



ORIGINAL RESEARCH

IS THE LATIN AMERICAN AND CARIBBEAN FOOD SECURITY SCALE AN APPROPRIATE INSTRUMENT FOR MEXICAN URBAN OLDER ADULTS?

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Abstract: *Background:* Older adults in Mexico are a growing share of the population and are a largely vulnerable group with increased risk of food insecurity and potential detrimental health effects stemming from it. *Objectives:* This study assesses the face validity of the Latin American and Caribbean Food Security Scale (ELCSA) among Mexican urban older adults of low socioeconomic status. *Design:* Qualitative study based on 4 focus groups. *Setting:* The focus groups were conducted in community organizations for the elderly in an area of Mexico City with a high proportion of poverty. *Participants:* The focus groups included a total of 36 older adults aged 65 and over who consented to participate. *Measurements:* Two initial focus groups were conducted to assess how older adults understood the food security construct and each of the ELCSA items. Based on these findings, ELCSA was modified and retested for face validity through two additional focus groups. *Results:* The initial focus groups suggested that several of the scale items were not well understood, leading to editorial modifications of the scale. The final focus groups indicated that the modified version of the scale improved substantially ELCSA's face validity in this sample. *Conclusions:* The modified ELCSA led to a greater understanding of most scale items. Further qualitative research is needed to improve food insecurity measurements among older adults in Latin America.

Key words: ELCSA, food insecurity, older adults, validation.

Introduction

Food insecurity, defined as "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (1), can have adverse nutritional and health consequences among older adults. Lee et al. (2) report that food insecure older adults in the USA have significantly lower intakes of food energy and nutrients, as well as lower skinfold thickness. Food insecurity among older adults has also been related to poorer health status (3), lower cognitive performance (4), higher risk of depression, and higher body mass index (5). In addition, food insecure older adults have been reported to invest less in healthcare (6) and to show greater rates of non-adherence to medical treatments due to financial constraints (7).

Previous research suggests that older adults may perceive the experience of food insecurity differently than the general population (8). However, few studies have addressed such measurement issues. In the USA, Lee et al. (9) suggest that food security among the elderly can be reasonably measured by experience-based scales such as the USA Household Food Security Survey Module (HFSSM). However, their study is limited to older adults from Georgia. Therefore, the aim of the present qualitative study was to assess the face validity of the Latin American and Caribbean Food Security Scale (ELCSA) among urban Mexican elderly. Face validity refers to the ability of the target audience to understand the meaning of the questions included in a scale as originally intended (10).

ELCSA emerged from the USA HFSSM, it measures an individual's perception of the household's experience regarding lack of access and consumption of foods in adequate quality and/or quantity due to limited socio-economic resources (11, 12). Based on the respondent's number of affirmative answers, households are categorized as being food secure, mildly food insecure, moderately food insecure, or severely food insecure. Prior studies conducted in Latin America and the Caribbean have demonstrated that ELCSA has excellent construct validity, face validity, psychometric properties, and strong convergence and criterion validity in the general population (13-15). However, to our knowledge, there have been no validation studies of the scale specific to older adults.

Mexico is deeply immersed in a demographic transition characterized by an aging of its population. Older adults (65-years-old and over) are becoming a growing proportion of the population. According to the Mexican National Census, in 2010 older adults represented 6.2% of the population (16). This group is expected to increase to 12.5% in 2030, and to 22.6% in 2050 (17). Older adults in Mexico are, in general, a largely vulnerable group to food insecurity. Therefore, validating ELCSA among Mexican older adults is a necessary first step for properly measuring and developing evidence-based programs and policies targeted at improving food security status in this segment of the population.

This paper describes the first stage of the validation process of ELCSA among a group of urban older adults from low socioeconomic areas of Mexico City.





