

Use of combined methodologies in assessing food beliefs and habits of elderly Greeks in Greece

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Abstract

This study is part of a wider cross-cultural study of food habits and health in later life. Two general approaches have been incorporated into the survey instrument: (1) rapid assessment procedures (open-ended questions) to elicit information on food and health beliefs, and (2) a questionnaire approach (coded answers for scoring) to elicit information on health, lifestyle, and usual food intake. By combining the qualitative anthropological approach on food beliefs with the conventional survey method for gathering food-intake data, it was possible to examine underlying reasons for observed food habits and consumption of various foodstuffs in 104 Greeks 70 years old or over in a town near Athens in 1988. More than 75% of the subjects believed that meat should not be eaten more than once a week because it is bad for health, that fish should be eaten twice a week because it is good for the heart, and that legumes are essential for longevity and should be eaten at least twice a week. They believed that fruit should be eaten in moderation and is not essential to health—that oranges raise blood pressure and should be avoided by the elderly, but that grapes, when eaten exclusively in large quantities, can cure all illnesses. When these beliefs were compared to actual intake, consumption in most cases, except that of legumes, was compatible with the beliefs. If the Greek elderly community were to be targeted for health promotion, their beliefs would need to be taken into consideration to facilitate programme implementation.

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Introduction

We have been engaged in a study of the food beliefs and habits of elderly Greeks in Greece as part of a wider cross-cultural study of food habits and health in later life initiated by the International Union of Nutritional Sciences (IUNS) Committee on Nutrition and Aging [1; 2]. In particular we are interested in studying what aspects of past and present food intake and other lifestyle factors are associated with longevity and health in later life in population groups with different dietary habits (in Australia, Greece, the United States, Sweden, China, Kenya, the Philippines, Indonesia, and Guatemala). Representative samples of 100 men and 100 women 70 years old and over are being studied where possible.

Sound nutritional practices abound in different sociocultural groups. Groups with a stable history over many generations have food habits, beliefs, and traditions compatible with survival in a particular setting. Although food beliefs have not always been compatible with survival of weaker members of the group or with achievement of optimum health because foods have usually been chosen from the array that was available [3], traditional food cultures have developed over thousands of years and have been tested, refined, and distilled, producing repertoires of foods and processes for preparing them that are capable of sustaining human life in specific environments. Consequently, rather than trying to change people's traditional food habits on the basis of limited scientific evidence, we may need to learn from the people by tapping into the wisdom of their culture, enquiring about their food beliefs and how they influence food habits and health decision making.

The elderly have been specifically targeted for this study because they may provide more information about the importance of traditional food and lifestyle practices in later life than younger people, as they tend to maintain and uphold such practices. The elderly both are custodians of tradition and have a lifetime of experience, and thus form the best re-

source for food and health beliefs. Such information may prove particularly useful in preventing morbidity in today's rapidly ageing population, as well as exposing beliefs that warrant further research and some that may be detrimental.

Quantitative surveys alone, whether socio-economic or nutritional-dietary, are not enough to give a complete picture of the reasons the behaviours exist. It is important to distinguish between quantitative data on food habits and information on food beliefs that help to explain why particular choices are made and the constraints on their improvement, even where there is a knowledge base for modification. The inclusion of a qualitative anthropological approach in this study helped to explain health-related behaviours in the elderly Greek population surveyed that might have gone unnoticed if data gathering had been strictly quantitative. If the Greek elderly community were to be targeted for health promotion and disease prevention, their beliefs would have to be taken into consideration to facilitate programme implementation.

Methods

Study population

The town of Spata, about 20 kilometres east of Athens, was chosen for the study for a number of reasons. Its proximity to Athens made it convenient for the researchers. The maintenance of a traditional Greek diet by most of the people in the town provided a standard by which to determine the degree of dietary change made by elderly Greeks who have migrated to Australia. Most families in Spata have been there for many generations, with households being multigenerational and still traditional in their way of life, thus making it an ideal venue for studying traditional culture and food habits and beliefs.

