'Here the Refrigerator is Empty': Food Insecurity among Puerto Rican Elders

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Objective: The authors documented, described, and explained the food insecurity experiences of Puerto Rican elders, particularly how they perceive and give meaning to this phenomenon.

Methods: The food insecurity experiences of 50 Puerto Rican elders (≥65 years) were collected using a mixed-methods approach. Qualitative data were collected through in-depth interviews, and quantitative data were obtained from a 22-item questionnaire. The data were integrated with a convergent design.

Results: 92% of the participants were food insecure. Puerto Rican elders' food insecurity experiences have four components (quantity, quality, social, and psychological) and a common pattern of fourteen manifestations.

Conclusion: Food insecurity in Puerto Rican elders has causes that go beyond the economic access to food. Addressing food insecurity should be a priority of integrated national food and nutrition policies to reduce the nutritional health inequities among this population. This study presents the first in-depth examination of food insecurity among Puerto Rican elders residing in Puerto Rico, focusing on their cultural interpretations of the phenomenon.

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Key words: Food insecurity, Elders, Older adults, Food access, Puerto Ricans

Food insecurity is not only a pressing public health issue but also a significant one that profoundly impacts people's nutrition, health, and well-being at all stages of life (1, 2). It is a social determinant that affects life, health, dignity, civil society, progress, justice, and sustainable development (3). While it is a concern for all age groups, it becomes particularly critical in the older adult years, making it a primary goal to achieve optimal health in the elderly. Food insecurity is not a temporary problem for most elderly persons, especially those who live alone and rely on a wide range of home and community-based services (4). As the elderly population grows, the urgency of addressing food insecurity becomes more pronounced (5, 6). The experience of food insecurity for older adults is defined as "the inability to acquire or consume an adequate quality or sufficient quantity of food appropriate for one's health in socially acceptable ways, or the uncertainty that one will be able to do so" (7).

By July 2024, 24% of Puerto Rico's population was 65 years or older (8). In April 2015, 26% of the housing choice vouchers of the Puerto Rico Housing Department were for people ≥ 60 years, 52% of the seniors had some form of disability, 41% were below the poverty level, and 42% of the families, there is a person over 65 years old (8, 9, 10, 11). The most pressing problem with the scenario described above is the inadequacy of income to match basic living costs, including food. This situation is a challenge for Puerto Rican elders, who face unique challenges due to their geographical and socioeconomic conditions.

Food insecurity among elderly households is under-studied (4, 12), and its understanding is needed, particularly among Latino elders, a population growing in the U.S. and the main population in Puerto Rico. Only one study (7) explicitly included Puerto Rican elders (39.6%, n = 53), providing a conceptualization of the experience of food insecurity among the elderly. The specific aims of our study among Puerto Rican elders were to 1) document experiences regarding the availability, accessibility, and utilization of foods; 2) describe how they experience and perceive food insecurity; and 3) understand capabilities, demands, meanings, and context related to access and use of nutritionally adequate and personally acceptable foods.

Methods

This research was a convergent mixed-methods study (13) (Figure 1). We employed a phenomenological design for the qualitative approach, utilizing in-depth interviews to gather the information. For the quantitative approach, we used a descriptive design. We collected data from 14 items of the Elderly Augmented

