

Influence of the Type of Family Model on Eating Habits in the Elderly and the Role of Eating Alone. An Italian Survey

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Abstract

Background: Italy, as well as many other countries worldwide, is facing a huge demographic transition that could be summarized as progressive aging of the population. This phenomenon will probably affect the eating habits of a growing mass of consumers, because senescence is associated with different nutritional needs. The literature showed that dietary habits may be affected by age, gender and proxies of social status such as education. However, studies about the experience of eating alone are lacking.

Methods: Observational population study using data from the 2010 face-to-face national survey by the Italian Institute of Statistics (ISTAT), and descriptive qualitative study collecting interviews about the experience of eating alone in two periods (2007 - 2010 and 2011 - 2014).

Results: Qualitative interviews showed both “negative experiences” and “positive aspects” about eating alone, for which we reported the most significant answers. In our study population, age ≥ 85 and female gender were related to living alone. Low education confirmed its association with poor nutritional status. The condition of living alone was associated with a reduced risk of obesity and showed no association with the risk of being underweight.

Conclusion: Older people living alone do not seem to have worse dietary habits than those living with spouses or other family members, even though eating alone could be perceived as a negative experience and their diet is usually more “simplified” compared to their counterparts. Thus, implementing social strategies of conviviality may potentially impact more positively on these behaviors than dietary education only.

Keywords: *Living Alone; Eating Alone; Nutrition; Food Habits; Food Consumption*

Introduction

A. *“It’s depressing to always eat alone, in front of the TV which only shows stupid programs...”*

B. *“I like being able to decide when to eat: if I’m hungry at a certain time, I eat and if not, I eat later”.*

Italy, a European country with one of the highest life expectancies in the world, is facing a relevant demographic transition. This has been underway for about two decades, and it will surge over the next decades more and more towards a top-heavy age structure [1].

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In this scenario, the population aging will also potentially affect the eating habits of a growing mass of elderly consumers, given the existing association between advancing age and changing nutritional needs. Indeed, plenty of research has proven not only the negative impact that poor nutrition has on the health of older people [2-4], but also that problematic health conditions tend to increase the risk of undereating or poor nutrition [5,6].

Further research has shown how the dietary habits of older people are affected by age, gender and social status [6,7].

In actual practice, there are two factors that come into play as far as age is concerned. The first is relative to people's progress through the course of life, and results in older people tending to take less interest in what they eat, which further translates into eating smaller meals and consuming a less varied regimen. On the other hand, the second factor refers to the concept of "generations", i.e. the fact that people of different ages have had different lives and have been socialized according to different cultural models, which results in different dietary habits. Consequently, the older generations eat less food items that have only become popular in recent years (such as fish, tropical fruit, or drinks such as beer).

Concerning gender, certain foods and drinks figure more prominently in women's diets (milk and dairy products), while others - particularly alcoholic drinks - are favored by men [8-10].

Finally, when considering the overall social status and the area in which older people live, a more varied and better quality diet is found for those with higher incomes [11-13]. However, those living in rural environments tend to eat more fruits and vegetables than those living in cities [11-15], which is one of the core characteristics of the Mediterranean diet.

Despite this diversified picture, it can be interesting to check whether the type of family model has any influence on dietary habits, particularly for those living alone rather than as a couple or in families where more than one generation is represented. The two quotes reported at the beginning of this section are examples of how older Italian people living alone perceive the experience of eating alone when interviewed.

Aim of the Study

The aims of this study were to illustrate qualitatively how older Italians perceive being alone while eating, and to investigate the relationship between the type of family model (living alone versus living with others) and nutritional habits of the Italian population.

Materials and Methods

Data sources

We obtained two sets of data. First, we collected qualitative interviews about the experience of eating alone in a sample of 50 seniors (age range 60 - 80 years, mean age 68 years) in order to describe briefly how they perceive this moment. With more detail, we performed face-to-face interviews with elderly people of both sexes, living in their own homes and residents in Lombardy, during two periods: 2007 - 2010 [16] and 2011 - 2014.

Secondly, we retrieved data from the 2010 face-to-face national survey performed by the Italian Institute of Statistics (ISTAT, www.istat.it/en/), which had a particular focus on eating habits. This large survey, conducted with a pre-defined questionnaire [33], had an overall sample of 48,336 participants of all ages. Data are available upon registration at the website UNIDATA of University of Milano-Bicocca [34].

Study population

From the whole sample, we considered 5,905 subjects aged 60 - 69, 4,544 between 70 and 79 years old, and 2,694 over the age of 80, for a total study population of 13,143 individuals. In this study, we will refer to these age groups as “elderly” or “older people”. All participants were community-dwelling and 3,096 of them (23.6%) were living alone. The survey included questions on how often certain foods and drinks were consumed (daily, weekly, occasionally, never). Although the quantities were not recorded (except for drinks, where the number of glasses consumed was collected), we were able to develop dietary patterns and particularly to observe situations where certain foods are never - or rarely - eaten.