The economic basis of this rural area is subsistence agriculture. Olive oil, olives for eating, grapes, and wine are the main products, supplemented by figs, almonds, pomegranates, pulses, goat milk, and chicken eggs. There is very little rain in summer, and the rocky terrain presents limited opportunities for modernized agriculture. Our impression is that Spata is above the rural Greek average in affluence and modernization because 10 years ago the government encouraged residents to sell their land so that a new airport could be built in the vicinity.

At the 1981 census the total population of Spata was 6,398; at the time of the study (August–October 1988) it was about 10,000. The total number of people from the electoral rolls 70 years of age or over was 640.

A representative sample of 104 subjects (51 men, 53 women) 70 years old or over (mean 77.6 ± 5.6

years) was selected from the electoral rolls. It was not possible to complete the study of 200 subjects as originally intended because of an underestimation of the time required for data gathering. The electoral rolls were chosen as the source of the sample because fewer than 90% of all households have a telephone. Sixty-three of the subjects (61%) were under the age of 80, with equal numbers of men and women. The age and sex distributions were as follows: 70–75 years, 45% (F 24%, M 21%); 76–81 years, 26% (F 9%, M 17%); 82–87 years, 25% (F 16%, M 9%); 88–93 years, 3% (F 1%, M 2%).

Field methods

An interviewer-administered survey instrument has been developed for cross-cultural measurement of food habits, health, and lifestyle factors that may affect health outcomes in the aged [2]. Two general approaches are incorporated into the instrument: questionnaire (coded answers for scoring) to obtain quantitative data on health, lifestyle, and food intake; and open-ended questions to obtain information on the subjects' beliefs about food and health.

The survey instrument was administered to the 104 subjects. A single home visit was made to collect all the information (total interview time three hours). When a subject was unable to answer questions independently (e.g. because of senility or dementia), a relative or friend assisted.

Questionnaires

Lawton's multilevel assessment instrument for the elderly [4] was adapted to obtain the lifestyle, well-being, and subjective health scores.

Usual food intake over the past year was assessed using a quantitative food-frequency questionnaire adapted from the Australian Polyp Prevention Project [5]. Photographs were used to help estimate portion sizes.

Responses were entered into a data-management programme (DBase 3) and summed to form various scores (health, medication, memory, well-being, exercise, activities of daily living, social activity, social networks, food variety).

Rapid assessment procedures

Anthropologists Scrimshaw and Hurtado have developed guidelines for procedures that allow the rapid assessment of beliefs and perceptions regarding health, the prevention and treatment of illness, and the use of traditional and biomedical health resources (referred to as rapid assessment procedures, or RAP) [6]. The guidelines are intended to help investigators focus their research, organize the data-collection process, and standardize the information gathered. It is recommended that they be used as an outline for the

formulation of questionnaires, checklists, and other instruments.

The set of open-ended questions incorporated into the survey instrument was developed using RAP guidelines. It elicited qualitative anthropological information on food and health beliefs from all the subjects for the purpose of exploring the reasons for their food habits and dietary choices as a complement to the quantitative data on food intake.

The following questions were asked:

1. What advice would you give your children and grandchildren about how to stay healthy and live a long time?
2. Are there any foods you think are good for health? How do you know?
3. Are there any foods you think are bad for health? How do you know?
4. What traditional health practices are you aware of that can be used to treat or prevent certain illnesses, injuries? How do you know?
5. What do you think has contributed to your longevity?
6. What foods are good or bad for children? What were you fed as a child?
7. What foods are good or bad for people your age?
8. What hard times can you remember where there was a shortage of food (e.g. war, famine)?
9. What foods did you eat and for how long? How did it affect your health?
10. What was a typical week's food intake when you were in your early twenties and how do you think this has affected your health? What foods have been detrimental to or good for your health?