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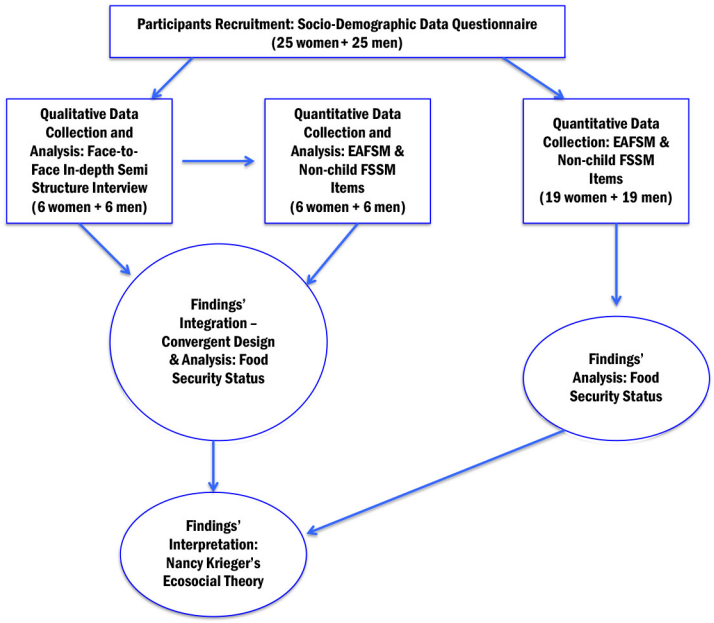
Food Security Measure (EAFSM) (7) and eight items of the Non-Child United States Household Food Security Measure (Non-Child FSSM) (14). We conducted this research after the approval of the University of Puerto Rico Medical Sciences Campus Institutional Review Board (Protocol #A9980115). We obtained informed consent (implicitly) to publish participants' quotes. The study began on July 8, 2016, and ended on October 4, 2016.

Participants were recruited using purposeful sampling from diverse settings that serve older adults in Puerto Rico. The process involved direct contact with key personnel from community-based organizations and health service agencies. The inclusion criteria for our study ensured the selection of a representative sample. Participants had to be 65 years or older, Puerto Ricans, have resided in the San Juan Metropolitan Area for the past ten years, and have lived in Puerto Rico their entire lives. A purposive sample of 50 elders (25 women and 25 men) who met the inclusion criteria was administered a Socio-Demographic Data Questionnaire (SDDQ) consisting of 23 questions about the socioeconomic profile and health, among other descriptive data. Then, 12 elders (6 women and 6 men) were interviewed in-depth face-to-face with a semi-structured interview guide consisting of 31 open-ended questions about participants' food situation, considering the four components (quantity, quality, social, psychological) of the framework developed by Wolfe et al. (7). The number of 12 participants was based on qualitative research standards where data saturation is typically achieved within 12 – 15 interviews (13, 15, 16). Saturation was confirmed when no new categories, themes, or concepts emerged from the last few interviews (13, 15).

Figure 1. Research design



This figure depicts the convergent mixed-methods design used in the study. It includes participant recruitment, the collection of qualitative and quantitative data, data analysis, and the integration of findings, as well as interpretation to determine the food security status. Arrows illustrate the direction of data flow and analytical integration.

After about one week, we directly administered the EAFSM and the Non-Child FSSM to the same 12 participants. To the remaining 38 participants, we administered only the EAFSM and the Non-Child FSSM. The EAFSM introduces elements specific to older adults, such as their concern about consuming foods that are adequate for their health. The Non-Child FSSM focuses on more general aspects of food insecurity, such as experiences related to a lack of money for food. Psychometric validation for the EAFSM and the NON-Child FSSM was not conducted in Puerto Rican elders as part of this study. However, efforts were made to ensure accuracy and cultural relevance in wording and administration. A Puerto Rican professional translator translated the EAFSM and the Non-Child FSSM into Spanish and later tested them with five Puerto Rican elders (3 women and 2 men); the adjustments were minimal.

Data analysis

The data obtained from the SDDQ were summarized using descriptive statistics. The in-depth interviews were digitally recorded and transcribed verbatim. Descriptive coding was employed using notes in Word files. Interview transcripts were broken down, coded, compared, and categorized as quote segments, assigning them conceptual and hierarchical sub-codes. We employed qualitative analysis strategies, based on the constant comparative method, to interpret meaning, examine emerging themes, and draw conclusions (17). The data were integrated using a convergent design to examine this problem from multiple angles and perspectives, allowing for triangulation (15). A convergent design collects both qualitative and quantitative data, analyzes both databases, and then merges the results of the two sets of data analyses to compare and validate the findings (13). This rigorous process ensures the reliability and validity of our findings.