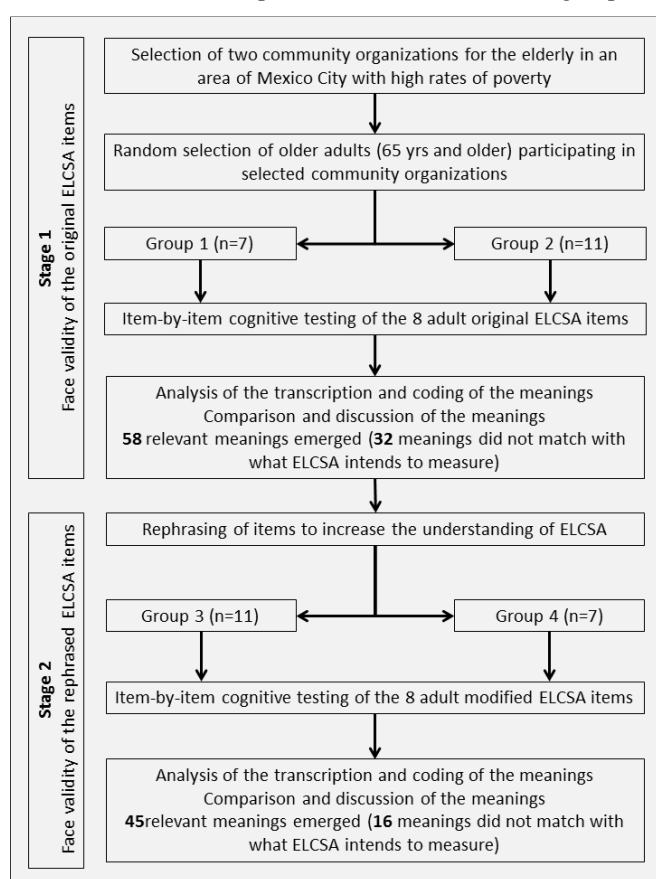
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Methods

We performed a qualitative study by means of four focus groups conducted among older adults (65 years and over) who attended different community organizations in Delegación A. Obregón – a geographic area of Mexico City where 31.3% of its population lives in poverty, and 2.4% in extreme poverty (17) (Figure 1). As participants belonged to community organizations, their cognitive abilities and functionality were such that they could walk or use public transportation to participate in their weekly community activities.

Figure 1

Flowchart of the composition and number of focus groups



The purpose of the first two focus groups was to discuss and gain an understanding on how participants interpreted the food insecurity construct and its key dimensions through open-ended questions (Table 1). In addition, we conducted cognitive testing of the scale to assess its face validity; we tested each scale item to find out if respondents understood them correctly and were able to provide accurate answers. ELCSA is a 15-item scale, the initial 8 questions address the whole household and adults, and the remaining 7 items ask equivalent questions but are specific to children in the household (11, 12). In this study, we focused

only on validating the 8 items referring to adults (Table 1). The version of ELCSA used in this study is the harmonized version published by FAO (11) that resulted from the validation in different countries of the original ELCSA version proposed by Pérez-Escamilla et al. (12) in 2007.

This paper focuses on the analysis of the ELCSA item results as the food insecurity concepts analysis will be reported elsewhere. Based on the findings of these initial groups, some ELCSA items were rephrased and the modified ELCSA was reassessed for face validity through two additional focus groups. The number of focus groups conducted was determined by information saturation.

To represent different opinions and allow for engagement by all group participants (18), the target size for each focus group was 7-12 older adults. All participants provided written informed consent, and completed a brief socio-demographic questionnaire at the beginning of the interview. An experienced moderator and two trained assistants conducted all focus groups. The focus groups were digitally recorded and transcribed verbatim for further analysis.

The transcripts of the first two focus groups were thoroughly read by four researchers for a first general observation. Then, two researchers coded the data into meanings (defined as a specific unit of the text capturing an interpretation of an ELCSA item) and selected representative quotes for each of them. The meanings identified by the researchers were compared, discussed, and summarized into subthemes following a consensus methodology. Consensus between researchers was used to decide which items needed to be rephrased. In a second stage which items needed, the understanding of the modified questions was assessed through the same process as in the first two focus groups.

