

# Changing Roles and Contexts: Symbolic Interactionism in the Sharing of Food and Eating Practices between Remote, Intergenerational Family Members

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Cooking and eating together is a prominent social experience amongst families. Older adults and their adult children who live apart often communicate about these experiences to stay aware of each other's health and wellbeing. In this paper, we examine current practices surrounding the communication of eating habits and meal preparation between older adults and their adult children living apart. We interviewed 18 older parents and nine adult children to understand their experiences. While most participants found the sharing of eating experiences to be rewarding and enlightening of family health behaviors, family roles and contexts could create tensions around this type of conversation. Applying the lens of symbolic interactionism theory, we examine how changing roles and contexts influence the conversation of eating and meal preparation and how participants manage tensions. We discuss future design opportunities to support family collaboration around food and eating, accounting for the transition of roles and contexts.

CCS Concepts: • **Human-centered computing** → **Collaborative and social computing** → Empirical studies in collaborative and social computing

Additional Key Words and Phrases: food, meal preparation, family, health, wellness, healthy eating

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## 1 INTRODUCTION

Family members who live apart from each other often want to stay connected and aware of each other's health and wellbeing. In the United States, more than 40 percent of older adults live apart from their adult children [54]. Due to geographical separation, people often leverage technologies such as video conferencing, sensing technologies, and mobile applications to achieve an understanding of each other's everyday routines (e.g., [7,32,41]). This information sharing also strengthens social connection and overcomes communication challenges. Furthermore, many technologies have been designed to create and support awareness and connectedness among

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family members (e.g., [2,15,26,35]). The existence of these technologies suggests that simple interactions can foster rich experience sharing and promote connectedness [6,22,35].

Maintaining a healthy diet is important for overall health. Healthy eating helps prevent obesity and chronic illnesses such as cardiovascular disease and diabetes [1]. A healthy diet often involves healthy practices of both food preparation and consumption. However, sustaining these practices can be challenging, and many people leverage their social networks, such as family members, to provide support and accountability [38,49]. Most of the work on diet sharing has focused on family members living together (e.g., [25,38,44,49]), and in particular parents with young children [25,44,49]. Because eating and meal preparations are significant, connected social practices [14,24], conversations about eating and meal preparation experiences could have the potential to promote awareness of remote family members' everyday routine and wellbeing. However, these conversations can also create tensions among family members due to different values, beliefs, and expectations around food choices and eating practices. Sharing everyday eating and meal preparation experiences can also elicit concerns about privacy and family dynamics, similar to what prior work has identified in health information sharing between intergenerational family members [5]. Understanding what, why, and how remote family members share information about their eating and meal preparation experiences and practices has the potential to inform the design of systems to support healthy eating conversations amongst the family members. In this study, we set out to examine these research questions:

- (1) What are the eating and meal preparation experiences remote family members share with each other?
- (2) What are the concerns remote family members have while sharing their experiences and practices?

To answer these questions, we conducted an interview study with 18 older adults and nine adult children to understand their current practices, experiences, and concerns. We adopt the framework of symbolic interactionism [33,34] that focuses on the connection between shared meanings and interactions to discuss how family roles and contexts influence the interactions and conversations around food and meal preparation. We contribute to an empirical understanding of:

- What motivates remote, intergenerational family members to share their eating and meal preparation experiences and practices
- How the family roles and contexts influence family members' communication of eating and meal preparation experiences and practices
- How the family members manage concerns and tensions when sharing these experiences and practices

Participants shared their eating and meal preparation experiences to support conversations. These conversations helped family members develop awareness and create shared experience while transitioning to new roles or living contexts. When eating and meal preparation became important in certain contexts, such as when the family had newborns, when parents became older, and when family members had health concerns, participants considered that they had a greater responsibility to focus on healthy eating. However, participants also had different expectations regarding healthy eating from their remote family members. We reflect on the changing roles and contexts of remote family members and their influence on family dynamics to discuss future design opportunities that support family collaboration on and communication about healthy eating.

## 2 BACKGROUND

We build our understanding on prior work examining technologies supporting awareness, connectedness, and health information sharing among family members co-locating with or living apart from each other.

### 2.1 Technologies supporting family connectedness and awareness

Social connectedness refers to “*the experiences of belonging and relatedness between people*” [4]. People in long distance relationships, either with significant others or family members, often need support to stay aware and connected. For older adults living alone, strengthening existing, close relationships has the potential to decrease the feeling of loneliness, improve health and wellbeing, and achieve a better quality of life [13,36,43]. Researchers have created and evaluated systems or design concepts to help older adults connect with others in their social network, such as by encouraging daily check-in [2,35], exchanging important life events and status [12,36], and sharing family calendar events to promote awareness [45]. These studies show that technologies supporting connectedness could ease the cognitive burden of keeping track of family activities and support awareness [45]. Information shared between older adults and their family members could also prompt new interactions and communication routines as well as support existing conversations [2,11]. At the same time, these designs need to consider how to fit into or build on individual existing routines to encourage adoption [2,36,45].