Results and discussion

Preliminary findings from the questionnaire on life-style, well-being, and subjective health scores revealed the importance of non-nutritional factors to health in later life. For example, the health score was significantly correlated ($p < .001$) to the scores for exercise ($r = .58$), well-being ($r = .5$), medication ($r = .67$), activities of daily living ($r = .47$), social activity ($r = .42$), and social networks ($r = .36$). Gender and age were not significantly correlated to the health score. Overall, the sample had high (i.e. good) scores for health status, medication, memory, well-being, activities of daily living, and social networks and average (mid-point) scores for exercise, social activity, and food variety.

Combining these findings and the data on food intake with the qualitative anthropological information on food and health beliefs made it possible to achieve a fuller understanding of certain dietary behaviours in the sample community. The following paragraphs discuss the consumption and qualities of key foods in

relation to the beliefs held about them to illustrate the value for nutrition-education programmes of the kind of information that can be obtained by combining methodologies.

Meat

More than 75% of the subjects believed that meat (especially beef) should not be eaten more than once a week, even if it is lean. They thought that too much meat is eaten today and that this has caused a rise in the frequency of cancer, high blood pressure, diabetes, and heart disease. In the old days these individuals ate meat (lamb, goat) once or twice a month and chicken once a week, and they were much healthier. Meat was considered more "taxing" on the body than fish. Therefore the sample said it should be eaten with vegetables and garlic to keep it from being harmful and from raising blood pressure. Lamb, goat, and rabbit were deemed healthier than beef, but the subjects advised against eating these more than once a week. Finally, it was commonly believed that foods rich in iron (meat, lentils, spinach) should be eaten in moderation because they cause the blood to become thick, which raises blood pressure and cholesterol levels.

Beef was consumed more frequently than lamb. Minced beef was eaten once a week by 54% of the sample, whereas a roast or casserole of beef was eaten by only 18%. Overall, 38% ate beef once a week, 14% twice a week, 7% three times a week or more; 28% ate beef less than once a week (8% once a month, 15% twice a month, 5% three times a month), and 13% never ate it.

Mutton was twice as popular as lamb. One or the other was eaten once a week by 11%, twice a week by 12%, and three times a week or more by 7%. It was eaten less than once a week by 43% (17% once a month, 24% twice a month, 2% three times a month), and 25% never ate it.

Chicken was not as popular as beef but more popular than lamb or mutton. It was eaten by 27% of the sample once a week, 10% twice a week, 6% three times a week or more; 41% ate chicken less than once a week, and 18% never ate it.

Goat was eaten once to twice a month by about 50%; the remaining 50% did not report eating any. Pork was eaten by only 10%.

Only 67% had beef or lamb/mutton once a week or more, and 23% ate both beef and lamb/mutton once a week or more. About 80% would have lamb/mutton or beef or chicken at least once a week, with 29% eating both chicken and beef at least once a week and 7% eating all three once a week. Overall meat consumption was not high, with 33% eating beef or lamb/mutton less than once a week and 20% eating beef, lamb/mutton, or chicken less than once a week.

Studies have shown that lean meat does not increase plasma cholesterol levels [7]. However, prospective studies are lacking on the effect of long-term high meat intake on carcinogenesis, especially if a lot of vegetables are not consumed simultaneously [8]. Vegetarians are reported to have lower blood pressure, a lower cholesterol level, and less heart disease and cancer than persons who eat meat [9; 10]. It is not yet known what is a desirable amount of meat to eat per week. Plant foods provide antioxidants (vitamins C and E, carotenoids) and other nutrients that may protect against cancer and heart disease and may prevent the formation of oxidized cholesterol and atherogenesis [11]. In susceptible persons, too much dietary iron can lead to tissue damage, but it does not make blood thicker or raise the cholesterol level or blood pressure. It is now being recognized, however, that iron status may play a role in heart disease [12] because iron has been shown to catalyse the formation of free radicals (superoxide ions) [13]. It is hypothesized that it may be no coincidence that heart-disease rates increase in postmenopausal women [14]. There is no evidence that lean beef is more detrimental to health than lamb or goat [15].

Overall, the meat intake of this elderly Greek community was compatible with their unfavourable view of meat. Although beef was more popular than lamb, the majority of the sample (74%) ate it only once a week, with fewer than half eating beef (42%) or lamb (20%) twice a week. The belief that meat is bad for health could be nutritionally disadvantageous for elderly people who have reduced intake and require foods that are nutrient dense. If the nutrition status of such individuals is to be improved, this belief may have to be targeted.