The study was reviewed and approved by the Ethics Committee of Universidad Iberoamericana.

Results

Description of sample and focus groups

Thirty-six older adults participated in the focus groups, 18 in the first round of focus groups (n=7 group 1; n=11 group 2), and 18 in the second stage of focus groups, when the face validity of the modified questions was assessed (n=11 group 3; n=7 group 4). Participants' were mainly women, with poor educational status (58.3% had no schooling or only some primary education), less than one third received a formal pension, all of them lived in low or very low socioeconomic status neighborhoods, and some were enrolled in cash assistance programs (Table 2). Each focus group's session lasted between 57-77 minutes in the first stage, and 23-41 minutes in the second stage.

ELCSA Cognitive Testing

In the initial item-by-item cognitive testing, 58 relevant meanings were identified; these were transformed into 35





Table 1
Concepts and ELCSA items addressed in the initial focus groups

Questions	Concepts
<i>During the last three months, because of a lack of money or other resources...</i>	<i>What do you understand by...</i>
1. Were you worried about running out of food?	1. Being worried that you will run out of food
2. Did your household run out of food?	2. Running out of food
3. Was your household unable to follow a (healthy, nutritious, balanced)?	3a. Healthy diet
	3b. Balanced diet
	3c. Nutritious diet
4. Were you or any adult in your household unable to follow a varied diet?	4a. Diet with little variety
	4b. Balanced Diet
5. Did you or any other adult in your household skip breakfast, lunch or dinner?	5. Skipping meals
6. Did you or any adult in your household eat less food than what they should have eaten?	6. Eating less
7. Did you or any other adult in your household feel hungry but did not eat?	7a. Feeling hungry
	7b. Feeling hunger
8. Did you or any other adult in your household not eat for a whole day or just eat once during the day?	

specific subthemes (see Table 3). A high number of meanings (n=32) were unrelated to qualifiers that apply to the whole ELCSA. A common cause of misunderstanding emerged from forgetting that the questions are framed based on a lack of money or other economic resources. Because this qualifier is located at the start of the questions, it is possible that due to age related cognitive declines, participants tended to forget the initial framing of the question. Another common source of confusion for items 4 and onwards was the older adult's own understanding of who is an adult, as described by one of the participants "an adult is someone like me ... my grandson is 25 but he is a young man, not an adult".

More specific distortions in meanings were identified for items 4-8 (see Table 3). For item 4, while some participants comprehended adequately the concept of a diet with little variety as having to eat the same foods due to economic constraints (subthemes 4.1 and 4.2), others understood it as eating less, eating unhealthy, or not being used to eat healthy options (subthemes 4.3 to 4.5), which are not directly related to the intended concept. Item 5 was poorly understood; although the intent of this item was to assess if adults in the households skipped meals due to lack of money, participants understood the meaning of this question as not eating at all, leaving someone in the households without eating, needing to use feeding coping strategies, or not eating for other causes unrelated to economic constraints (subthemes 5.1 to 5.4). For item 6, participants reported to understand that someone would eat less due to illness or not feeling hungry (subthemes 6.1 and 6.2), or not eating at all during a day (subtheme 6.3), only in some cases participants stated that the question meant to eat, but to eat less than someone perceives she or he needs (subtheme 6.4). In the case of item 7, some participants understood the concept correctly (feeling hungry and not being able to eat due to lack of food or economic resources to buy foods [subtheme 7.1]), but the majority of participants understood aspects such as "feelings of being hungry", cravings, or functional limitations of eating (subthemes 7.2 to

7.6). We hypothesize that some of these meanings emerged from the Spanish phrasing of the item that inquires about "feeling hungry" (i.e. sentir hambre in Spanish), instead of the actual experience of "feeling hunger" (i.e. pasar hambre in Spanish). Finally, for item 8, participants in the focus groups felt uneasy about being asked two different things in the same questions – not eating for a whole day or just eating once during the day –revealing subthemes such as not having enough food or skipping one or several meals (8.2 and 8.3).

