

## **Development of Food Security Messages with Rural, Low-Income Mothers**

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### **Abstract**

Based on a participatory, learner-based approach, this study examined feedback to various Food Security Messages (FSMs) from 118 rural, low-income mothers across 10 states. We conducted individual interviews with 75 mothers as well as nine focus groups in eight states with a total of 43 mothers to create, test, and refine FSMs. Qualitative analysis revealed that rural, low-income mothers preferred messages that (1) were short and to the point but included relevant details; (2) contained voices of peers and/or professionals who were trusted by low-income mothers; (3) were relatable to their own life, particularly to their rural challenges; and (4) recommended various strategies to cope with food insecurity. Findings from this study suggest that carefully tailored messages related to food insecurity are applicable to Extension and other organizations that aim to reduce food insecurity among low-income families.

Keywords: food security, health communication, low-income families, rural poverty

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## Introduction and Background

In 2019, 89.5% of U.S. households were food secure, meaning they “had access, at all times, to enough food for an active, healthy life for all household members” (Coleman-Jensen et al., 2020). However, 10.5% (13.7 million) households were food insecure; they were “uncertain of having, or unable to acquire, enough food to meet the needs of all their members because they had insufficient money or other resources for food.” Risk for food insecurity is particularly high among low-income households with children (13.6%), racial and ethnic minority households (Black 19.1%; Latino/a 15.6%), and rural households (12.1%).

A significant body of knowledge produced by two multistate research projects, Rural Families Speak (RFS) and Rural Families Speak about Health (RFSH), has demonstrated that rural families face multiple challenges as they attempt to secure food for themselves. Food scarcity is associated with many negative outcomes for both adults and children. Olson et al. (2007) found that growing up in a food insecure household increased the likelihood of binge-like eating that resulted in adult obesity. Mothers who lived in states with the highest rates of food insecurity used dangerous consumption reduction strategies such as deliberately restricting their food intake, curbing their appetite by smoking or drinking soda, and sacrificing their food to feed their children and husbands or partners (Mammen et al., 2009). Additionally, even though some of the families in RFS and RFSH were eligible for SNAP (a.k.a. “food stamps”), they did not apply for this assistance, and thus, were placed at greater risk for poor health when they were confronted with a sudden family illness (Braun et al., 2002).

Regular access to sufficient nutritious food is fundamental for an active, healthy life, and it is essential for optimal development among children. Previous research-informed messaging is a promising strategy to complement existing assistance and outreach efforts to lessen food insecurity (Kreuter & McClure, 2004). In particular, culturally appropriate messages targeting specific populations are more effective than general messages (Institute of Medicine, 2002, 2003). According to Kreuter & McClure (2004), culture is learned, shared, and transmitted intergenerationally, and it is revealed in a group’s values, beliefs, norms, practices, patterns of communication, familial roles, and other social expectations. Because culture is fluid, complex, multidimensional, and adaptable, it is difficult and often limiting to segment audience based on rigid boundaries such as race and ethnicity (Kreuter & McClure, 2004). To better understand its relevance and value in message communication, it is important to adapt the definition of culture based on the prevalence of a problem in a certain group (Kreuter, et al., 2003).

Rural families are diverse in terms of race/ethnicity, land/resource ownership, attitudes and beliefs, and region (Dillon & Savage, 2006; Slama, 2004). In spite of their differences, however, poor families living in rural communities share certain unique characteristics and vulnerabilities. Rural areas have historically experienced disproportionately greater poverty, both in terms of

degree and persistence (Farrigan & Parker, 2012; Weber & Jensen, 2004), and rural residents experience difficulties in accessing resources, lack of privacy, and geographic isolation. Research indicates that this underlying culture of a population can shape the perceptions of individuals regarding the outcome of specific behaviors, their ability to implement such behaviors in their given environment, as well as individuals' motivation to comply with community norms regarding health behavior (Fishbein & Cappella, 2006). We therefore posit that, as a group, rural, low-income families can be considered to be part of a "rural culture" comprising values and experiences that are learned, shared, and transmitted across generations.