Information on height and weight allowed us to calculate the Body Mass Indexes (BMI) according to the formula: $BMI = \text{weight [kg]} / (\text{height})^2 \text{ [m}^2\text{]}$.

Considering the family model, a wide range of answers was possible. For our purposes, we considered it advisable to rearrange the different models into three large groups: 1) those who live alone; 2) those who live with a partner or in any case with people belonging to their same generation; and 3) those living with their children or with other people from younger generations.

All data were de-identified in order to comply with the Italian law that regulates the protection of personal information [32].

Statistical analysis

Data were processed and analyzed by one of the authors (CF) using the software SPSS 22.0 Version (IBM Corp., Armonk, NY, USA). Descriptive statistics was realized reporting the portion (%) of participants for each group that responded “at least occasionally” to the specific food items.

Multivariate logistic regression models were built in order to investigate the potential risk factors for living alone (Table 1) and for the increased risk of developing underweight and obesity (Table 3). For each factor, we reported the corresponding 95% Confidence Interval (95% C.I.). The level of significance was set for p-values < 0.05.

Factors	OR	95% C.I.	p-value
Age ≥ 85	3.11*	2.85 - 3.40	<.001
Female gender	2.84*	2.59 - 3.11	<.001
Low education level	0.95	0.87 - 1.04	.273

Table 1: Multivariate logistic regression analysis of the factors potentially related to living alone.

*: Denotes a significant association with the dependent variable (living alone).

OR: Odds Ratio. 95% C.I.: 95% Confidence Interval.

Results

The experience of eating alone

From a qualitative point of view, through a structured interview we investigated the meaning of eating alone for older people, i.e. how interviewees live this experience, reporting the most meaningful answers.

Several interviews showed that mealtimes are significant moments in the day. We classified answers into “negative experiences” and “positive aspects”. Among negative experiences, in some cases participants focus on the fact that eating alone, especially on Sundays and major holidays, creates a feeling of sadness and of not belonging to a family community:

- C: "Particularly at Christmas, eating alone makes me very sad; I get a lump in my throat..."
- A: "It's depressing to always eat alone, in front of the TV which only shows stupid programs..."

On the other hand, in many cases the interviewee's remark on some positive aspects of this situation, such as the "freedom" being alone gives them. Answers belonging to this group can be clustered in three subgroups:

- 1) Possibility to decide about the "when":
 - B: "I like being able to decide when to eat: if I'm hungry at a certain time, I eat and if not, I eat later"
- 2) Possibility to decide about the "what":
 - D: "I am the one who decides what to eat"
 - E: "I make myself some big mixed salads, which I've always loved ..."
 - F: "I've never really liked cooking, I just did it because my husband and my children were fond of good food, but now that I'm alone, I only cook quick and easy dishes"
- 3) Possibility to decide about the "how":
 - G: "I like eating on the sofa, watching TV"
 - H: "even though I am alone, I always lay the table properly and on Sundays I use my best china"

Older people: being alone and food consumption

Focusing on the influence of the family type in which the older person lives, we performed a multivariate logistic regression analysis to assess the role of age, gender and education in determining the odds of living alone (Table 1). While advanced age (≥ 85) and female gender increased significantly the likelihood of living alone, education level was not associated with family type. Given the difference in the likelihood of living alone between older men and women, we then investigated eating and drinking habits of the study population dividing the participants into four groups according to gender and family type (living alone versus living in a family). Results are shown in table 2. If we look at the consumption patterns of the different food groups, we can make some observations:

- Firstly, the differences between those who live alone and those who live "in a family" are fairly small, although they do exist, confirming yet again a substantially shared diet pattern, where the following foods are eaten at least once a week: meat, fish, eggs, dairy products, fruit and vegetables.
- Secondly, there are certain differences which can be identified in the fact that for "all" the food items studied, a higher percentage of those who live in a family setting consume them at least once a week (even when gender and age group are the same), whereas those who live alone display a higher percentage of "never" or "rarely" consuming them. The differences in solid food consumption - chicken, beef, pork, eggs, cold cuts, savoury snacks, potatoes, tomatoes and other vegetables, fruit and sweetmeats - are small for all types of food, both ready-to-eat and those requiring further cooking. However, for drinks (carbonated beverages, beer, wine and especially aperitifs, digestive bitters and spirits) the differences become more substantial.

- Third, while the differences in diet patterns of men and women living in a family are almost exclusively related to the consumption of drinks, among those living alone there are differences in several food groups. Furthermore, there is a higher number of men living alone who “never” or only rarely take milk, white meat and leafy vegetables [17] and a higher number who eat salami every day or several times a week (55% eat it several times a week, against just 38.7% of women). Among women living alone, on the other hand, there are more cases of people “never” or rarely eating beef and pork.

