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The Experience of Household Food Insecurity among Elderly

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Abstract

Background: *Food insecurity has been associated with a wide array of negative health outcomes both among the young and old.*

Objective: *to compare food insecurity status as measured by the Household Food Insecurity Access Scale (HFIAS) amongst older adults living in rural & urban areas.*

Patients and methods: *A cross-sectional comparative study. This study include a sample of 240 elderly persons (aged 60 years and above) at selected rural and urban households residing in Babylon governorate, urban (n=125) and rural (n=155) was recruited. Household Food Insecurity Access Scale (HFIAS) was used to assess food insecurity.*

Results: *From all participants 42% reported history of food security compared to 58% reported food insecurity , 40% of total participant had mild food insecurity, 15% moderate food insecurity and 3% sever food insecurity by HFIAS ,significant difference in food insecurity between urban and rural areas regarding gender, occupational status, educational level, housing size, housing turners and per-capita monthly expenditure.*

Conclusion: *Household elderly food insecurity was higher among urban area than in rural area. . Many risk factors attributed to food insecurity, age 60-74, male gender in urban area and female gender in rural area, un-employment, low educational level, large housing size ,ranging houses and low per capita monthly expenditure.*

Key words: *Household, food insecurity, elderly*

Introduction

More than (870) million people globally do not have a secure source of food. In 1996 leaders at the World Food Summit in Rome set a goal of reducing the number of food-insecure people to (400) million by 2015 with an average of about (2.5) million

people a year emerging from food insecurity in the last two decades ^[1]

Food security (FS) is the condition in which all have access to sufficient food to live healthy and productive lives ^[2]. It is dependent on many factors including: food production, importation and

donations, household income, intra-household decision-making and resource allocation^[3].

The importance of household food security (HFS) to good nutritional status has been emphasized over several years by many international communities, as in (World Food Program (WFP), 2011); (Food and Agriculture Organization (FAO), 2004); (United Nations Children's Fund (UNICEF)).

The numbers of older adults is increase over the next decade and continue to rise in the following decade. In 2040 there will be (79.7) million older adults, more than twice as many as in 2000. Between 2012 and 2030, the white population of ≥ 65 years old is projected to increase by (54 %) compared with (125 %) for older minorities^[4]. With the increasing elderly population, policies and programs on aging are focusing on identifying way to improve quality of life and health status rather than just extending life span. Adequate nutrition is important for the elderly health because inadequate diets contribute to increased disability, decreased resistance to infection, exacerbation of disease and extended hospital stay^[5], Large number of elderly still lack access to the food needed^[6].

Among the Korean elderly aged 65 years or older, the estimate of food insufficiency in 2005 was (22.2%), which was the highest proportion among all age groups^[7]. In 2011, (4.8 million) Americans over the age of 60 were food insecure. This constitutes (8 %) of all seniors^[8].

In 2013, (2.9 million) households with seniors experienced food insecurity. (1.1 million) households composed of seniors living alone experienced food insecurity^[9].

There has been many speculation about whether food insecurity cause chronic disease and food insecurity is linked to chronic disease. Like food insecurity has been significantly associated with type 2 Diabetes Mellitus, even after controlling for a number of covariates^[10-12], also Food insecure seniors are at increased risk for chronic health conditions, even when controlling for other factors such as heart attack depression, asthma and congestive heart failure^[13].

Measuring food insecurity has been an ongoing challenge to researchers and practitioners. Household Food Insecurity Access Scale (HFIAS), which is an adaptation of the approach used to estimate the prevalence of food insecurity. The method is based on the idea that the experience of food insecurity (access) causes predictable reactions and responses that can be captured and quantified through a survey and summarized in a scale:

- *Feelings of uncertainty or anxiety over food (situation, resources, or supply);
- * Perceptions that food is of insufficient quantity (for adults and children);
- *Perceptions that food is of insufficient quality (includes aspects of dietary diversity, nutritional adequacy, preference);
- * Reported reductions of food intake (for adults and children);
- *Reported consequences of reduced food intake (for adults and children); and
- Feelings of shame for resorting to socially unacceptable means to obtain food resources^[14].