When people live apart from their loved ones, sharing information about each other, even with simple and small amounts of information – such as an indication of the current status (e.g., [2,22]) or a photo (e.g., [6,46]), can support rich expression and create a sense of connection. Researchers and designers have explored various opportunities and design strategies to complement existing technologies and mediate awareness cues that are often difficult to perceive across distance [26]. For example, exchanging ambient information can help fill the empty moments for implicit awareness [37]. Sharing knowledge about activities and daily routines can increase understanding of each other and prompt conversation [3,53]. Creating opportunities for shared activities and explicit interactions strengthen bonding and enhance mutual caring practices [9,51]. Research has examined tradeoffs between different design strategies. For example, while most of these systems adopt asynchronous communication strategies to accommodate different routines and schedules between remote family members, synchronous communication promotes a feeling of shared living and the presence of others [7,41]. While facilitating new routines for communication can be beneficial, systems need to build these new interactions on existing routines to encourage adoption [15,36,40]. While some research has shown that ambiguous information can create intimacy and awareness by collaborative meaning-making [3,21,37], providing contextual data can help avoid misunderstanding and promote positive experience sharing [3].

In this current research, we focus on the sharing of eating and meal preparation experience because these experiences are inherently social and have potentials to influence healthy behavior and decisions. We also build on the design strategies from prior work to further examine whether and how this sharing supports the relationship needs across distance and the tensions family members may experience through sharing.

### 2.2 Sharing everyday health and wellness information among family members

Understanding the health and wellbeing of each other is important for both collocated and remote families. Sharing information about everyday behavior can help family members find opportunities for healthy behavior change and provide support to each other [25,38,49]. Being aware of each other’s health information enabled family members to leverage family gatherings, such as meal time, to collaboratively reflect on healthy eating choices [25]. Similarly, by making

snack information available among family members, users of *Snack Buddy* became more aware of family-wide eating habits and proactively shared healthy snack recommendation [49]. Sharing information about meals eaten separately can also be beneficial, for example, users of *TableChat* found they were able to provide tangible support to each other, such as helping to purchase healthy grocery or avoiding certain ingredients when cooking [38].

While sharing everyday behavioral data can improve awareness, it can also create tensions among family members. For example, while shared activities and time spent together has the potential to help families reflect upon their health goals together, it could also be perceived as redundant [38]. While sharing individual activities provides awareness and opportunities for support, it can also create tensions around privacy [25,44]. For intergenerational families who live apart from each other, these conversations sometimes create tensions about independence and family dynamics [5,48]. Systems designed to support family-as-a-unit, instead of a collection of individuals, therefore have to consider the shared values, existing routines and rituals, and time spent together or separately among family members to support family-wide interactions and healthy behavior discussion [20,47]. At the same time, these systems also need to acknowledge individual autonomy to support individual and collaborative reflection [10,25,44].

Building on these insights, we set out to understand how family members communicate about eating and meal preparation experiences as ways to stay aware of each other's wellbeing and to promote conversations. We follow the call from Grimes and Harper [24] to understand the celebrative, social nature of eating and meal preparation but pay attention to the tensions resulting from striving for health improvement or "*correction*."

### 2.3 Symbolic interactionism framework for the family

As we conducted our research and analyzed data, we began to see a pattern of social dynamics that fits with the theory of symbolic interactionism as it applies to family studies. We then coded our data through the lens of this framework. In this section, we present some background information on its core tenets.

Symbolic interactionism derives from sociology, philosophy, and psychology. It is most frequently linked to American sociologist and philosopher, George Herbert Mead. Mead's central idea was that humans live in a symbolic world that is constructed by society, which is an antecedent of a person's individual mind and self [33,34]. Symbolic interactionism is fundamentally about the acquisition and generation of meaning—meaning is constructed by actors based on commonly understood signs and symbols in culture. There are many variations of the symbolic interactionism regarding how roles and interactions are constructed or made [33]. In this research, we adopt the overarching concepts of symbolic interactionism to guide our analysis and discussion.

One of the core concepts of symbolic interactionism is that of the "role" [33,34]. Individuals take on certain roles based on the context and situation that they are in. For instance, a person plays a different role at their workplace than they do at a bar with good friends. Traditionally, the role that women are considered to play in families is as a gatekeeper of food [39], and recent surveys show that 80% of mothers reported more likely to prepare meals or do grocery shopping in households with more than one child under 18 years old [50]. Individuals, however, could adopt new roles when contexts change, which may influence their interactions with other family members. These new roles could also create new challenges. For example, "sandwich generation" women may have to take on more food related responsibilities caring for their children and parents [19]. These multiple roles could create role strain—when an individual has difficulty enacting the role expected of them—or role conflict—when there is difficulty fulfilling roles with conflicting expectations [28].

Another important concept is that of "shared meanings" [33,34]. The foods that people define as healthy or unhealthy are often shared within a family, as are other associations such as

“comfort foods” or “traditional family recipes.” However, as individuals move away from family members, they may develop new meanings of food. Symbolic interactionism describes that the shared meanings, as well as the interactions around these meanings, are often shaped by roles and contexts. Symbolic interactionism also accounts for the “changing or negotiated meanings” that are formed when individuals experience a change in family dynamics (e.g., relocation) or a change in role that is societally constructed (e.g., marriage). Building emotional bonds through shared activities or family rituals, such as meal sharing or holiday gathering, can reinforce or strengthen family bonds and help individuals handle such changes.

Essentially, each member of a family plays a certain role based on the context (whether cultural or social). When a family is no longer living together, when they are remote, how do these roles change? How do their interactions change in respond to the role and context changes? Through our analysis, we began to see these roles, identities, and contexts influence what and with whom participants converse about eating and meal preparation experiences. This observation motivated us to adopt the framework to further support our analysis.