ELCSA modifications

Based on the discrepancies found between participants' comprehension and the intended meaning of ELCSA's items, the researchers agreed that it was necessary to adapt the current Spanish version of the ELCSA to the needs of low income older adults. Table 4 shows the original and the modified ELCSA questions. Bearing in mind that older adults frequently forgot that the items are framed in a scenario of economic constraints, for all the questions, instead of starting the question by stating "During the last three months, because of a lack of money or other resources..." the rephrased version included the words "because of lack of money" at the end of each item, and "other resources" was omitted to shorten the phrasing and to stress the economic factor. In addition, for all questions from item 4 onwards, instead of asking "Did you or any adult in your home..." the rephrased version stated "Did you or any other adult 18-years-old and over ...," this was done to avoid the conceptualization of young adults, as non-equivalent to other adults.

In addition, several other items were modified. ELCSA provides the choice of framing item 3 in terms of balanced diet, healthy diet, or nutritious diet. Focus groups suggested that "healthy diet" was the best choice among the study population. Item 4 was among the questions that showed a poorer understanding. The Spanish wording is long and centers in assessing the experience of repeatedly having meals with a low diversity of foods (i.e., a monotonous diet). This question was





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Table 2
Characteristics of participants and focus groups

	Group 1	Group 2	Group 3	Group 4	Total
N	7	11	11	7	36
Duration (minutes)	77	57	41	23	na
Mean age (years)	70	75	67	65	69
Gender (% females)	85.7	90.9	90.9	100	91.7
Education (%)					
None	0	18.2	0	14.3	8.3
Some primary	28.6	63.6	54.5	42.6	50.0
Primary or some secondary	42.6	18.2	36.4	0	25.0
Secondary completed or more	28.6	0	9.1	42.6	16.7
Marital status (%)					
Single	0	0	0	14.3	2.8
Widowed	57.1	72.7	36.4	42.9	52.8
Married	28.6	27.3	36.4	42.9	33.3
Divorced/separated	14.3	0	18.2	0	8.3
Other	0	0	9.1	0	2.8
Pension (%)	28.6	27.3	9.1	14.3	19.4
Public subsidies for elderly (%)					
Federal (70 y Más)	28.6	90.9	27.3	42.9	50.0
Local (Pensión Alimentaria)	28.6	0	27.3	28.6	19.4
Neighborhood of residence SES (%)					
Low	100	36.4	54.5	28.6	52.8
Very low	0	54.5	18.2	71.4	36.1
Unable to classify	0	9.1	27.3	0	11.1

N: Sample size. SES: socioeconomic status. na: "not applicable". The first focus groups had different objectives/duration than the second set of focus groups.

modified using a more colloquial wording (see Table 4). The Spanish version of item 5, inquires whether someone in the household has skipped breakfast, lunch, or dinner. The focus groups revealed that such phrasing confused the older adults who did not understand if the question referred to skipping only one meal or all three. Therefore, the modified version asks about each meal at a time (even though at the end they get coded as one answer for purposes of the scale). For item 7, it was considered that changing the wording from "feeling hungry" to "feeling hunger" would improve the understanding of the question. Finally, item 8 was shortened, focusing only on the experience of not eating for a whole day. The content inquiring about "eating just once" was eliminated as it was expected that it could perhaps be deduced from the new phrasing of item 5.

Modified ELCSA cognitive testing

Two additional focus groups assessed if older adults better understood the modified ELCSA. For this new version, the 45 meanings that emerged were grouped into 28 subthemes; only 16 meanings did not match with the concepts that ELCSA intends to capture (compared to 32 in the original version). Despite such improvement, the analysis revealed that item 5 (i.e. skipping meals due to economic constraints) still showed some discrepancies between ELCSA's intended concepts and

the meanings revealed by participants such as eating less, feeling hunger, and eating the same foods throughout the day. The understanding of other items was considered adequate, with less than 2 discrepancies in the interpretation.