Table 2 shows that instead of replacing one food with another (for example, eating less meat or fish, but more salami or dairy products), older people tend of simplifying their diets, due either to personal choice or to constraints.

Foods and drinks	Men living alone (N = 815)	Men living in family (N = 5064)	Women living alone (N = 2314)	Women living in family (N = 4950)
High protein foods				
White meat	76.9	92.4	80.2	81.4
Beef	65.0	71.4	59.8	67.3
Pork	43.2	49.3	34.9	44.6
Fish	56.4	63.8	58.0	63.4
Cold cuts	55.1	59.8	42.2	52.1
Eggs	57.6	58.2	57.6	57.8
Dairy products	79.9	82.4	80.4	81.8
Milk	68.9	67.4	79.6	77.3
Fruits and vegetables				
Broadleaf vegetables	91.0	93.8	94.2	94.9
Other vegetables	90.1	93.4	92.0	93.8
Potatoes	69.9	74.9	68.8	73.4
Canned vegetables	49.4	53.3	47.6	51.4
Fruits	96.7	95.9	97.7	96.8
Carbohydrates/sweetmeats				
pasta, rice, bread	1.0	0.8	1.7	1.7
Salty snacks	79.4	82.2	78.8	82.5
Desserts	31.9	31.0	31.5	34.6
Beverages				
Mineral water	79.4	82.2	78.8	82.5
Sodas (carbonated beverages)	22.1	28.3	18.9	22.3
Alcohol-free aperitifs	31.6	36.8	16.2	23.4
Alcoholic aperitifs	21.2	23.3	4.9	7.8
Beer	43.5	48.0	12.6	20.7
Wine	65.8	70.3	41.9	45.6
Spirits	21.4	25.5	3.7	6.9

Table 2: Description of food and drink consumption in the study population, divided according to gender and residence status (living alone versus living in family). Data refers to the portion (%) of people consuming the items at least once a week.

“Personal choice” refers to the fact that, if living alone, one naturally tends to eliminate the least among the food items he/she likes [18]; vice-versa, these same foods are more likely to be eaten if available at the family table, as they have been served within a “family” mindset.

“Constraints” refer to the fact that, as BancalItalia data show (available at <https://www.bancaditalia.it/publicazioni/indagine-famiglie/bil-fam2014/index.html>, page 58), on average, people living alone have a lower available income. The consequence is that their pattern of food consumption, although presumably not reducing overall, tends to eliminate (or at least decidedly reduce) the most expensive items, especially if they are considered non-essential.

Finally, there is a third factor, lying somewhere between choice and necessity: we can assume that dishes which take longer to cook (for example, roast or boiled joints, stuffed vegetables or cakes) are made - and therefore consumed - more frequently if they are for family use, whereas they are less likely to be prepared if someone is cooking them just for themselves.

Risk factors for underweight and obesity

Given this picture, it was our interest to investigate the possible relationship between living alone and the risk of being obese or underweight. Using a multivariate logistic regression model, we found that older people living alone have a lower risk of obesity and yet are not more likely to be underweight (Table 3), consistently with a previous investigation [6]. Female gender significantly increased the likelihood to be underweight but was not associated with an increased risk of being obese. Interestingly, a low education level (grade school or lower) was significantly associated with an increased likelihood of being both underweight or obese (OR 1.69 and 1.64, respectively; $p < 0.001$), confirming its association with an inadequate nutritional status [7]. As already shown in previous investigations, social differences affect more the “quality” of meals rather than the type and amount of food consumed [19,20].

Factors	Underweight		Obesity	
	OR	95% C.I.	OR	95% C.I.
Age	0.57*	0.47 - 0.69	0.80*	0.71 - 0.89
Female gender	4.13*	3.28 - 5.21	1.02	0.92 - 1.13
Low education level	1.69*	1.41 - 2.03	1.64*	1.47 - 1.82
Living alone	0.85	0.70 - 1.03	0.86*	0.76 - 0.97

Table 3: Multivariate logistic regression of the potential risk factors for underweight and obesity in the study population.

Variables included: age ≥ 85 years, female gender, low education level (grade school or lower), and living alone.

*: Denotes a significant association with the dependent variable.

OR: Odds Ratio. 95% C.I.: 95% Confidence Interval.

These data seem to confirm that in Italy, at least for these generations, older people who live alone do not have objectively worse eating habits than those who live in a household context.

Discussion

Our analysis highlights that people who live alone tend to have a less structured, “simpler” diet, which is also more repetitive, whereas those living in a family have a more structured and varied diet. As already mentioned, in order to make the tables easier to read, we aggregated the data of all those living in families into one group, but actually the elderly who live in multi-generation families, with children and/or grandchildren, are those whose diet reflects more frequent consumption of “all” the food and beverage groups (data not shown).