### 3 METHODS

To answer our research questions, we conducted an interview study with 27 participants with family members living apart from them. We recruited interview participants through handouts, flyers, and mailing lists associated with the university and local communities. The study protocol was approved by the university institutional review board. Among these 27 participants, 18 described having adult children living apart from them. Among these 18 participants, there are 17 females and one male, with an average age of 65 (53-76) years old. The remaining nine participants identified as having older parents living apart from them. Among these nine participants, there are four females and five males, with an average age of 32 (23-52) years old. We indicate our older parent participants with a “P” alongside their participant number and adult children with a “C” next to their participant number. Three participants (C13, P22, P27) mentioned they have both adult children and older parents living apart from them. In these three cases, we assign their participant number based on which role they communicated most about eating and meal preparation experiences. Some participants also shared eating and meal preparation experiences with other family members, such as siblings. Detailed information about participant demographics can be found in Table 1.

We conducted semi-structured interviews to understand how participants communicate about eating and meal preparation experiences with each other over distance. We designed the semi-structured interview protocol to focus on what eating and food preparation questions people often talk about and what technology was currently used in supporting these conversations. We also probed situations when sharing eating and meal preparation experiences or practices were challenging or undesirable. We conducted interviews via phone calls, video chats, and in-person. Three interviews lasted 15 minutes (C17, P19, P22) because these participants did not have any experience using technology to keep track of eating and food preparation. They also had never shared these experiences through any technology other than phone calls. While these interviews are shorter than average, they confirmed the responses from other interviewees and helped us verify that the emergent themes were consistent across participants. One interview lasted 91 minutes (P15). The rest of the interviews lasted between 25-46 ( $M=31$ ) minutes. Each participant was compensated with a \$10 Amazon gift card.

All interviews were recorded and transcribed for analysis. We conducted a mixed of inductive and deductive analysis, similar to the theory-driven directed content analysis [28]. We first conducted an affinity diagram analysis [27] to identify the common practices, tensions, and strategies to manage these tensions. We transformed the interview transcripts into approximately 700 affinity notes. All researchers iteratively organized these notes into 42 categories across a four-week timeframe. At the end of each week, researchers reviewed, discussed, and reorganized

the categories to capture emergent themes. During the data analysis, we began to see how family roles and contexts shape and influence conversations about eating and food preparation. We then turned to symbolic interactionism to help understand these changes. Therefore, we then iteratively applied the concepts of symbolic interactionism (roles, identification, contexts, shared meanings, and interactions) in the subsequent rounds of analysis. We identified several key themes regarding what, why, and how people share or do not share their eating or meal preparation experiences and practices with their family members across distance.

Table 1: Interview participant demographic information

ID	Age	Gender	Occupation	Remote Family Members (age)
<b>Older Parents</b>				
P01	61	Female	University administration	Son (30, C06)
P02	71	Female	Retired	Daughter (45, C03)
P08	72	Female	Retired	Daughters (39, 42)
P09	74	Female	Retired	Son (51), sister (73)
P10	73	Female	Retired	Daughter (49), son (46)
P11	55	Female	Teacher	Daughters (21, 25)
P12	76	Female	Retired	Three children
P14	66	Female	Retired	Son (30's)
P15	71	Female	Retired	Daughter (47), son (30, 32)
P16	61	Female	Financial director	Daughters (27, 33, 34), son (29)
P19	63	Female	Human resources specialist	Mother (63), daughters (29, 42)
P20	56	Female	Pharmaceutical manager	Son (29)
P21	57	Female	Secretary	Son (37)
P22	62	Female	Antique store owner	Son (35), sister (55), father (89)
P23	67	Female	Retired	Niece (23, C17)
P24	53	Female	Police dispatcher	Brothers (43, 48)
P25	72	Female	Retired	Sister (66), son (37), daughter (35)
P27	56	Male	Part-time worker	Children (19, 23, 23, 35, 38), siblings (54, 66)
<b>Adult Children</b>				
C03	45	Female	Dogwalker	Mother (71, P02)
C04	31	Male	Researcher	Mother (59), father (57)
C05	N/A	Female	University administration	Mother (83)
C06	30	Male	Graduate student	Mother (61, P01)
C07	23	Female	Graduate student	Mother (61)
C13	52	Male	Medical transport	Son, two daughters (30's), father
C17	23	Female	Dish washer	Aunt (67, P23)
C18	28	Male	Part-time worker	Mother and father (58)
C26	26	Male	Graduate student	Mother (60), father (65)

## 4 FINDINGS

Many participants acknowledged that the frequency of communication while living apart was limited by available technology, i.e. they could only communicate via phone calls or text messages weekly or biweekly. This naturally put some restrictions on what was shared about food and meal preparation. Even though they considered sharing about this type of information to be natural in the conversation and helping with providing awareness and understanding of each other, there were tensions surrounding the changing roles, contexts, and interactions due to the separated living situation. In this section, we begin by describing what people share about eating and meal preparation to understand the information participants deemed useful to share and their motivations to share. We also look into the tensions around sharing and how people manage these tensions to understand the challenges and strategies of sharing. We present these

participant experiences through the lens of symbolic interactionism, paying special attention to how familial roles and changing contexts influence the communication and conception of health and eating practices.

#### 4.1 Developing awareness about everyday routines after changes in living contexts and roles

Participants used conversation about eating and meal preparations to understand each other's everyday routine, health, and wellbeing. Explicitly asking about or sharing this type of information was essential to help improve the understanding of and express care to each other. Most participants described that once they did not live in the same household with other family members, they no longer had visibility of each other's routines nor shared the day-to-day interactions that facilitate bonding. As symbolic interactionism posits, the change of living contexts can influence how family members identify with their roles and how they interact with each other. We found that the change of living contexts influenced participant roles in food and meal preparation: someone who had been living as a dependent or with shared responsibilities of food preparation may have to take on a more prominent role in their new household. Participants described communication during and after such familial shifts became essential for them to maintain family bonding, build awareness, and facilitate conversations.