Discussion

Our study underscores the challenges of measuring food insecurity among older adults (16, 17), especially among those with low socioeconomic backgrounds, and the value of qualitative research for improving existing measures. Indeed, the modified version of the ELCSA did elicit a greater comprehension of most of the ELCSA items.

Conducting focus groups provided a deeper understanding of other psychosocial and sociodemographic aspects related to food insecurity that go beyond what can be exposed through an item-by-item validation. For instance, it was observed that most of the participants came from very impoverished and rural backgrounds, and that their living standards today are considerably better than when they were children. As some participants stated "there was nothing back in my town, nothing to eat, no money at all", the extent to which this relative improvement in living conditions may lead older adults to underestimate their actual food insecurity status remains to be tested through future research. Moreover, given the findings of





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Table 3
Meanings and subthemes (first stage focus groups)

ELCSA item	Meanings	Examples	Subthemes
<i>During the last three months, n because of a lack of money or other resources...</i>			
1. Were you worried about running out of food?	8	“Worrying about not having food nor money to buy it...” “If I want a piece of meat, I will not be able to buy it... we worry about this happening.” “Every time we go to buy something, it’s more expensive, then money is not enough...” “I still have a young granddaughter, what am I going to give her...”	<i>Worrying about...</i> 1.1 Not having enough economic resources to buy enough food for all family members 1.2 Not having enough economic resources to face food price increases 1.3 Not being able to buy all sorts of foods
2. Did your household run out of food?	6	“No economic resources, no way of buying, or running out of everything in the pantry and no means of restocking it.” “A boy arrived to a bodega asking for \$5 pesos of beans (without the money), imagine, and they did not give the to him... in his house they had nothing to eat.”	<i>Running out of food because...</i> 2.1 There was no food nor money to buy it 2.2 Empty pantries 2.3 Poverty
3. Was your household unable to follow a (healthy, nutritious, balanced diet)?	10	“...if I had enough money, I would have a balanced diet ... I would include whole grains, proteins, vegetables, everything...” “It would be healthy if in the morning I have a glass of milk, a plate of fruit and a slice of whole grain bread... I don’t have it and I have a cup of coffee or tea and a slice of bread.” “...I have diabetes and the nutritionist prescribed me a diet, she gave me a list ... I can’t follow it because I don’t have the resources”	3.1 Eating less nutritious foods due to lack of money 3.2 Eating less due to lack of money 3.3. Not having a balance diet due to financial constraints 3.4 Choosing unhealthy foods due to lack of education 3.5 Unable to buy nutritious foods due to increases in prices 3.6 Inability to eat healthy due to coping strategies
4. Were you or any adult in your household unable to follow a varied diet?	7	“Sometimes we don’t have enough money... we just cook beans or chicken, the cheapest...” “It means that we are always eating the same things.”	4.1 Eating frequently the same foods 4.2 Cooking poor meals due to inability to buy different types of foods 4.3 Eating less 4.4. Following an unhealthy diet 4.5. Not being used to eat different types of foods
5. Did you or any other adult in your household skip breakfast, lunch or dinner?	6	“...there was not enough (food) for a person ... sometimes there’s not enough food for everyone” “You adapt to whatever you have ... maybe only beans, but there’s always something to eat”	5.1 Not eating for a whole day 5.2 Leaving someone in the household without food 5.3 Not eating because did not feel hungry 5.4 Eating whatever is available
6. Did you or any adult in your household eat less food than what they should have eaten?	6	“There wasn’t enough food, then everyone was given less ... if you asked ‘give me more’ there would be no more” “If I have a steak, if I’m going to have 3 meals in a day, then I split the meat in 3 portions ... you ate, but you ate less...”	6.1 Eating less because didn’t feel hungry 6.2 Eating less due to an illness 6.3 Not eating at all 6.4 Eating, but less than would desired
7. Did you or any other adult in your household feel hungry but did not eat?	10	“Being hungry but not eating because there was no food.” “...due to lack of money you didn’t eat anything at all ...” “When an adult didn’t eat to give the food to an elderly.”	7.1 Being hungry but not eating due to lack of food 7.2 Not eating because there was no one at home to serve or cook 7.3 Not eating because of illness 7.4 Not eating because available food is not what is desired 7.5 Not eating because food was given to someone else 7.6 Craving for something but being unable to buy it 7.7 Not eating at all
8. Did you or any other adult in your household not eat for a whole day or just eat once during the day?	5	“Because we had no money, we didn’t eat at all”	8.1 Not eating at all 8.2 Not eating enough 8.3 Not eating some meals (skipping meals)





