–2614. <https://doi.org/10.1017/S1368980020000087>