For instance, P12 had three children living in different states and starting their own family. These changes mean that P12 only had to prepare meals for herself, and her children had to learn to prepare food for their own family. Therefore, during the phone calls with her children, they often talked about how these new experiences could be challenging:

*"I talked to them that sometimes it's hard to live alone and eat healthily. I find it challenging because I don't cook anymore very much at all ... and then we talked about what they're preparing for their families, what they're eating, how they tried very hard not to let the food all spoil before they cook it up."* (P12)

C03 had left home since college for many years. While she felt very close to her mom and communicated with her mom very often, she still thought that she missed some awareness of her wellbeing because they did not live in the same household. To support the development of the awareness and connectedness across distance, C03 and her mom used the conversations about everyday eating as a way to probe how each other is doing.

*"[We talked about] what we might make for dinner...we talk to each other about how we're feeling, if we feel healthy or sick. What we ate for breakfast."* (C03)

In all these examples, participants recognized a need to sustain some forms of consistent interaction to maintain their common understandings of what it means to be healthy. As symbolic interactionism describes, these participants used repeated interactions to associate meaning (e.g., what is healthy) to different contexts and situations (e.g., living together vs. apart). Explicitly asking and talking about eating and meal preparation experiences became a new way for participants to peak into their family member's everyday life as they moved to a new living context and take on new roles. These conversations may be short and casual, but similar to what users of TableChat reported, knowing what family members eat and cook separately from them offered participants improved awareness and opportunities to express care [38]. In addition, our findings show that a change in role (e.g., from being a dependent to a preparer) challenged some of these established meanings and altered family dynamics. Therefore, adopting new social interactions, such as talking about food, became essential for family members to maintain familial bonds and awareness of each other's wellbeing.

#### 4.2 Reminiscing about past shared experiences to remain connected in new living contexts

Since family members who were distant from each other no longer had the same level of understandings of day-to-day interactions as before, some participants built connectedness through reminiscing about shared experiences in the past, such as cooking together or going to their favorite restaurants. For example, C13 had lived apart from his children and his father for more than 12 years. With family members spreading out, they did not have the opportunity to get together very often. Therefore, conversations about food often involve reminiscence about past experiences. He gave an example of some enjoyable memories his children often mentioned during their conversation:

*“There’s one restaurant, new in this area. And it’s not very big. It’s just the other day we talked about a few of the dishes that they serve there. And how enjoyable it was.”* (C13)

In this case, the topic of food not only triggered conversation but also brought up pleasant memories surrounding shared experiences whilst living remotely. The past shared experience also often built up to support new experiences, such as trying new recipes together. For example, C07 described that because she and her mom did not live together anymore, they lost the opportunities to cook and try new recipes together. To compensate for these lost opportunities, they often shared food photos with each other when they tried new recipes or went out to eat on special occasions:

*“I used to live alone with my mom for a while and cook for her all the time and try different things together. Now that I’m far away, she would try new things that I taught her, and I would also try new things, and we’d share photos sometimes. ... Some times when I do go out to eat on special occasions, and I would take pictures and send.”* (C07)

C07 also mentioned leveraging technology to recreate the cooking together experience with her dad. She described that her dad would FaceTime her when he cooked and have conversations about how to make specific dishes:

*“If I’m FaceTiming him, he would show me how he did it or how much he put in. Like ‘this is what you didn’t put in and this is what I did.’ Just showing little things he did differently.”* (C07)

The shared experience was often reinforced when participants visited their family members in-person. For example, C06 mentioned that both his mom and he loved cooking, but they did not have the opportunity to do it together now. Therefore, they tried to recreate these shared, memorable experience whenever they visit each other:

*“Whenever I actually had flown up there and like I’m visiting at her house and we’re just cooking together and talking about it at the same time. We talked about like what we’re doing and like, oh, I’ll throw some random bell pepper trivia out there or something like that.”* (C06)

Symbolic interactionism states that individuals derive meaning from memories and either retain that knowledge or form new negotiated meanings. In a collocated family context, memories often remind family members of shared usage of symbols, participating in family rituals, and forming role-taking mechanisms. Prior research has shown that reminiscing about shared experiences promoted pleasant memories and initiated conversations [30]. Our findings further show that, when moving away from family members, reminiscing about past memories introduced nostalgic feelings and further create and foster connections across distance. These shared understandings of prior routines (e.g., cooking together at home) enabled participants to create new shared experiences across distance (e.g., through sharing recipes or cooking via video calls) and in-person (e.g., during family gatherings).

### 4.3 Healthy eating as a response to existing or new health concerns

Recognizing that eating and meal preparation is highly relevant to health and wellbeing, many participants had more involved healthy eating conversations beyond checking-in with remote family members (as described in section 4.1). In particular, participants felt more responsible to have healthy eating conversations when the family health context changed, such as when a family member had health concerns, or when they had a sense of altered family roles, such as when new members arrived in the family.

