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## **FOOD CONSUMPTION OF ELDERLY PEOPLE FROM SUSTAINABLE POINT OF VIEW**

*P. Simonyi*

Active Society Foundation, Liliom u. 8. H-1094, Budapest, Hungary  
e-mail: sapi109@gmail

### **ABSTRACT**

Ageing and sustainability are key problems of modern societies. Firstly increasing proportion of elderly people in population is becoming more important both for society and economy. Economy takes into account needs of old people as of consumers remarkable. Secondly sustainable development (SD) seems to be solution to many of global problems. However SD is contested but implementation is indispensable. Role of elderly is not negligible in it. Thirdly food consumption, as one of three essential needs, has exceptional importance in our days not only in the history. The question is how to connect sustainability, food consumption and healthy nutrition. In this case sustainability means to define criteria of foods which are better in terms of sustainability. The data is necessary for the amount of food consumed by older people. Data in territorial level cause a few problems to solve. Healthy nutrition is well known and it is compared to criteria of sustainability. Although all aspects cannot be outlined in this paper but new ideas, approaches are hopefully given.

Keywords: food consumption, elderly people, sustainable development, sustainability, criteria of sustainability, implementation sustainable development

### **1. INTRODUCTION**

The global problems of the Mankind are serious threats for next generation. There are other ones that could not be avoided to take into account on the path-way to find the solutions. One of these is ageing which is specific feature in demography of developed countries. However many states of Third World are in the second phase with permanently growing population year by year. The proportion of elderly people in population is growing mostly all over the world. Their role is more and more increasing not only in social, in economic aspects but in cultural and political ones as well. In market-economies, in western type consumer societies this process results that more attention is paid to elderly people. The more proportion of population they have the more importance of them as consumers is. Food consumption is specific, differs from other age groups and it is has special structure.

Sustainable consumption is a real part of implementation of sustainable development. Based on UN definition the needs of future generation should take into account in our daily lives, in our daily decisions. Having regard to the fact that elders will play more role all over the word their sustainable consumption is a desirable objective. The most important part of it is food consumption. Intake of healthy food is not only personal goal of old persons but it is in focus of a democratic modern state.

The connection of this "triumvirate", sustainability, food consumption and healthy nutrition is aim of this paper. It is clear that some part of issue is discussed here because its complexity hopefully it will be useful for further thinking.

If we overlook role of old people in demographic structure, especially for Hungary, we can get a clear view of changes and the possible future. Other question is how the food consumption of elderly people looks like in aspect of quantity and quality. It seems to be easy question but in fact it is unanswerable. We could only attempt to access to the real values. Implementation of sustainable development is much more difficult as it seems to be. In the field of nutrition of man, in one of essential needs, specific criteria should state which can help to evaluate it from sustainability point of view. The healthy diet is well-known but connection between healthy diet and that one, which serves sustainable development, is a fundamental question. In nutrition of elderly people it has particular importance.



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## 2. MATERIAL AND METHODS

According to the extremely widespread literature on each field of “triumvirate” it is not simple to find the most relevant ones. Furthermore there are such difficult problems. The main is a really common question that how much food is consumed by a man per year or day in fact. You find that on regional or on state level we do not know daily or yearly intake precisely!

In Hungarian statistics on food consumption there are two data originated from different methods. The first one is based on household consumption. The cumulated data is calculated from report of about ten thousand households which ones leads household budget and diary and are interviewed by specialists of Hungarian Central Statistical Office. The other one is based on national account trade statistics and it is calculated from internal trade. The two data bases have different values, sometimes sharply different.

How could it be? Household data contain only those foods which are consumed in households. Outdoor consumption in restaurants, in canteen, in school, street food, etc. is not included. The other data have been calculated from balances on major products and their quantity consumed in the country. Every data food, nutrient balance transformed into basic materials. It contains food consumption of foreigners (non-residents), as tourists, visitors but do not include those foods what are consumed by Hungarians abroad or from abroad. Extreme difference can be recognised in consumption of sugar. The consumption data based on product balance is about 2.5 times more than on household consumption. It is caused by method which one calculates in basic materials but household’s data do not. Conclusion is that each method can be reference only on the way that user attracts attention to limits of them and methods should be used strictly separately.