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Table 4

Modified version of ELCSA based on findings from focus groups with elderly (Spanish wording)

Original ELCSA (Spanish version - Mexico)	English translation of Original ELCSA (Spanish version - Mexico)	Adapted ELCSA based on the study	English translation of Adapted ELCSA based on the study
1. En los últimos 3 meses, por falta de dinero u otros recursos, alguna vez ¿Usted se preocupó de que los alimentos se acabaran en su hogar?	During the last three months, because of a lack of money or other resources, were you worried about running out of food?	En los últimos 3 meses, ¿alguna vez usted se preocupó porque los alimentos se acabaran en su hogar, por falta de dinero?	During the last three months, were you worried about running out of food because of a lack of money?
2. En los últimos 3 meses, por falta de dinero u otros recursos, alguna vez ¿En su hogar se quedaron sin alimentos?	During the last three months, because of a lack of money or other resources, did your household run out of food?	En los últimos 3 meses, ¿alguna vez en su hogar se quedaron sin alimentos por falta de dinero?	During the last three months, did your household run out of food because of a lack of money?
3. En los últimos 3 meses, por falta de dinero u otros recursos, alguna vez ¿En su hogar dejaron de tener una alimentación (saludable, nutritiva, balanceada, equilibrada)?	During the last three months, because of a lack of money or other resources, was your household unable to follow a (healthy, nutritious, balanced diet)?	En los últimos 3 meses, ¿alguna vez en su hogar dejaron de tener una alimentación saludable por falta de dinero?	During the last three months, was your household unable to follow a healthy diet because of a lack of money?
4. En los últimos 3 meses, por falta de dinero u otros recursos, alguna vez ¿Usted o algún adulto en su hogar tuvo una alimentación basada en poca variedad de alimentos?	During the last three months, because of a lack of money or other resources, were you or any adult in your household unable to follow a varied diet?	En los últimos 3 meses, ¿alguna vez usted o algún adulto de 18 años o más en su hogar dejó de comer variado por falta de dinero?	During the last three months, were you or any adult 18-years-old and over in your household unable to follow a varied diet because of a lack of money?
5. En los últimos 3 meses, por falta de dinero u otros recursos, alguna vez ¿Usted o algún adulto en su hogar dejó de desayunar, (comer, almorzar) o cenar?	During the last three months, because of a lack of money or other resources, did you or any other adult in your household skip breakfast, lunch or dinner?	En los últimos 3 meses, ¿alguna vez usted o algún adulto de 18 años o más en su hogar dejó de desayunar por falta de dinero? ¿Dejó de comer la comida? ¿Dejó de cenar?	During the last three months, did you or any other adult 18-years-old and over in your household skip breakfast because of a lack of money? Skip lunch? Skip dinner?
6. En los últimos 3 meses, por falta de dinero u otros recursos, alguna vez ¿Usted o algún adulto en su hogar comió menos de lo que debía comer?	During the last three months, because of a lack of money or other resources, did you or any adult in your household eat less food than what they should have eaten?	En los últimos 3 meses, ¿alguna vez usted o algún adulto de 18 años o más en su hogar comió menos de lo que debía comer por falta de dinero?	During the last three months, did you or any adult 18-years-old and over in your household eat less food than what they should have eaten because of a lack of money?
7. En los últimos 3 meses, por falta de dinero u otros recursos, alguna vez ¿Usted o algún adulto en su hogar sintió hambre pero no comió?	During the last three months, because of a lack of money or other resources, did you or any other adult in your household feel hungry but did not eat?	En los últimos 3 meses, ¿alguna vez usted o algún adulto de 18 años o más en su hogar pasó hambre pero no comió por falta de dinero?	During the last three months, did you or any other adult 18-years-old and over in your household go hungry but did not eat because of a lack of money?
8. En los últimos 3 meses, por falta de dinero u otros recursos, alguna vez ¿Usted o algún adulto en su hogar solo comió una vez al día o dejó de comer todo un día?	During the last three months, because of a lack of money or other resources, did you or any other adult in your household not eat for a whole day or just eat once during the day?	En los últimos 3 meses, ¿alguna vez usted o algún adulto de 18 o más años en su hogar dejó de comer durante todo un día por falta de dinero?	During the last three months, did you or any other adult 18-years-old and over in your household not eat for a whole day or just eat once during the day because of a lack of money?