Health conditions and concerns were common motivations for participants to talk about healthy eating. In many cases, being aware of a family history of chronic conditions was a trigger to talk about healthy eating. C05, who communicated with her mother by phone frequently described that her mother's concern about the prevalence of diabetes in her family led to more discussions on health and a heightened sense of awareness on both of their eating choices:

*"It's [Mom's diabetes] always in the back of my mind. Hey, she has diabetes. My father had diabetes, and he didn't get that until his fifties. And then all his siblings, they're nine, a big family. They all ended up with diabetes as well later down the line."* (C05)

Similarly, P10, who's been on medication for cholesterol for most of her life stated that she worried about her daughter's eating habits and wished for her to adopt a healthier lifestyle by keeping in mind their family health history:

*"I just want them to be self-conscious that cholesterol runs in our family, high cholesterol. I've been on the medication 25 years, maybe."* (P10)

However, conversations about healthy eating were the most commonly mentioned tension among participants. Many participants talked about how they had different definitions and expectations of healthy eating from their family members. Living away from each other sometimes made the sharing of these expectations difficult and felt judgmental. When we asked how participants recorded and shared their food and meal preparation, some participants mentioned doing calorie-based food tracking using mobile apps or notebooks but never shared this information with their family members. These participants believed that their family members were not interested in this type of information, and conversations about detailed food tracking, such as calories and nutrients, often led to tensions about health and healthy eating expectations.

Out of fear of being judged, some participants chose to only share positive information. C17, who communicated with her remote family member frequently to keep each other accountable for their weight loss plans, stated that she only shared healthy eating experiences (and withheld unhealthy eating experiences):

*"Honestly, I didn't feel uncomfortable talking about healthy eating. It's the unhealthy eating I felt uncomfortable with.... I do tend to hide the fact that I'd binge eat in secrecy or I'd eat mindlessly."* (C17)

Recognizing the conversation about healthy eating can easily be perceived as judgmental, some participants tried to focus on their own experiences and hoped that their family members would follow their leads in the long run. P12 said she would try healthy food first before pushing those options to her daughters:

*"It's tough. You can't really go to your daughters and say, hey, you two fat pigs. You are all overweight. I'm your momma here to tell you that you need to change your eating habits. They're very sensitive so you have to circle around. ... So I might say I found something for myself as opposed to you guys need to do this because I think you're too plump."* (P12)

Similarly, C18 knew that he and his father had very different definitions of healthy eating, and that it would be difficult to change his father's habits in a short time. Therefore, he tried to take it slowly and introduced his father to healthy meals by example:

*"Because my dad will never give up meat. I know that for a fact. But he's started to occasionally have one meal without meat per week and he'll be really excited about it. His idea of a vegetable is still like a French Fries kind of a thing. I'm trying to slowly change his thoughts about everything to dance more by leading by example."* (C18)

C04, who personally preferred to eat sustainably sourced food stated that he would like to know where his parents got their food, but he did not want to push this conversation to happen. Instead, he would just talk about his own choice:

*"[I would like to know] the source of where they're getting their foods. I'm pretty big on farm-to-table and small family farm, not like the big corporation style farm. So knowing that they're getting their eggs from a local farmer ... but that's not a conversation which you really have."* (C04)

Similar to prior work about sharing health information among remote family members [43], health conditions were one common reason participants in our study started to talk about healthy eating. Our findings further show that the change of context (e.g., new health concerns) led family members to change their roles in regards to healthy eating. In addition, as symbolic interactionism posits, each actor in the family may interpret situations and contexts differently. Our findings show that, when moving away from each other, family members may develop different expectations about healthy eating, and conversations about healthy eating could be perceived as judgmental. Most participants were aware of these communication challenges, and many of them took on the role to lead or share healthy eating experiences and practices as examples. Through these examples, they also shared healthy eating strategies and tips while avoiding conflicts.

#### 4.4 Taking responsibility of healthy eating due to changing roles

Another occasion some participants started to share healthy eating or meal preparation practices was when they had a sense of new family roles. For example, many older adults thought they had a bigger responsibility when there was a newborn in the family. Both P20 and P14 thought, with their new roles as grandmothers, that they needed to be more aware of how their daughters prepared meals for their granddaughters:

*"Now having a two-year-old [granddaughter] in the picture. We do actually talk a fair bit about [healthy eating]. I want my granddaughter to learn how to live in a well-balanced world of diet and not just nuggets."* (P20)

*"You know, [my granddaughter] is on a macaroni and cheese kick right now. She's not into trying new foods, but she's only five. What do you expect?"* (P14)

For adult children, the aging of older parents often triggered a sense of responsibility to pay more attention to their diet. They transitioned their role as a dependent of care to a responsible caretaker of the older parents. C07 mentioned she started to pay more attention to her parent's health and eating and wanted to make sure her parents were eating nutritious foods:

*"I think as [my parents] are getting older, I would hope they would eat more things that help their body. More vegetables and actually trying new herbs and drinking more water."* (C07)

C05 mentioned that her 83-year-old-mother had always been the one who was responsible for cooking and making sure everyone ate healthy. However, as her mother aged, she started to initiate healthy eating conversations with her mother more often, as compared to before:

*"I would always remind her, 'You have to eat something right. You need the nutrition,' and that has been more so as she's gotten older, I need to make sure that she's getting the nutrients that she needs. But when I was younger, I could care less, you know? I wasn't really paying attention to her like now. 'Are you taking all your meds and what did you eat today?' Things like that."* (C05)

However, taking on these new roles may create tensions among family members. For example, P02 cared about her grandson and thought she had the responsibility to make sure he ate healthy foods. At the same time, however, she also worried that her "care" would create tensions between her and daughter. As a result, sometimes she chose not to speak or ask about certain eating experiences:

*"There have been times where I just wouldn't say anything about dessert she [my daughter] has made or something because she's such a good baker. But I would just think, oh, how much did [my grandson] eat, that would be a concern."* (P02)

Similarly, while dedicated to talk more about healthy eating choices and learn cooking from her mother, C05 mentioned several instances that she was frustrated about these conversations.