Healthy diet is generally well-known but it is disoriented some vogue idea. These ideas can really be based on scientific results but in many cases they are business powered.

Criteria of sustainability are the other not easy task. However generally it has commonly known features but to use them grows up problems.

Decision should take to define who is an old man. Different age limits can be found in literatures. UN uses 60 year as age limit [12] but in US 65 year is applied [3]. In Hungary you can find both of them but sometimes you recognize that limit of retiring is the base of data. Unfortunately in Hungary it does not equal of any mentioned year above, moreover this number is growing slowly up in the next five years up to 65 years. Furthermore retired people not only older but their data contains younger persons also who became retired other reasons. It is easy to find three incomparable data basis that requires handle them very accurately. In the world the highest level of retiring year is in Israel and Lesotho by 70 years. Lowest ones can be found in Africa, Asia and Oceania. Extreme low 50 years can be found in Kiribati, Kuwait, Nigeria, Solomon Islands and Swaziland [12].

Generally in this paper food consumption is used in quantity and quality not in values and 60th year is the limit of old age except other year is signed.

## 3. RESULTS

Three aspects are discussed here. Firstly the population data are outlined. Not only life expectancy but healthy years are analysed as well.

### 3.1. Population and demography at the beginning of 21th century

Population of the world is estimated 7 417 million people by World Population Clock and by geohive on April 24, 2016 [16, 4]. It is an acceptable data according to estimated one by UN for 7 349 million in July 2015. However in USA data sources publish less numbers. Population of the world was 7 256 million persons in July 2015 by CIA [2]. The U. S. Census Bureau calculates 7 320 million man on April 24, 2016 [14]. Data for India gives the most part of difference between these world population data, about 45 million people less calculated by U.S. Census Bureau [13]. The Statistical Bureau of India estimates more less people for India than U. S. Census Bureau by nearly 12 million [8].

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This population and its changing structure cause three global problems which are on field of demography: overpopulation, ageing and migration. The first two are not yet studied for long time ago [7]. Ageing is resulted by longer average life expectancy at birth and decreasing fertility [12]. It seems to be the most serious challenge in demography of developed countries especially in Hungary [9]. The phenomena of ageing, baby boom and more or less stable population exist at the same time is unique in human demographic history. Ageing is a general process on Earth and it is unknown when will it reach its peak. Although the maximum human lifespan is around 125 years [14] more important is proportion of old people in the society.

Elderly people were only 8 per cent of world population in 1950. The rate grows up to 9.2 % in 1990 when fast growing has started. In 2013 11.3 % of world population belonged to age group over 60 years by UN. Increasing rate is a continuous tendency. It is very likely that in 2050 this global value can reach 21.1 per cent that is about same data as it is in more developed countries today [12]. The ageing accelerates in developing countries more rapidly than in developed ones. According to the data of World Bank [15] some least countries have lowest rate of population 65+ years in 2014 as Afghanistan, Angola, Bahrain, Burkina Faso, Burundi, Chad, Gambia, Kuwait and Uganda by 2 per cent. However Qatar and United Arab Emirates has 1 per cent resulted by huge number of immigrants workers that caused this extremely low values in rich Arab states in Persian Gulf. The largest per cent of over 65 years can be found in Japan where 26 % of Japanese celebrated already their 65th birthday [15].

Ageing is in typical for older population itself. Ratio of 80+ years in population was 7 per cent of elderly people in 1950. It has grown up to 14 per cent of oldies (over 60 years) in 2013 that is 120 million men in the world. Fastest growing could recognized in cohorts of over 100 years (centenarians). Their estimated number of 441 000 (2013) will reach 3.4 million in 2050 and hopefully 20.1 million in 2100 [12].

These data are relevant of consumption point of view. In future changing patterns of consumption is prognosticated. Although research area relates to gender and regional differences in details but now we could only outlined some health aspects of demography.