prior research indicating how poverty during childhood is associated with poor physical and mental health later in life (19), this potential relationship between life trajectories, and later life health outcomes and frailty, requires further research. The focus groups also revealed that older adults view themselves as having a better food security status than when they were younger adults and were responsible for feeding their children. Conversely, the focus groups revealed that the notion that adults protect children against food insecurity might not hold true in households with older adults, as some participants disclosed that there were times when children did not eat, or ate

less, in order for older adults to be able to eat.

We identified three items that were particularly difficult for the older adults to understand. Item 3, which refers to having access to a healthy diet, difficulties may result from having consumed in the past a diet that would not be considered adequate, hindering their ability to acknowledge that perhaps their current diet is not nutritious. Item 4, which refers to the ability to follow a varied diet, limitations in understanding this concept could probably be attributed to the unhealthy diet that they have followed for most of their lives and their low educational background. Lack of understanding of item 5 (i.e.





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skipping meals) could imply that the study participants may not consume three meals a day on a regular basis for reasons other than economic constraints.

Among the most significant changes of the modified version were for item 7, where feeling “hungry” was replaced by feeling “hunger,” and moving “because of a lack of money” from the beginning to the end each item. The latter change made it easier for the participants to recall more easily that all questions are in reference to economic deprivation.

It is likely that the low educational attainment of most participants hindered their understanding of the original ELCSA. Even with the rephrased version of the scale, the items had to be re-read several times in order for the participants to grasp their meaning. This could imply that, in the future, the use of visual reminders with this specific population group could be relevant.

The study had several limitations. We did not formally assess cognitive functions among the study’s participants. However, they were all recruited from community centers that engaged them in activities requiring adequate cognitive skills. This was confirmed via focus groups observations showing that all participants engaged in the discussions and none showed signs of dementia or serious cognitive impairment. As focus groups were held with participants of elderly community centers, participants knew each other. This could have led participants to modify their responses because they felt ashamed to report living in food insecurity in front of their peers. Furthermore, the fact that most participants were women could have created a gender-bias.

The study highlights the need of adapting measurement scales, such as ELCSA, to the different capacities and psychosocial environments of older adults. Although participants of the study appeared to be fairly functional, understanding of the scale’s items may have been affected by the presence of risk conditions potentially linked to frailty such as physiological conditions (i.e. diabetes), psychosocial elements (i.e. depression), and geriatric symptoms (i.e. functional limitations).

This study showed that the face validity of the original ELCSA was limited among poor, urban older adults living in Mexico City. The modification of the ELCSA based on focus groups research led to a greater understanding of most scale items improving substantially its understanding and confirming the overall face validity of the scale. We are currently conducting a quantitative assessment of food insecurity among low-income older adults living in Mexico City using the modified ELCSA resulting from this qualitative study that will shed light on the psychometric validity of the revised scale.

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