Food security status

From in-depth interviews, each participant was rated as food secure or having experienced mild, moderate, or severe food insecurity. For instance, the experience of a mild level was present when there were fewer stocks in the home than needed to put together a meal. For example, eating less food than usual was rated at a moderate level, and the most severe was going one or more days without food. The EAFSM and Non-Child FSSM Items Survey was evaluated based on the number of affirmative answers, with 'food secure' indicated by zero affirmative responses and 'food insecure' indicated by one or more affirmative responses. Food-insecure elders were further classified as having mild (1-5 affirmative answers), moderate (6-10 answers), or severe food insecurity (11 or more answers).

Results

The twelve participants had a mean age of 76 years and reported none or up to fourteen diagnosed health conditions. They took between none and fifteen medications, with a mean monthly expense of $12.50. Five participants reported that they had to follow a diet for their health, and four of these were unable to track it due to financial reasons. More than half of the participants presented limitations in preparing their meals (91.6%), handling their transportation (75.0%), and performing basic domestic tasks (66.6%). Many indicated limitations in walking and transferring (41.6%).

The remaining 38 participants had a mean age of 76 and reported having between one and ten diagnosed health conditions. They took between none and fourteen medicines, with a mean monthly expense of $22.58. Nineteen participants reported that they had to follow a diet for their health, while ten mentioned being unable to do so due to financial constraints. Sixteen elders reported experiencing mobility problems that made it challenging for them to prepare their food. Other selected characteristics are in Table 1.

Table 1. Participant's characteristics

Characteristics	12 participants	38 participants
Education		
Less than 12th grade	16.7	42.1
High school diploma or GED	41.7	31.6
Some college to graduate school	41.7	26.3
Marital status		
Married	33.3	34.2
Divorced or separated	33.3	23.7
Single: never married, with children	8.3	7.9
Widowed	16.7	34.2
Household size		
Living Alone	50.0	42.1
With 1 person	41.7	28.9
With 2+ persons	8.3	28.9
Having a Religion	75.0	84.2
Paying for Health		
Puerto Rico's Health Reform	50.0	55.3
Private Insurance (PI)	83.3	89.5
Out-of-pocket	75.0	55.3
Income sources		
Social Security - Family	66.7	94.7
Pension, Stock, Personal Savings	41.7	55.3
Food Stamps (i.e. SNAP), Welfare	50.0	44.7
Work	16.7	5.3
Food sources		
Social Security	66.7	94.7
Food Stamps (i.e. SNAP)	41.7	39.5
Pension and Work	66.6	36.9
Home Garden	33.3	50.0
Family, Friends, Neighbors	49.9	36.8
Congregate Meals	8.3	81.6
Having Government Subsides	50.0	36.8

GED = General Education Development test
SNAP = Supplemental Nutrition Assistant Program

Food security status

Food insecurity among the elders was highly prevalent (Table 2). The integration of qualitative information and quantitative data began with the separate collection and analysis of each. The results were compared and contrasted, followed by a discussion that merged both sets of findings. This process helped determine the extent to which the quantitative results confirmed or diverged from the qualitative ones. Discrepancies were addressed and contextualized. Finally, the findings were compared with previous investigations on food insecurity in older adults. The qualitative excerpts presented below illustrate participants' lived experiences of food insecurity, categorized under the corresponding component (i.e., quantity, quality, social, psychological).

Quantity component of Food insecurity

This component reflects the amount of food available and the sufficiency of caloric intake, with experiences ranging from reduced intake due to insufficient food to hunger. Robert shared, "I can no longer walk as before. I could not bring more than four lightweight grocery bags." Juana stated, "Here, the refrigerator is empty. There is no water, no milk. I have osteoporosis; you know I have to drink milk." Juan explained, "I buy food daily because I have nowhere to store them. The refrigerator and stove were damaged." Lucy added, "A week before the food stamps arrive and almost every month, I eat only breakfast and dinner." These statements reflect a chronic lack of sufficient food and highlight how functional limitations, broken appliances, and economic hardship can significantly restrict access to food.