As a part of RFSH, the research team created, tested, and refined a variety of health messages and examined effective methods of disseminating them. This project, entitled Core Health Messages (CHM), used participatory action research (PAR), which is a collaborative, learner-driven approach. PAR is an approach in which researchers work *with* participants, rather than *for* them, to change a problematic situation (McIntyre, 2007). During this approach, the target population informed researchers how to best tailor messages to promote positive health outcomes among low-income rural mothers (for detailed description, see Mammen et. al., 2018). This study presents the process through which food security messages (FSMs) were created and examined different styles of messages that were most preferred by rural, low-income mothers. Findings from this study provide insight into effective communication strategies that may increase food security—particularly food sufficiency at home—among rural, low-income families.

## Methods

### *Participants*

Participants in the CHM project (N=118) also participated in the RFSH project, in which they were recruited through a mixed purposive sampling (MPS) method. MPS is a hybrid sampling strategy that combines the strengths of purposive sampling and snowball sampling (Mammen & Sano, 2012). To participate in the RFSH project, participants had to (a) be a mother or primary caregiver 18 years of age or older; (b) have at least one child under the age of 13 who lived with the mother at least 50% of the time; (c) have an annual household income at or below 185% of the federal poverty level (FPL); and (d) live in a rural county designated with an Urban Influence Code (UIC) 6 or higher, or reside in the most rural county in the state.

Table 1 shows demographic information of mothers who participated in individual interviews. The majority of the participants were married or living with a partner (47%), had a median annual household income in the range of \$10,000-\$19,999, and were on average 31.3 (SD=2.77) years of age. A little less than half of the mothers had earned a high school diploma or had fewer than 12 years of formal education. The majority of the mothers identified as non-Latino/a White

(56%), followed by African American (11%), Latino/a (9%), Native American (8%), and Other (16%).

**Table 1. Demographic characteristics of participants (N=75\*).**

| Participants' characteristics    | M    | SD   |
|----------------------------------|------|------|
| Age                              | 31.3 | 2.77 |
|                                  | N    | %    |
| Race/Ethnicity                   |      |      |
| Non-Latino/a White               | 42   | 56.0 |
| Latino/Latina                    | 7    | 9.3  |
| African American                 | 8    | 10.7 |
| Native American                  | 6    | 8.0  |
| Other/Unknown                    | 12   | 16.0 |
| Marital Status                   |      |      |
| Married                          | 29   | 38.7 |
| Living with Partner              | 6    | 8.0  |
| Single                           | 16   | 21.3 |
| Divorced/Widowed                 | 8    | 10.7 |
| Other/Unknown                    | 16   | 21.3 |
| Education                        |      |      |
| Less than High School            | 15   | 20.0 |
| H.S. Graduate/G.E.D.             | 20   | 26.7 |
| Some College/Vocational Training | 16   | 21.3 |
| Bachelor's Degree and above      | 7    | 9.3  |
| Unknown                          | 17   | 22.7 |
| Annual Income                    |      |      |
| Less than \$10,000               | 18   | 24.0 |
| \$10,000-\$19,999                | 18   | 24.0 |
| \$20,000-\$29,999                | 10   | 13.3 |
| \$30,000-\$39,999                | 3    | 4.0  |
| \$40,000-\$49,999                | 6    | 8.0  |
| \$50,000 or more                 | 1    | 1.3  |
| Unknown                          | 19   | 25.3 |

\*Demographic information was based on the mothers who participated in the individual interviews.

### ***Data Collection Methods***

Two data collection methods were employed: individual interviews and focus group interviews. While the individual interviews provided deeper insights from participants on the topic addressed, the focus group interviews captured dynamic exchanges of viewpoints and opinions

among participants (Morgan, 1996). Thirty-minute individual interviews were conducted with 75 mothers across 10 states. The majority (90%) of the interviews were conducted in-person, and a few (10%) were conducted via telephone.

A total of 43 mothers participated in nine focus groups across eight states. In addition to mothers being asked to respond to general questions regarding their overall health status and demographics, mothers in both the focus group and individual interviews were presented six different versions of FSMs (Table 2). The versions varied by length (long, medium, short) and voice (peer, unidentified voice, health educator) and were developed in consultation with health communication experts. There was one message conveyed with a professional voice, two messages with an unidentified voice, and three messages with a peer voice. Based on recommendations of health communication experts, more messages having a peer voice were tested than messages with other voices, as food-related behaviors are considered a matter of personal choice.