*"A while back I tried the Keto Diet and restricted my carbs. Been trying to explain that process to [my mom]. I didn't think she would be able to understand it or grasp it all. She'll listen, but at the end of the day, she's old fashioned."* (C05)

*"She's [My mom] never used a crock pot. And the thought of a crock pot is just like, okay, wait a minute, what is that? Why aren't you doing it the old school way, which is like the pressure cooker where beef stew can take forever to cook, where I can put it in a crock pot and done like that."* (C05)

Some participants attributed these different expectations to generational differences. P11 mentioned a few times in the interviews how she felt about healthy eating conversations with her daughters. She thought that the younger generation often had different definitions of healthy eating, and these differences might create tensions even when sharing was based on good intentions:

*"I'm very careful about sharing diet tips because it seems to me that any talk of a diet or trying to say eat green vegetables, eat less iron, less carbs is kind of hinting or suggesting to the younger generation that you are either fat or you've put on weight, that you need to lose weight."* (P11)

One way of mitigating tensions is by gradually transitioning to a different role that is more accommodating of new family dynamics. For example, P20 became aware that her son and daughter-in-law were struggling with food preparation. She realized that neither her son or her daughter-in-law was used to meal preparation and cooking, and tensions arose every time there was a conversation about food. To avoid this, P20 chose not to have conversations that could create a strain in their relationship. Instead, she adopted the role of a family educator and helper, which involved planning family meetups to cook together and learn from each other until it got easier for her family members to carry on without her help.

*"About two months ago I said when the weather gets cooler again, which is about September, we need to start planning menus and doing a thing together with his wife to also help her learn how to cook. Chopping and preparation is the hardest part, right? So if we could get together once a month on a Sunday afternoon and do preparation for lots of meals, then that could make four weeks of his month very much easier to cook."* (P20)

As symbolic interactionism states, the need to take on new roles prompted conversations about healthy eating among participants and their family members. However, participants also

struggled with these transitions and experienced conflicts while trying to have conversations based on their new perceived responsibilities and roles. As we discuss in more detail in the next section, the sense of these roles was often more salient among female participants, which is consistent with the social expectations of women, and was one major reason these participants started the conversations about eating and food preparation with their family members.

#### 4.5 Family food preparer as a gendered role

Many participants reported that in their families, there tended to be one person who assumed the role of food preparer and consequently, this was the person who was concerned about and managed food for the rest of the family. As a result, family members often approached the same person for recipes and healthy eating support. Participants reported that this family member tended to be the mother or another mother figure, such as an older sister or aunt. We also found that the majority (17 out of 18) of the older adult participants who agreed with interviews were identified as woman. While this might be a study limitation as we are not able to describe the experiences of parents with other gender orientations, we believe this is consistent with the societal expectation of women [39,50]. This phenomenon is also confirmed by our adult children participants – all of them reported primarily speaking to their mothers about food. For example, C26 said that he would only talk about food with his mother:

*“I mainly talk to my mom about food. I hardly ever talk to my dad about food.” (C26)*

P11, a married mother of two, described that she considered herself as the primary monitor of family eating habits, and no other family members would care about what she ate and how she prepared her food:

*“As the mother, the wife, and the person who actually manages the kitchen and cook, I think I’m the only person amongst the four [in the family] who really gives as much thought to food and about what’s going on inside my body. I, for a fact, know that my husband doesn’t think about it at all. He just loves good food so he will eat wherever he gets it.” (P11)*

When asked what her family members would want to know about her eating habits, she said,

*“Oh, I don’t think they particularly care what my eating habits are. They’ve never asked me what I am eating or what I had cooked for today or whether I am eating healthy or whether I’m exercising ... I don’t think they have the time to be able to ask me. It’s really on me.” (P11)*

Participant C05 also reported similar observations, that both her husband and father were not the food preparers in the family. She describes her husband as being unable to cook and lacking interest in it:

*“My husband does not cook and doesn’t know how to cook at all. I’m lucky he knows how to make a TV dinner. He just has no interest.” (C05)*

Then, during a discussion about how generational differences created some challenges in communication with her mother, C05 spoke about her mother’s role as the food preparer, which was not an expectation for her father:

*“But [when my mom was young], cooking for your family was a priority. The expectation around that time was that the man was the man of the house. And even though [my mom] had her job, she had to come home and cook and clean and that food was always a home-cooked meal.” (C05)*

When participant C07 was asked about whether she shares her food journal with her father, she reported that eating habits and weight were of greater interest to her mother than her father:

*“No [I don’t share my food journal with my father]. Because he’s not concerned about my weight. Your mother is more concerned about that.”(C07)*

P24 also thought that she was responsible for her brother’s healthy eating practices after her mother passed away because she was the elder sister of the family:

*“One brother has serious cholesterol and triglyceride issues and our mother died of heart disease...She was my youngest brother’s age when she started having heart issues. So, we have seen that. And I think that that’s why all of us tried to go a little bit healthier than what we grew up with.”(P24)*

She then went on to say that her brothers did not have healthy eating expectations for her because they were used to her being a caretaker in the family:

*“I’m not sure that they even think about [healthy eating] as much I do. Especially since I’m the older one and helped to take care of mom a lot when she was sick. So I don’t know if they actually put that much effort into thinking about it.”(P24)*

The identification of this food-preparer role could be a source of tension, especially when the individual perceived a role strain, that they were not able to perform their role as expected. For example, P08 mentioned that one of her daughters was on mental health medications that induced her daughter’s undesirable eating behavior and weight gain. She tried to fulfill her responsibilities as a mother who looked out for her daughter’s healthy eating practices but was unable to do so because of the daughter’s mental health condition. She expressed how stressed she was because avoiding the healthy eating conversation was the only option she had to protect their relationship:

*“She is on lots of medicines and her medicines make her eat voraciously, but what she chooses to eat are all fatty and sugary foods. ... [She] doesn’t want any of those recipes or even talk about what we should have. It’s just a sore subject so we don’t bring it up and it’s a shame. But I don’t think she can [change] until she gets off some of the medicine, which probably is not ever going to happen.”(P08)*

*“She just goes ballistic and so my husband said that it’s just a topic we won’t talk about.”(P08)*

Symbolic interactionism demonstrates that individuals often identify with their roles according to societal meanings, and tensions may arise when those roles were altered due to a change in living contexts. In our study, female participants often felt the responsibility to take care of the family and ensure healthy eating conversations and practices, even with family members no longer living in the same household. However, some experienced role strain when they did not have control over contexts surrounding eating behavior and practices and therefore could not perform these roles.

## 5 DISCUSSION

Overall, participants said that they enjoyed communicating frequently about eating and meal preparation experiences but also reported several challenges. They also reported talking about food and eating when contexts or roles change, such as moving out, new health conditions, new grandchildren, or aging parents. The increase of conversation is particularly salient when participants associated eating and meal preparation as part of the health activities. These changes are similar to the “turning points” proposed by Sandbulte and colleagues [48], which are disruptive moments in life—such as a sudden illness in the family—that increase the sharing of health information.

Our findings also show that, in most cases, mothers are primarily responsible for the rest of the family’s health and eating behavior, which fits with the roles that mothers often play in

society [39,50]. Mothers have traditionally been responsible for the management of food and cooking for the entire family. When children grow up and move away from home, they usually become responsible for their own food management. However, our findings show that many adult children still relied on their mothers for help with meal preparation, and mothers or other mother figures still bore the healthy eating responsibility of family members living apart from them.

In this section, we first reflect our findings on the application of the symbolic interactionism framework. We then discuss potential design opportunities to facilitate these conversations and sharing practices accounting for the changes of individual identities, family roles, and contexts.

### 5.1 Expectations, conflicts, and transitions in family roles

Building on the lens of symbolic interactionism, we observed several instances when interactions – conversations about food and meal preparation were built on the expectations of roles. The most salient example was how participants relied on a mother or other mother-like figures in the family for food management and advice. Historically, mothers have been responsible for domestic activities, such as food preparation and health management, for all family members [16]. In this research, our findings further show that mothers still act and are treated as food and health caretakers in the family, even when their children are adults and live away from them. These mothers tried hard to uphold these roles, as is supported by the symbolic interactionism, that people often strive to excel at their role-related responsibilities [33,34]. However, our findings also show that supporting these roles across distances and extended families can be challenging. These extend responsibilities could also make it difficult for family members who live apart from them to transition to managing their own food preparation without their mother present.

Furthermore, while taking on new roles to take care of family members living apart, individuals could experience role strain or role conflicts. For example, a mother can be confused about the role that she should take with her adult child. Should she remain her role as a food preparer to her child, or should she draw the boundary and let them manage their eating practices and decisions? Similarly, an adult child can experience role conflicts if they are not sure what role they should play in healthy eating conversations with their parents. These conversations may be very different from the ones they had when they were younger and lived in the same household with their parents. Similarly, with aging parents or new family members, individuals may transition to new family roles. These transitions can be an impetus for individuals to start caring about each other's healthy eating practices. While these conversations often improve health consciousness, these role shifts could also create uncertainties in expectations and responsibilities.

These findings indicate opportunities to help family members transition to different roles, to explicitly communicate about role expectations, and to manage tensions associated with these role shifts. We discuss these design opportunities further in the next section.

### 5.2 Systems to support changing roles and contexts

Symbolic interactionism indicates that a family's dynamics are influenced by the roles, identities, and contexts in the family. In our research, we observe several occasions in which participant family roles or their identification to the roles influence what and with whom they communicate about eating and meal preparation experiences. For example, when new members arrived in the family, some participants felt they had a greater responsibility to ensure healthy eating practices were implemented in the family. These changes are particularly prominent when family health contexts change – such as the diagnosis or progress of illness of any family member. These individual changes often have an impact on the family as a whole and bring about more awareness of what each family member eats and how they prepare their meals. Since familial

contexts and roles are not static, individual perceptions about what is appropriate to share may also change accordingly.

Researchers have started to approach designing systems as a continuous journey that accounts for people's changing priorities, health conditions, and lived experiences [23,29], instead of episodic moments. There is an opportunity for systems supporting family communications to adopt the concept of a family journey into design. For example, incorporating roles that are inclusive into systems or allowing the identity of these roles to change fluidly and seamlessly might help family members manage the change of responsibility and expectations more smoothly. Design could support the enactment of these roles and support the communication of role changes. Prior work on roles has shown ways of solidifying familial role changes. For example, prior research has shown that new parents would take photos of their newborn and of themselves performing parenting activities as a way to enact their transition to parenthood [52]. Systems supporting the documentation of role transition regarding food and eating preparation may have the opportunities to help individuals identify these role changes or support family members explicitly communicate about the expectations of these transitions. For instance, systems could encourage individuals to take photos in different stages of role transition regarding food preparation (e.g., from preparing food for themselves to preparing food for newborns) or food choices (e.g., different diet choices in response to aging or health concerns). These photos could enact individuals to reflect on their choices during role transitions or context changes [11]. They could also help individuals communicate these choices, expectations, or goals with other family members.