Quality component of Food insecurity

This component involves limitations in food diversity and nutritional adequacy. The moderate level was characterized by eating a nutritionally inadequate diet, and the severe level was marked by an inability to consume the right food and meals for their health. For instance, Luis stated, "Yes, I have had to stop buying some food. Sometimes I'm unable to buy the meat. Rice, as it is cheap, I use more rice." Víctor noted, "I buy junk food. Instead of eating food that would feed me more, I have to eat *alcapurrias* (popular Puerto Rican fritters) and cod because everything is so expensive." Lucy said, "When I don't have enough food, I drink water or prepare powdered juice, and with that, I support myself." These testimonies reveal compromises in food quality and variety due to financial constraints, resulting in an overreliance on low-cost, nutrient-poor foods.

Social component of Food insecurity

Social acceptability in accessing food includes eating three meals a day and acquiring food without resorting to begging, charity, stealing, or socially stigmatized behaviors. Mareia described her adaptive strategy: "I have a mango tree and a *mamey* tree, and my daughter drops them. She looks at what we have planted: bananas, pineapple, *mamey*, mango, green banana, laying hens, chickens I raise to eat." Roberto mentioned the support of meal programs: "If there were not these places [Congregate Meals], the day would

be more critical." Juan explained his budgeting strategy: "I always look for the cheapest, special foods because I have to stretch the food stamps."

However, some elders adopted socially unacceptable methods to secure food: Juana said, "Look, I don't have anyone to give me anything. The only one that helps me with anything is Paula [a neighbor]. She is the only one who, when I go there, touches my stomach, and she gives me something to eat." Dora shares, "Today, I have a piece of pancake left in the pan. Then I divide it, and if I don't have food made for dinner, I eat that piece with coffee." Roberto added, "Sometimes, I have stopped eating lunch to wait for dinner and hold on for the rest of the night." These narratives highlight the shame and social stigma associated with food insecurity and the reliance on informal support systems.

Psychological component of Food insecurity

This component addresses the emotional toll of food insecurity, including feelings of deprivation, lack of control, anxiety, and sadness related to food access and availability. Esteban stated, "When you are alone, you are sad, you may eat less, but with that, you have to deal." Luis reflected, "When I feel sad, I serve my food and don't eat it all. It happens to me twice a month, at dinner." Clara noted, "If I feel depressed, I cook less. That's where the sandwiches start." Víctor added, "Well, yes, there is a concern because imagine that one is struggling, and if one does not see progress, you worry because if you are cutting the entries sometimes, and one begins to cut off food because you don't have to buy. It leads me to not being able to sleep well." These reflections demonstrate the emotional distress and psychological burden that often accompany food insecurity.

Discussion

Following this, we discuss the common pattern of fourteen manifestations of food insecurity among the participants of this investigation.

Loneliness and helplessness

Many participants expressed loneliness and abandonment, primarily due to reduced social capital. This situation led to decreased appetite and reduced interest in eating or cooking. Woltil (12) emphasized that emotional and social support can mitigate food insecurity. In Akwa Ibom State, Nigeria (18), social isolation was associated with reduced food intake among older adults.

Unmet nutritional and Dietary needs

Elders reported limited consumption of fruits and vegetables, a reliance on energy-dense and high-sodium foods, and a reduced intake of high-quality protein. These practices reflect a lack of variety and poor diet quality, which increase with the severity of food insecurity (19, 20). Other studies confirm that food-insecure elders are more likely to compromise their health through inadequate diets (2, 21, 22, 23, 24, 25).