Household food security (HFS) is dependent on many factors including: household income, food production, importation and donations, intra-

household decision-making and resource allocation [15] and not only a limited or uncertain availability of nutritionally adequate and safe foods but also the inability to acquire acceptable foods in socially acceptable ways. Severe food insecurity and hunger can lead to food intakes that are continuously insufficient to meet dietary energy requirements [16]. For seniors, protecting oneself from food insecurity and hunger is more difficult than for the general population. So the main purpose of this study is to evaluate food insecurity status as measured by the Household Food Insecurity Access Scale (HFIAS), what are the social dimensions of food insecurity in older adults? And how does place whether urban or rural inform food insecurity in older adults?

Patients and methods:

Study design: A cross-sectional comparative study was carried out among elderly adults at rural and urban areas in Babylon state, between 1stJuly, 2013 and 1stJanuary, 2014.

Study Population and sampling:

This study include a sample of 240elderly persons (aged 60 years and above) at selected rural and urban households residing in Babylon governorate, urban (n=125) and rural (n=155) was recruited.

Multistage sampling was done through a two-stage procedure. The first stage involved the selection of three rural and one urban by simple random sampling. The second stage of the sampling involved the selection the households by simple random sampling. All elderly adults who were willing to participate in the study were recruited consecutively till the desired sample size was reached.

Data collection methods

Three interviewers (research assistants) were trained over a period of three days prior to starting the study. Data were collected through face to face interviews. The interviewer administered structured questionnaires which were used to collect data on respondents' socio-demographic characteristics and household food security status. The questionnaire was translated into the Arabic language to ensure clarity, standard and uniformity.

Study instruments

The assessment of food insecurity (FI) with a standard scale for international use, the Household Food Insecurity Access Scale (HFIAS) [17]

The nine items of the HFIAS are listed below: In the past 30 days:

1. Did you worry that your household would not have enough food?
2. Were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?
3. Did you or any household member eat just a few kinds of food day after day because of a lack of resources?
4. Did you or any household member eat food that you did not want to eat because a lack of resources to obtain other types of food?
5. Did you or any household member eat a smaller meal than you felt you needed because there was not enough food?
6. Did you or any other household member eat fewer meals in a day because there was not enough food?

7. Was there ever no food at all in your household because there were no resources to get more?
8. Did you or any household member go to sleep at night hungry because there was not enough food?
9. Did you or any household member go a whole day without eating anything because there was not enough food?

The HFIAS were translated into Arabic the language of Iraqi population.

Participants were presented with 'yes' or 'no' response categories for each item of the HFIAS, responses pointing towards FI were coded as 1 and negative responses as 0.

Participants' households were classified into four levels of FI:

1. Food secure (participant answers 'yes' to none of the items)
2. Mild FI (answers 'yes' to item 1 or 2 or 3 or 4, but not items (5-9))
3. Moderate FI (answers 'yes' to item 5 or 6, but not items (7-9); and (4) severe FI (answers 'yes' to item 7 or 8 or 9))

Using this classification scheme, the HFIAS performed well according to established validation criteria^[18].

Data on socio-demographic characteristics, including age, gender, level of education, occupational status, living with spouse or not, family-size, as well as living conditions such as per-capita household monthly expenditure and house tuners were gathered through a structured questionnaire.

Ethical issues: The objectives and methodology of this study were explained to all participants in the study to gain their verbal acceptance and Approval of scientific committee of the community medicine Department in Babylon Medical College (University of Babylon, Iraq)

Data Analysis

Statistical analysis was carried out using SPSS version 18. Categorical variables were presented as frequencies and percentages. Pearson's chi square (χ^2) test and fisher exact test were used to find the association between the categorical variables. A p-value of ≤ 0.05 was considered as significant.

Result

A total of 240 elderly participate in the study. The mean age of elderly rural participants (68.4 ± 5.8) years and that of urban respondents (65.8 ± 6) with no statistical difference between both means with no statistical difference between them. The mean household size was 6.2 ± 3 , mean of household monthly expenditure per capita was (90 ± 52).

From all participants, 72% were at age group 60-74, 60% lived with spouses, (65%) were un-employed, (42%) no and primary education, (58.5%) housing size more than 10 and (14.5%) housing size 5-10 and (27%) housing size less than 5, the majority of 240 participants live in ownership houses and (53%) per-capita expended per month > 100 \$ [table 1].

From all participants 42% reported history of food security compared to 58% reported food insecurity, 40% of total participant had mild food insecurity, 15% moderate food insecurity and 3% severe food insecurity by HFIAS, for urban area 32% food

secure (FS),40% mild FI, 34% moderate FI and 5% sever FI . For rural area 52% FS, 39% mild FI , 7% moderate FI and 2% sever FI [Figure 1] .From total 240, 140 (58%)food insecurity, (61%) lived in urban area, (76.5%) were elderly aged 60-74 years were higher than elderly aged 75 years or older and there were significantly difference in FI between

urban and rural areas also significant difference between urban and rural areas regarding gender, occupational status , educational level, housing size, housing turners and low percapita monthly expenditure [Table2].