Mothers were asked to provide feedback regarding the messages. All interview data were audio-recorded and transcribed verbatim. Eight interviews were conducted in Spanish and were first transcribed verbatim in Spanish and then translated into English by a native Spanish-speaking member of the research team. Another native Spanish-speaking member of the research team reviewed the translation for accuracy.

**Table 2. Different versions of Food Security Messages.**

| Version | Voice        | Length | Food security messages (FSMs)   |
|---------|--------------|--------|---|
| 1       | Unidentified | Short  | <i>Making a grocery list may help you save money. Keep a grocery list throughout the week or month leading up to your next trip to the grocery store.</i>   |
| 2       | Unidentified | Medium | <i>Making a grocery list may help you save money. Without a list, you may buy food you don't really need and spend more money. Keep a grocery list throughout the week or month to help you remember what items to purchase when you're at the store.</i> |
| 3       | Peer         | Short  | <i>Hi, I'm Maria, a busy mom of three, and I am always pinched for money. In order to stretch our food dollars, I make a grocery list throughout the week leading to a trip to the grocery store.</i>   |
| 4       | Peer         | Medium | <i>Hi, I'm Maria, a busy mom of three, and I am always pinched for money. A local health educator recommended I keep a grocery list throughout the week or month leading to a trip to the store to save time and so I don't buy what I don't need.</i>    |

|   |              |      |  |
|---|--------------|------|--|
| 5 | Peer         | Long | <i>Hi, I'm Maria, a busy mom of three, and I am always pinched for money. It's hard for me to feed my family healthy food all month. Sometimes my money, food stamps, or WIC Vouchers just aren't enough. Some months, I don't eat so my kids can. But I learned to start planning the food we need and keeping a grocery list throughout the week or month. Now, we actually make it through the month.</i> |
| 6 | Professional | Long | <i>As a health educator, I've talked to many busy mothers who struggle to feed their family healthy food. Their money, food stamps, or WIC vouchers just don't go far enough to get through the end of the month. I recommend keeping a grocery list throughout the week or month leading to a trip to the store to save time and so they don't buy what they don't need.</i>                                |

### **Data Analysis**

Following techniques used in Grounded Theory, open coding was utilized as a part of data analysis (Strauss & Corbin, 1990). In the first step, researchers independently read the transcripts multiple times, then compared coders' notes, and agreed upon a common coding scheme. Through this process, 12 codes were developed (length, voice, empathy, level of detail, going hungry, consequences, information about grocery lists, information about budget, alternative strategies, rural context, likelihood to take action, and challenges). In the second step, researchers were assigned transcripts to code using the agreed upon coding scheme. To ensure inter-coder reliability, most transcripts were coded by three researchers. The third step involved comparing coded segments, combining and refining codes, and grouping related codes into categories and subcategories. The categories were then compared to identify overarching themes that were grounded within participants' voices. The overarching themes were then further reviewed by a team of RFSH researchers who were not involved in the original analysis, but who served as project consultants. During the final step, major findings were reviewed and the overarching themes were further refined.

### **Findings**

Four overarching themes were identified through analyses of the focus groups and individual interviews. They were "Length and Detail," "Voice," "Relatability of Problem," and "Strategies against Food Insecurity." These findings can help inform the development of effective, culturally appropriate FSMs for rural, low-income families.

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### *Length and Detail*

Individual interview participants preferred messages that were short and concise while focus group participants preferred messages that were medium length. This difference, however, did not appear to be significant. Both groups preferred a message that was “short, sweet, and to the point.” Analysis revealed that mothers valued messages that contain relevant details (e.g., action steps) and clear explanation rather than excluding information to create a shorter message. A mother in Massachusetts liked message #4 (see Table 2) because “it’s explaining that making a list helps them to save money and not going off and buying junk food and stuff you don’t need.” Another mother, in Illinois, rejected the shortest message because “it doesn’t say enough. I mean, plenty of people have told me to do it, a store list, but they didn’t say why. Like the real reason behind it.” Overall, mothers wanted to know why the message was important so they could understand why they should consider the content in the message.