Fish

Fish was thought to be good for the body, and most of the sample believed that it should be eaten at least once or twice a week. Fresh fish was preferable, with tinned food considered not good for you. The subjects cautioned against eating fish every day, because it affects the blood. Greeks traditionally eat a lot of fish. It is thought to be not as heavy or taxing to the body as meat and to be good for the heart and for general health.

Only 8% of the sample never consumed fish. About 67% ate it once a week or more (28% once a week, 33% twice a week, 7% three times a week or more). Only 25% ate fish less than once a week (9% once a month, 15% twice a month, 1% three times a month).

A large Dutch study concluded that eating two fish meals a week reduces mortality from heart disease [16]. However, those who eat fish daily have prolonged bleeding times [17]. Omega-3 fatty acids reduce the tendency for blood to clot, lower the

triglyceride level and blood pressure, and prevent insulin resistance [18]. There is no evidence that lean meat is more taxing to the body than fish. Meat, however, does not contain much omega-3 fatty acid, and fish consumption has not been linked to bowel cancer [15]. No evidence exists that tinned fish is any less nutritious than fresh fish.

The subjects' fish intake was compatible with their favourable view of it, with the majority (70%) consuming fresh fish at least once a week. Weekly inclusion of fish in the diet of an elderly person is beneficial. If fresh fish were not available, eating tinned tuna, sardines, salmon, and mackerel, which have omega-3 fatty acids and are of comparable value, could be encouraged. The beliefs about fish suggest that a programme to encourage its consumption would be more acceptable and effective in this community than one for meat.

Legumes

Legumes were considered the healthiest food, to be eaten at least twice a week. They were stated to be good for the heart, the bowel, and general health. The subjects ate them almost every day in the past, and they attributed their good health to them. They thought the fact that Greeks today, especially the younger generation, have substituted meat for legumes has contributed to a deterioration in their health. The Greek religion specifies that on Wednesdays and Fridays one should not eat meat but only legumes; however, only the elderly follow this healthy tradition. The sample said the best pulses are haricot beans. Although lentils are rich in iron, which is good for children, the subjects believed they can raise blood pressure in the elderly.

Only six of the subjects did not eat legumes. Haricot beans were the most frequently consumed; 52% ate haricot bean soup twice a month or more. The next most popular legume was brown lentils, eaten by 36% of the sample as soup twice a month or more. Chick-peas and split pea soup were also very popular, and were eaten twice a month or more by 29% and 16% respectively. Broad beans were consumed twice a month or more by 13% of the sample. Black-eyed beans and lima beans were the least popular, consumed twice a month by fewer than 10%. Overall, only 26% ate legumes once a week, 30% ate them three times a month, 38% ate them twice a month, and more than 70% ate them once a month.

Legumes contain pectins and saponins, which are known to be hypolipidaemic [19] and have antitumour properties [15]. They also contain slowly digested and resistant starch and water-soluble fibre which can be of benefit to people with diabetes because of their low glycaemic index [20]. There is no evidence that haricot beans are superior to other pulses, or that lentils

should be avoided by the elderly because the high content of iron is deleterious to health or raises blood pressure. The desirable weekly consumption of legumes is not known. However, vegetarians who eat legumes regularly are reported to have lower blood pressure, a lower cholesterol level, and less heart disease and cancer than those who do not eat them [9].

The frequency of legume intake was not compatible with the stated belief in their efficacy. Fewer than 30% of the sample ate legumes once a week. Lentils were eaten less frequently than haricot beans (because of the belief that they raise blood pressure?). The majority of the subjects lived with their children and relied on them to prepare meals; legumes are unpopular with the younger generation and thus are not cooked regularly in Greek households unless specifically prepared for the older members. Inclusion of legumes in the diet twice a week could be beneficial for elderly people who tend to be constipated or for those with diabetes or hypertension, both of which were prevalent in this community.