Table 1: Distribution of thestudy's' participant by socio demographic and selected characteristics of senior

Characteristics	frequency	Percentage
Age groups		
60-74 years	173	72
≥75 years	67	28
Gender		
male	131	55
female	109	45
Marital status		
Living with spouse	144	60
Living without spouse	96	40
Employment		
Employed	85	35
unemployed	155	65
Educational level		
No education	65	27
Primary &secondary	90	37.5
High education	85	35.5
Housing size		
>5	65	27
5-10	35	14.5
>10	140	58.5
Housing tenure		
Ownership	150	62.5
renting	90	37.5
Household monthly expenditure per capita		
≤100\$		
100\$>	112	47
	128	53

Figure 1: Food insecurity among elderly household in urban and rural areas

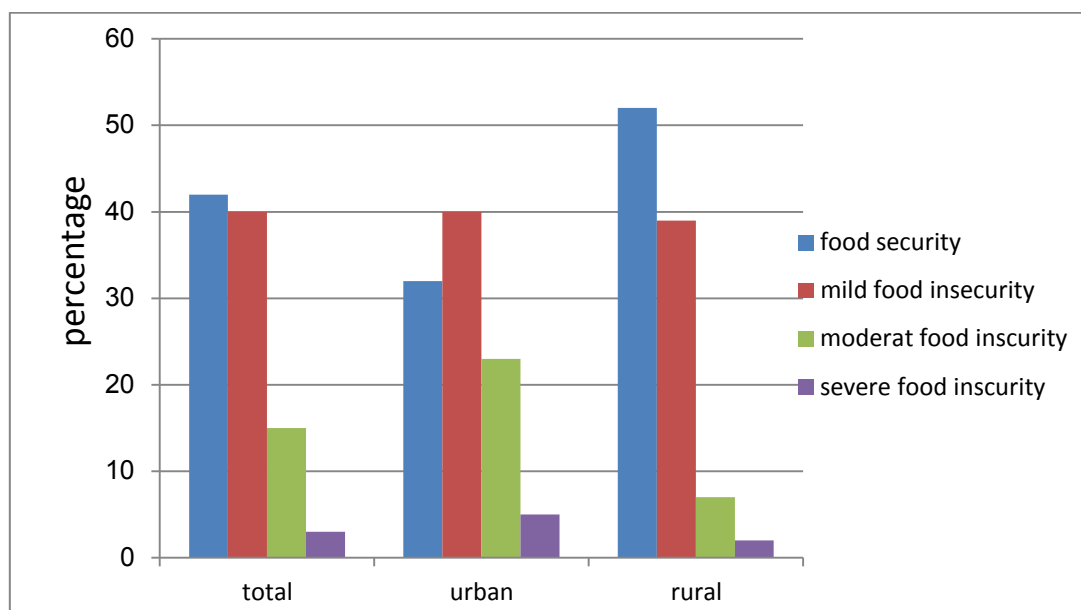


Table 2: The Association of food insecurity among elderly in urban and rural areas with socio demographic and selected characteristics

Variable	Urban(n=85) Number (%)	Rural(n=55) Number (%)	Total(n=140) Number (%)	Chi-square	p-value
Age groups					
60-74	65(76.5)	26(47.)	91(65)	12.5	0.01*
≥75	20(23.5)	29(53)	49(35)		
Gender				14.4	0.001*
male	56(66)	19(34.5)	75(53.5)		
female	29(34)	36(65.5)	65(46.5)		
Marital status				2.58	0.1
Living with spouse	32(38)	28(51)	60(43)		
Living without spouse	53(62)	27(49)	80(57)		
Employment				6.5	0.01*
Employed	33(39)	10(18)	43(31)		
unemployed	52(62)	45(82)	97(69)		
Educational level				0.06	0.96
No education	12(14)	8(14)	20(14)		
Primary & secondary	34(40)	23(42)	57(41)		
High education	39(46)	24(44)	63(45)		
Housing size				5.9a	0.04*
>5	17(20)	3(5)	20(14)		
5-10	3(4)	27(49)	30(22)		
>10	65(76)	25(46)	90(64)		