### *Voice*

Mothers’ reactions toward message voice depended on their own individual situation or personal preferences. For example, some mothers clearly preferred that the voice of the message be of a mother or someone that they can relate to if the message depicted the reality of their living situation. For example, one mother explained why the voice of a mother was appealing. She said, the message “speaks to me more because I have food stamps and I have WIC and I know what that’s like. The other one, a local health educator, that could be for anyone. It doesn’t necessarily speak to someone who is low-income.” As another mother with similar feelings explained:

...connecting with the message would probably encourage me to keep a grocery list more than a health professional telling me to or saying it. I might connect more with someone that’s in a similar situation than me, certainly because I imagine being in a situation like that where I have a lot of people telling me how to get in a better situation all the time, than, like, someone else at my level of the situation.

On the other hand, many mothers showed a strong preference toward a voice of health professional because they considered a professional to be a more credible source. Reasons for their preference included “it’s coming from a higher person,” “I like being told by someone who is more knowledgeable than I am,” and “you listen to people more who you think know.” A mother in Illinois provided a similar opinion, “I’m not into the personal touch. I prefer, like the fact that the doctor will tell me how to do it or whatever. A professional opinion. More than the sentimental touch.” Findings suggest that preference for voice of a message may depend on mothers’ current situations and personalities.

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### ***Relatability of Problem***

In general, mothers felt a stronger connection to a message when the message included a situation that they personally experienced. One mother believed that a message reflected her own life, “just being a mom...she’ll go without eating so her kids can. That’s just reality. That’s life.” A mother in Washington similarly commented, “I’m a mother, too. Not a mother of three, but of two, so I know what she means by being pinched and being...trying to stretch out money and so go to the extent needed.” In contrast, some mothers showed opposite reactions by showing strong dislike toward a message. For them, the situation in the message seemed exaggerated, unbelievable, or even “cliché.” For example, some mothers did not like hearing about a mother intentionally not eating enough so her children could eat. A mother in Iowa responded, “I don’t like that about ‘I don’t eat so...’ That doesn’t happen here. I think that...really...is too exaggerated.” Some mothers were critical of the mother in the message. A California mother said, “it just seemed to me like, the person wasn’t a very good planner because that doesn’t seem right to go some months without eating so your kids can.” Thus, the level of relatability of the message was strongly influenced by mothers’ personal experiences.

Most mothers, however, could relate to challenges living in a rural community. They explained how living in rural areas makes it difficult to save money while grocery shopping. This was because a choice of grocery stores and alternative options were either not available or were located further away, which increased travel-related costs. Some mothers did not have reliable transportation which made it difficult to make regular trips to a grocery store. A mother in rural Washington illustrated this challenge when she shared, “I’m in the middle of nowhere, and have to run like out two towns for just groceries, which really sucks sometimes.” When asked if there was a grocery store in her town, she replied, “not a cheap one.” She then added, “the grocery store we go to is like thirty, forty minutes away.”

### ***Strategies Against Food Insecurity***

While most mothers understood the reasons that it is a good idea to use a grocery list, they also identified several challenges of using a list. Challenges included (a) not having time to write out a list, (b) losing the list, (c) making multiple lists, and (d) not following their list. One mother felt that creating a grocery list is “a really elementary concept.” Another mother rejected the idea of a list stating, “I don’t make a list. And if I make a list, I would not follow the list because I know what I am going to get and I only get what’s on sale.”

All mothers found information about budgeting appealing because they could relate to the importance of managing money so they would have food for the entire month. To stretch food, mothers claimed that a single strategy alone does not work and it is necessary to have multiple strategies. A mother in Illinois commented, “sometimes planning, or start planning the food and

keeping a grocery list doesn't do the trick. It still doesn't make the money spread. A lot of times, I know a lot of people in that situation have to go further than that to acquire what they need." Mothers were interested in learning about other strategies such as how to find and use on-line coupons.

## Discussion

Food, which is an essential part of health and well-being, can be scarce among rural, low-income families. Findings from this study inform the development of culturally appropriate food security messages targeting rural, low-income families. It demonstrated that a one-size-fits-all approach does not work. Rather, the development of messages must consider cultural context, community, message content, and individual personalities. The findings of this study, therefore, should be used as a basic "road map" in the process of message development and should be modified depending on the target population.