This is certainly not an issue from the nutritional point of view, because diets appear in any case well-structured and comprise plenty of the main nutritional groups. The major risk might be to eat in a rather more random and monotonous manner, and this habit might have repercussions in terms of risk of depression [21,22].

Social factors (e.g. living alone, widowhood, financial strains), functional disability and multimorbidity contribute to depression, which in turn impact on dietary habits and risk of malnutrition. Furthermore, loss of appetite and lack of pleasure to eat are core clinical characteristics of depression [23].

However, in contrast with the findings in other countries [24] (but more focused on the adult population), it does not appear that older people living alone in Italy are more likely to eat “junk” food. This is relevant considering that the link between consumption of these foods and the risk of obesity is well established, as well as the health risks associated with obesity itself.

A recent study by Whitelock and Ensaif showed additional factors potentially interfering with nutrition [25]: loss of partner worsens a variety of eating and nutritional quality due to a lack of motivation to cook and desire to eat. Living alone and loneliness are often associated with reduced pleasure from eating that affects dietary intake and consequently increase the risk of malnutrition, whereas commensal eating occasions can be enjoyable moments to rediscover the pleasure of eating elaborated dishes and hosting relatives and friends at home. The authors enlightened that difficulty in accessing food stores and mobility impairment can reduce food choice and variety of eating among older people. Finally, increasing social support could improve nutritional habits, particularly among adults with adequate residual functional autonomy [25].

Referring to Italy, a reason behind the elderly eating less “junk food” than other countries may lie in previously-acquired nutritional patterns, but it may also be that elderly Italians (as several surveys have shown), even if they live alone, are not necessarily “alone”, and above all they do not always have lived alone [1].

First of all, the majority of older people currently living alone have previously lived in family (in this age group, unmarried people account for 10% only). Moreover, they have lived most of their lives in a family context and therefore their eating habits are similar to those of seniors currently living in family.

Secondly, the great majority of Italian seniors have at least one child living nearby and with whom he/she has frequent contact through visits or phone calls. We can assume that many elderly people living alone have at least one meal a week with a family member, with elderly women frequently cooking for younger relatives and elderly men being invited to a relative’s home.

Furthermore, in Italy a considerable number of seniors living alone have a full- or part-time carer (generically called “badante”) [1,26], who shops and cooks for them, ensuring a varied diet including freshly cooked foods.

In other cases, elderly people on a low-income (especially those living alone) receive “meals on wheels” funded by social services. This is a further way of ensuring that their diet is not very different from that of people living in a family, even though it is not possible to ascertain if they truly consume the entire meal.

The risk of acute loneliness, though present, is presumably lower than in other countries where being registered as living alone often translates into suffering existential loneliness [22,27] and depressive symptoms [22,28].

This fact, together with the “Mediterranean diet” [29] that continues to be common throughout the population, leads to a lower risk of a poor diet and of consuming junk food.

This study has some limitations. First, all study participants were community dwelling older adults. However, since the rate of institutionalization in nursing homes concerns only 2% of Italian seniors, we can assume that our sample accurately depicts the national

situation, therefore our results can be generalized to the whole country [1]. Second, we lack the exact volume of food consumed and information about how they were cooked, making this work more a qualitative rather than a quantitative investigation. However, this specific information was beyond the scope of our analysis.

Major strengths of this study are represented by the large sample size, representative of the Italian population, and by the collection of qualitative interviews that enlighten both negative and positive aspects of the seniors' experience of eating alone.

Conclusion

Although the dietary habits of seniors who live alone do not seem 'objectively' worse than that of older people who live in a family, eating alone can be still experienced 'subjectively' as a negative issue, especially if this routine is never discontinued by moments of sociality. Indeed, two studies showed that the condition of widowhood is associated with loss of commensality, behavioral changes and modifications of the nutritional status [30,31].

On the one hand, education about nutrition and healthy eating are certainly relevant, at all ages. On the other hand, moments of social aggregation for the elderly - for example through the establishment of activities or convivial areas that involve that they do not eat alone - are certainly desirable and even more crucial for a better quality of life.

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Conflict of Interest

None.

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Authors' Contributions

PM participated in data interpretation, drafted the tables and the English version of the manuscript. CF retrieved, processed and analyzed the data; she participated in the interpretation of results and drafted the Italian version of the manuscript. GA and GB participated in data interpretation, presentation of results, and contributed to drafting the English version of the manuscript. AD and BF participated in data analysis and interpretation and contributed to drafting the English version of the manuscript. AA contributed to data interpretation, formatting tables and obtaining the final English version of the manuscript. All authors have read and approved the final version of this manuscript.

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