Lentils are a reasonable substitute for meat because they contain iron and zinc (although of low bioavailability) and so may be a useful source of these minerals for elderly people who tend to avoid red meat. Adequate protein intakes were achieved in this community from dairy products and cereals, however, and therefore the value of combining legumes and cereals for amino-acid complementation is not important. The beliefs about legumes indicate that a nutrition-education programme that encouraged their consumption would be accepted by the elderly community.

Fruits

The sample stated their belief that fruits should be eaten only in moderation. They were considered to be not as healthy as vegetables and also fattening. It was felt that oranges, although good for health and for treating colds, should be avoided by elderly people with high blood pressure. (On the other hand, although lemons are similar to oranges, they were believed to lower blood pressure.) The only fruit the sample said should be eaten in large quantities is grapes. It is believed eating grapes exclusively (as much as 5 kg per day) for up to 40 days (a practice known as grape therapy and recommended by Hippocrates) can cure the body of all illnesses (e.g. diabetes, atherosclerosis, hypertension) and especially those that do not respond to drugs or herbs (e.g. cancer). Grape therapy is still practised by elderly Greeks and priests/monks, who believe everyone should do this every year to cleanse the body of toxins. The best grapes were said to be the ones harvested in September that have pips; they may be either red or green.

Eight per cent of the sample did not eat any fruit,

and overall consumption was low to moderate. Most fruits were eaten only when in season and rarely all year round. Overall, about 70% ate less than one piece of fruit daily. Oranges were eaten only when in season (for two months). Overall, about 50% of the sample ate fewer than three oranges a week. Grapes also were eaten only when in season (for three months). In contrast to total fruit intake, however, about 50% of the sample ate more than 20 grapes daily, and 10% performed grape therapy annually.

Current dietary guidelines in Greece and Australia indicate that two pieces of fruit of different kinds should be eaten daily (i.e. about 200 g per day) [21]. There is no evidence that vegetables are more beneficial to health than fruit [15]. However, most fruits contain substantial amounts of fructose, which has been associated with elevated blood lipid levels (especially triglycerides), but more research is required to confirm this finding [22]. It is possible to replace recommended amounts of fruit with additional servings of vegetables, as they too provide vitamin C and other nutrients, dietary fibre, bulk, and satiety. The reverse substitution of fruits for vegetables, however, may be more difficult, as vegetables also provide substantial β -carotene, folate, and unrefined carbohydrate, the last two of which are not available in substantial amounts from fruits [16]. This is particularly relevant in the Greek community since tropical fruits (a good source of carotene) are not available, neither oranges nor orange juice (a good source of folate) are eaten regularly, and bananas (a good source of unrefined carbohydrate and folate) are expensive and not eaten regularly. There is no evidence that fruit is more fattening than other foods with an equivalent energy content. No evidence exists that oranges raise blood pressure [15]. There appears to be no proof of the properties ascribed to grapes, least of all that they cure cancers.

The sample's fruit intake was compatible with their unfavourable view of fruit, with about 70% eating less than one piece daily. Fruits provide many essential vitamins and minerals as well as fibre and water. The elderly in this community should be educated about the benefits of consuming them regularly. Oranges are an important source of nutrients for elderly people, especially of vitamin C and folate, and there is no evidence that avoiding them is of any benefit to hypertension. Grapes have a high glycaemic index and, if eaten in large quantities by diabetics, may raise blood glucose levels, which is of particular relevance in this community because the prevalence of diabetes is quite high (10% of the 67 subjects tested had fasting blood glucose > 7.8 mmol/L and 28% had 5.6–7.7 mmol/L). Eating grapes exclusively for up to 40 days may not be healthy for all, especially for the elderly who are not eating well and require nutrient-dense foods.

Conclusion

The inclusion of an anthropological technique (based on rapid assessment procedures) to explore food and health beliefs added an extra dimension to the stan-

dard survey methodology (coded questionnaires) by helping to explain the food-intake data and the reasons for existing dietary behaviours in a way that would not have been possible if the data gathered had been strictly quantitative.

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