Nonetheless, results of this study can be applied in the on-going educational efforts of federal nutrition assistance programs such as SNAP-ED (Supplemental Nutrition Assistance Program Education), SNAP Outreach, and WIC (Special Supplemental Nutrition Program for Women, Infants, and Children) (United States Department of Agriculture, n.d.) and educational programs delivered by Cooperative Extension such as EFNEP (Expanded Food and Nutrition Education Program). When developing products (e.g., posters, fliers, web pages) to promote health behaviors in the above-mentioned programs, or to promote nutrition and food security related messages via social marketing to rural low-income mothers, findings from this study suggest that it is critical to tailor the messages to the target population. In this sense, social marketing can be a viable future option as a systematic planning process to develop messages because of its strong focus on consumer-based approach, formative research, costs, and emphasis on product marketability (Neiger et al., 2003).

Low-income mothers in our study clearly preferred to hear messages from somebody whom they can trust, regardless of whether the messages are from peers or professionals. Trustworthiness of a speaker of the messages add credibility and helps mothers relate to the messages (themes: voice, relatability). Similarly, including familiar situations/contexts in the message increase relatability for recipients of the messages. They include rural community environment, cultural backgrounds, and economic situation of a family. It is, therefore, important to recognize that messages need to be tailored toward specific populations. The effectiveness of messages depends on individual situations, various contexts, and even personalities. Further research is needed to test more types of messages by individual situation and/or personality type.

An example of an effective message in posters, brochures, or websites designed to promote a program such as EFNEP, for example, could have a picture of a mother (perhaps a past participant) and a statement about how she didn't have enough money to feed her family enough

food. She found EFNEP and the program helped her save money so she now has enough money to feed her family well each month. On the same marketing material, a picture of a pediatrician could be included along with a statement that communicates that EFNEP helps families who don't have a lot of money to eat healthfully. Barriers that rural mothers face (e.g., lack of grocery stores with a variety of food options and affordable prices) could be included in messages to enhance the credibility of the messages.

When creating educational materials (e.g., lesson guide scripts, participant handouts), our study demonstrated that the text should be concise, and at the same time clearly communicate the benefits of taking suggested actions (e.g., making a grocery list before you shop helps you avoid buying items you don't need and, in turn, helps you save money) (theme: Length and Detail). It is also important for staff to be aware of barriers mothers experience that prevent them from carrying out specific actions, and to have additional ideas ready to help mothers carry out suggested actions. Providing multiple strategies is also critical as some strategies may not work well in every situation; and some strategies may work for some but not for all families (theme: Strategies Against Food Insecurity). For example, sometimes mothers do not have time to make a grocery list, or they forget to take the list with them to the grocery store. Additional ideas to share may include the following: (a) Write out general categories of items on a piece of paper (e.g., meat/protein, dairy, fruits and vegetables) to help you quickly identify items to buy, (b) text yourself the grocery list so you have it with you at the store, and (c) create a shopping list (memo) using a cellphone app. As families and society change, the need for research continues in order to explore strategies that are and are not working to assist rural, low-income mothers in meeting their food needs. Creating a social media site where participants can exchange ideas, for example, may work especially for younger generations who are considered "digital natives."

While this study provides tangible recommendations for development of food security messages, results should be interpreted with caution. First, this study is based on purposive sampling from rural, low-income mothers. Thus, the findings in this study are not generalizable to the broader audience and may not be applicable to mothers who have low-incomes but have higher education levels, or older rural women such as grandmothers who raise grandchildren. Additionally, this study focused only on food insecurity and did not examine the types of food mothers are buying or how they handle food at their home after the purchase. Finally, we did not examine short, medium, and long messages for each voice. Although this decision was based on the health communication experts' advice, future research should be conducted to confirm the most appealing food security messages for rural, low-income populations.

Nonetheless, this study provides important implications for health communications targeting low-income families. As found in studies to inform social marketing campaigns and educational materials for SNAP ED, research focused on specific subgroups is needed to identify characteristics of messages that are valued and preferred by various subpopulations (e.g., males, older adults, different racial and ethnic groups) to help ensure that the messages are relevant,

understood, and motivating to the intended audiences (Hagues et al., 2018; Sneed et al., 2017; USDA NIFA, 2014).

### Acknowledgements

This research was supported by the Rural Health and Safety Education Competitive Program of the USDA Cooperative State Research, Education and Extension Service, National Institute of Food and Agriculture, grant numbers 2010-46100-21791 and 2011-46100-31135.

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