Housing tenure					
Ownership	20(23.5)	45(82)	65(46)		
renting	65(76.5)	10(18)	75(54)	49.8	0.0001*
Household monthly expenditure per capita					
≤100\$	21(25)	39(71)	60(43)	31.3	0.0001*
>100\$	64(75)	16(29)	80(57)		

*p value ≤ 0.05 is significant , a: Fisher Exact test

Discussion

Marginal food insecurity was quite stable from until 2007 when it jumped dramatically for all age groups. The increase in marginal food insecurity from 2007-2009 among those over age 60, while senior hunger increased significantly as a report submitted to AARP Foundation, 2011. In 2013, (10 %) of seniors (4.2 million older adults age 65 and older) lived below the poverty line ^[19].

The increase of awareness of food insecurity among elderly may be explained by the seniors experiencing some form of food insecurity are more likely to be lower intakes of major nutrients and more likely to be in poor or fair health. Since household food insecurity may potentiate the development of chronic disease by activating the stress response among individuals at critical junctures in their life course in a food impoverished environment ^[20].

There was very limited research regarding food insecurity in Iraqi population especially for elderly persons.

The current study shows that from (240) household elderly participants, 42% reported history of food security compared to 58% reported food insecurity, 40% of total participant had mild food insecurity, 15% moderate food insecurity and 3% severe food

insecurity by HFIAS [figure 1], from those lived in urban area (68%) reported food insecurity compared to 48% of those lived in rural area.

The current study reported that food insecurity was higher in urban areas than rural areas (68% Vs 48%), this finding may be explained by many of these "rural food-insecure households" were in the very rural and farm communities that provides low-cost wholesome food, and this finding agree with other study that reported More urban respondents were food insecure (39.2% urban; 31.4% rural) And a higher proportion (61.9%) of rural respondents was food secure, compared with 53.6% of urban respondents ^[21].

In this study, from total 240,140 (58%) food insecurity, (61%) lived in urban area, (76.5%) were elderly aged 60-74 years and higher than elderly aged 75 years or older and there were significant differences in FI between urban and rural areas regarding age groups.

This finding may be imply that for the more elderly the economic value conventionally is of little value and the general attitude in our society was satisfaction regarding their sight to the life that may affect the answering for Household Food Insecurity Access Scale (HFIAS) [table 2], also significant difference regarding the gender in FI between urban

and rural areas (p -value=0.001) were majority of male in urban area and female in rural area reported FI, this may be explained by the pattern of household spending and more FI in elderly lived without spouses but with no significant difference in FI regarding live with or without spouses between urban and rural areas this results may be explains by number of food insecure participant lived with or without spouses are about similar,

This result agree with other study that found no significant differences in FI regarding marital state [21] and no agree with other opinion that found FI is more in household without spouse where difficulties in preparing and cooking foods alone could be more serious in elderly without spouse .

The present study also reported the majority (69%) of FI elderly were unemployment and 82% of FI in rural area were unemployed that is similar to other study that reported Unemployment and under-employment are greater in rural areas since the employment state affect purchase food ability and supply concern affecting the availability of the food [22].

Also the determinants of FI in the current study included significant differences between urban and rural areas regarding low level of education , household size (FI increase with family size more than 10) and household monthly expenditure (p -value=0.01, 0.04 and 0.0001 respectively) [Table 2] , this results agree with other studies [2, 23]

Living in rented house reported to be additional factor for FI in elderly with significant difference between urban and rural areas (p -value=0.0001) and majority (82%) of elderly in rural areas lived in ownership houses and 76% of food insecurity

elderly in urban area lived in renting houses [table 2], this may due to the nature of rural area as agricultural land with ownership wide land that make the families to build houses.

Many study limitations should be considered like small sample size that may affect the generalization to the total population also with some form of selection in areas due to hard to reach areas. Other environmental factors such as terrorism event, policy that may be affect the FI not included in current study may be because is difficult to be assess , Nutritional status, nutritional assessment and assessment of dietary intake were not feasible in present study.

Conclusion and recommendation

Household food security was higher among urban area than in rural area. The food insecurity in elderly was related to age 60-74, male gender in urban area and female gender in rural area, unemployment, low educational level, large housing size, renting houses and low monthly per capita expenditure. Health education targeted at community leaders, policy makers and even seniors themselves, on the importance of household food security to health, household food insecurity should be evaluated at regular intervals, in order to stir up sustainable actions.

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