Design could also support interactions based on the understanding of these roles and identities. For example, systems can support scaffolding the planning process among family members to encourage participation and conversation around meal preparation. Systems like TableChat[38] and Snack Buddy[49] suggested that sharing about food choices could elicit support from family members. There are opportunities to support further communications about why and how these choices are made and what went into the decisions of food preparation and consumptions, such as where and what to shop, why eats out versus cook at home, how and why a specific dish is made. Scaffolding these processes could also potentially prepare family members to engage in healthy eating activities when contexts change, such as when the primary food preparer experience illness or when individuals start new families and have to take on the food preparer role. Building on the social practices of eating and meal preparation, our findings provide empirical evidence that can support further investigations and iterations on designs supporting family journeys.

Additionally, future technologies can support the managing of tensions around role transitions. For example, many adult children participants reported wanting to pay more attention to the diet of their aging parents but worry these conversations could strain their relationship. Systems could support context-based conversation prompts that build on prior conversations, existing family interests, and emergent healthy eating questions. These conversation prompts could then support the children role transition – from an information receiver to an active caretaker – by promoting the conversations about healthy eating questions and supporting individual and collaborative sense-making of the eating experiences and practices.

### 5.3 Collaborative technologies for families

Participants in our study shared eating and meal preparation experiences for various reasons. They also have different healthy eating goals as a family. However, most existing systems focus on supporting activity-or task-oriented goals, such as list-making or ingredient tracking. Building on the conversations about design for family-as-a-unit [10,46], there is a need to support family members to develop and pursue their family goals. For example, none of the participants in our study shared detailed food tracking information with their family because

they did not think this data supported their conversations with family members. The goal of “supporting conversations” mandates the type of experiences and practices they would like to keep track of and share. Researchers have started to examine the use of personal informatics data to support use beyond health, such as preserving memories with sentimental values [17,18]. Future family informatics system designers should further include these diverse sets of family goals into design. For example, users of *SPARCS* appreciated that the system gave suggestions about what and when to share and therefore helped them to preserve contextual information that they would have missed [6]. Knowing family values and goals regarding eating and meal preparation, systems could encourage individuals to collect, curate, and share new experiences to promote awareness instead of reminding them to keep track of every meal.

There is also a need to focus on collaborative interactions around individual experiences and practices. For family members living apart from each other, while they eat and prepare their food separately, the sharing and conversations about these experiences provide connectedness and awareness. However, most of the systems supporting food and meal preparation data collection and sharing do not tend to be collaborative. Similar to Christensen and colleagues’ proposal to collate individual activities as a shared experience [10] as well as Pina and colleagues’ suggestion to design for both individual and collaborative reflections [44], we believe there is an opportunity to incorporate individual and family goals into family informatics systems. These designs can support the idea of “family space” that helps family members co-define their family goals and individual goals as well as collaboratively pursue, adjust, and tradeoff these goals. Unfolding these processes can also support family members to explicitly communicate their expectations. That is, while providing a place for family members to share information could be beneficial (e.g., [5,6,31]), there are opportunities to encourage family members to talk about why and how they are sharing. It can also help manage their expectations of sharing and receiving this information.

Designs can also support creating shared experiences around eating and meal preparation, such as facilitating cooking together across distance. Participants in our study reported mentioning the cooking-together experience to prompt conversations, to enhance relationship bonding, and to develop new eating and cooking experience. One potential design opportunity is to leverage existing meal-kit services, such as Blue Apron<sup>1</sup> or Home Chef<sup>2</sup>, that has attempted to lower the barrier of cooking. Building on these services, designers can create a more holistic experience to help people facilitate the communal cooking experience across distance. For example, meal-kit services can include family recipes or support family members to co-create meals. It can also provide ways to support family members to interact with each other across distance and create shared memories. For example, one participant (C07) in our study reported watching her father cooking through FaceTime video calls. Users of *Talking Bottle* and *Performance Apron* shared kitchen conversation through asynchronously recording messages using interactive artifacts [8]. Beyond making food together, there are more opportunities to support collaborative cooking together experiences across distance. For example, prior research has found that people perform various collaborative activities, such as observing, checking, helping, and showing the cooking activities, when cooking together in the collocated kitchen [42]. Building on these understandings, future technologies or services should continue to examine how to augment these interactions to better support connectedness across distance.

## 6 CONCLUSION

Eating and meal preparation are social practices. Sharing these experiences and practices among family members living apart from each other has the potential to create connectedness and improve wellbeing. Reflecting on the results from the interview of 18 older parents and nine

<sup>1</sup> <https://www.blueapron.com/>

<sup>2</sup> <https://www.homechef.com/>

adult children who live apart from their family members, this research provides an empirical understanding of what, why, and how people share or not share eating and meal preparation experiences and practices. To encourage the sharing of these experiences and the management of tensions, future systems should acknowledge and support dynamic roles and contexts. These systems should consider the integration of family goals and individual goals, the creation of shared experiences, and how this might influence family interactions.

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