Compromising health and Medical needs

Food insecurity forced trade-offs between food, medical care, and medication (26). Elders skipped appointments, lost unintentional weight, or adjusted their diet in ways that worsened or introduced new health problems, increasing their risk of chronic disease (27, 28).

Table 2. Food-Insecure Elders

Group (n)	Mild FI %	Moderate FI %	Severe FI %	Total FI %
12	33.3	33.3	25.0	91.6
Quantity*	I could not bring more than four grocery bags, at least two lightweights and two with a little weight.	I eat fewer vegetables because sometimes I don't have the facility to go get them or I don't have the money.	Sometimes at night I have nothing to eat. I have to go to bed hungry.	
Quality*	Yes, I have had to stop buying some food. Sometimes I can't buy the meat. Rice, as it is cheap, I use more rice.	I buy junk food. I have to eat *alcapurrias* (fritters) and cod because everything is so expensive.	When I don't have enough food, I drink water or prepare a powdered juice and with that I support myself.	
Social*	My biggest problem with getting food is transportation. To buy food I depend on my son to take me to the supermarket.	Today I have a piece of pancake left in the pan. I throw two eggs at it and that will be my dinner. Then I eat with coffee or whatever.	I have not been to the doctor for three months. I go only to acquire new drugs, the prescription. In those moments, first is to go to the doctor and then buy the food if I can.	
Psychological*	When I don't have what I need to cook, I worry. I have to be inventing with what there is.	I worried that I wouldn't eat the food or meals adequate for my health because I couldn't pay for them.	There is concern, because if one does not see progress you worry because you begin to cut off food. It leads me to not being able to sleep well.	
38	60.5	26.3	5.3	92.1
50	54.0	28.0	10.0	92.0

FI = food insecurity *quote's examples for each component of food insecurity

Socially unacceptable Food access

Several participants employed socially unacceptable strategies, such as eating at someone else's house, stretching one meal to make it last longer, or skipping meals. This mirrors findings in other studies, where food-insecure elders stretched their resources or adopted coping behaviors that deviated from social norms (29, 30, 31).

Concerns, Depression, and Anxiety

Participants frequently reported worry, anxiety, and depression associated with food access. Some expressed feelings of resignation, while others turned to spirituality as a coping mechanism. These emotional states were cyclic, often worsening near the end of the month. In some cases, religious beliefs can lead participants to underestimate their food insecurity (32, 33). The link between food insecurity, stress, and depression is well established (34).

Limited or inadequate Elderly resources

Despite receiving food assistance, some elders remained food insecure. This aligns with findings that food stamps do not always alleviate food insecurity (6, 23, 35). Assistance food programs alone may not be enough to meet all dietary needs in older adults.

Hunger

The most extreme form of food insecurity reported was hunger, often leading to unintentional weight loss. In a related study (36), elders hesitated to define their experiences as 'hunger', associating the term with more extreme food deprivation. Nonetheless, their testimonies indicated severe physiological impacts of insufficient food.

Overconsumption of energy-dense and high sodium Foods

Limited financial resources led participants to substitute healthy foods with cheaper, energy-dense options. These trade-off compromises dietary quality and are common coping strategies (31, 37, 38).

Periodic and Cyclic Food restriction/Deprivation

Participants often experienced greater food restriction at the end of each month. Some skipped meals or substituted less nutritious foods, such as French toast, for dinner. This cyclic pattern is consistent with the experiences of elders relying on food stamps (7).

Unfavorable Food environment

Participants highlighted limited access to grocery stores and unaffordable healthy options. These environmental barriers, including reliance on local retailers and mobile food markets, led to lower intake of nutritious foods (31, 39, 40).

Unavailable transportation

Transportation challenges further limited participants' access to food. Older adults may be less likely to drive with increasing age due to slowing reflexes, reduced attention, and decreased visual-spatial perception (41). Elders with declining health or those living in food deserts faced significant difficulties when trying to shop for groceries (30, 42, 43).

Financial constraints

Financial hardship was pervasive. Participants struggled to meet their basic needs and made difficult choices, such as delaying payments or paying only part of their bills, sacrificing social outings, using credit cards to buy food, or forgoing medical care. Limited finances often constrained their ability to purchase nutritious food (32, 43).

Inability to obtain and prepare Foods

Some elders, though they had food at home, were physically unable to prepare meals due to aging-related limitations. Having food in the house does not guarantee that individuals can prepare and cook a healthy meal, such as preparing and cooking produce, as it requires additional effort and time (44). For older adults, having adequate financial resources does not necessarily guarantee that food can be easily accessed or is readily available (18, 42, 45, 46, 47, 48, 49). Dependency on others for grocery shopping and cooking negatively influences elders' food security (50).

Risk for Malnutrition

Most participants were at risk of malnutrition due to an insufficient intake of essential nutrients. This could contribute to physical decline and frailty, poor mental health and well-being, increased health problems, and medication use (28). Prior studies have confirmed the link between food insecurity, malnutrition, and frailty (51, 52).

Food insecurity among Puerto Rican elders has deeper causes than economic access to food

The phenomenon has four components: quantity, quality, social, and psychological. Situations range from concerns about how they will get their food to being hungry. To address food insecurity among older adults in Puerto Rico, policymakers and public health practitioners are encouraged to implement a comprehensive set of strategies. These include developing and enacting interventions and policies that address the burden of high non-food expenses and transform the food system to ensure the affordability of nutritious options. It is essential to incentivize the production of affordable and healthy foods, as well as to promote sustainable agricultural growth in both rural and urban areas, given the island's heavy reliance on imported food. Urban planning and development should integrate considerations of food access and support independent living for older adults, promoting their overall well-being. Strengthening nutrition and social assistance programs is also critical to ensure consistent access to foods that meet healthy dietary needs. Furthermore, when prioritizing interventions, it is essential to consider the medical and societal costs associated with malnutrition related to food insecurity.

Ultimately, fostering multisectoral collaboration is crucial for upholding the right to food and developing effective and equitable food security action plans. "Here the refrigerator is empty," as the article's title states, is more than a quote—it is a testament to neglect and unmet needs. It evokes the emotional weight and harsh truth behind what statistics alone cannot reveal.

Resumen

Objetivo: Los autores documentaron, describieron y explicaron las experiencias de inseguridad alimentaria de adultos mayores puertorriqueños, particularmente cómo perciben y le dan significado a este fenómeno. Metodología: Las experiencias de inseguridad alimentaria de 50 adultos mayores puertorriqueños (≥65 años) se recopilaron utilizando un enfoque de métodos mixtos. Los datos cualitativos se recopilaron a través de entrevistas a profundidad y los datos cuantitativos mediante un cuestionario de 22 ítems. Los datos se integraron con un diseño convergente. Resultados: El 92% de los participantes presentaron inseguridad alimentaria. Las experiencias de inseguridad alimentaria en los adultos mayores puertorriqueños tienen cuatro componentes (cantidad, calidad, social y psicológico) y en un patrón común de catorce manifestaciones. Conclusión: La inseguridad alimentaria en los adultos mayores puertorriqueños tiene causas que van más allá del acceso económico a los alimentos. Abordar la inseguridad alimentaria debe ser una prioridad de las políticas nacionales integrales de alimentación y nutrición para reducir las inequidades en salud nutricional entre esta población. Este estudio presenta la primera investigación a profundidad de la seguridad alimentaria entre adultos mayores puertorriqueños residentes en Puerto Rico, centrándose en sus interpretaciones culturales del fenómeno.

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Authors' contributions: CMPV conceived and designed the study with advice from SRM, CSS, and OBA, managed and analyzed data, and wrote the manuscript. SRM assisted in interpreting the data. EAF provided meaningful recommendations for the in-depth interview guide and critically revised the manuscript for its intellectual content. CMPV was primarily responsible for the final content. All authors read and approved the final manuscript.

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