### 3.2. Health of elderly people, life expectancy and some consumption consequences

In consumption of elderly people is an important factor is health of old persons. The sicker the old man the more the basic needs of life becomes important. It is generally known that state of health is the most important factor in life of old people. Figures of US non-institutional population show sharply growing in needs for assistance according to the increasing ages (Tab. 1).

*Table 1. Need for personal assistance with everyday activities by cohorts in USA*

*(civilian non-institutional population; 1990-91) [3]*

Cohort (year)	Persons needing assistance with everyday activities (%)
15 – 64	2
65 – 69	9
70 – 74	11
75 – 79	20
80 – 84	31
85 –	50



Half of oldest-old people need help over 85 years but about over 75 years the ratio can be defined important. Figures are on the Tab 1. illustrate clearly what is the significance of healthy physical condition. Being in good and healthy condition is useful both for individuals and society also. To live in health is crucial question of old people. It is significantly related to well-being. Importance of is proved by indicator of healthy life years. Healthy life years or disability-free life expectancy is more important indicator for many researchers than life expectancy. European Union publishes values yearly. Data of life expectancy and healthy life years of some countries in 2013 is shown in Tab. 2.

**Table 2. Life expectancy at birth, healthy life years at birth and at age 65 by country and gender (2013)**

Country	life expectancy at birth; year			healthy life years; year			
	males (M)	females (F)	total	M	F	M 65-	F 65-
hu	72,2	79,1	75,8	59,1	60,1	6,2	6,1
sk	72,9	80,1	76,6	54,5	54,3	4,2	3,7
ro	71,6	78,7	75,2	58,6	57,9	5,8	5,2
pl	73,0	81,2	77,1	59,2	62,7	7,2	7,8
cz	75,2	81,3	78,3	62,5	64,2	8,5	8,9
at	78,6	83,8	81,3	59,7	60,2	8,9	8,8
de	78,6	83,2	80,9	57,8	57,0	7,0	7,0
fr	79,0	<b>85,6</b>	<b>82,4</b>	63,0	64,4	9,8	<b>10,7</b>
gb	79,2	82,9	81,1	64,4	64,8	<b>10,6</b>	<b>10,7</b>
ie	79,0	83,1	81,1	<b>65,8</b>	<b>68,0</b>	<b>10,9</b>	<b>12,1</b>
it	<b>80,3</b>	<b>85,2</b>	<b>82,9</b>	61,8	60,9	7,7	7,1
gr	78,7	<b>84,0</b>	81,4	<b>64,7</b>	<b>65,1</b>	8,0	6,8
mt	79,6	<b>84,0</b>	81,9	<b>71,6</b>	<b>72,7</b>	<b>12,8</b>	<b>12,7</b>
es	<b>80,2</b>	<b>86,1</b>	<b>83,2</b>	<b>64,7</b>	63,9	9,7	9,0
se	<b>80,2</b>	83,8	<b>82,0</b>	<b>66,9</b>	<b>66,0</b>	<b>12,9</b>	<b>13,8</b>
ch	<b>80,7</b>	<b>85,0</b>	<b>82,9</b>	61,5	58,4	<b>10,6</b>	10,4
no	<b>79,8</b>	83,8	81,8	<b>71,0</b>	<b>68,6</b>	<b>15,0</b>	<b>14,8</b>
EU 28	77,8	83,3	80,6	61,4	61,5	8,5	8,6

Key:

hu: Hungary  
pl: Poland  
de: Germany  
ie: Ireland  
mt: Malta  
ch: Switzerland

sk: Slovakia  
cz: Czech Republic  
fr: France  
it: Italy  
es: Spain  
no: Norway

ro: Romania  
at: Austria  
gb: Great Britain  
gr: Greece  
se: Sweden

65- : healthy life years at age 65

**in bold:** 5 highest values

*in italic:* 3 lowest values



Data on the Tab. 2 gives clear consequences. Some of them are:

- countries with the highest life expectancy are not sure to be having the best in healthy life years
- divergence between countries in healthy life years is higher than expected life years;
- gender data shows remarkable less gap not to say turning of them in healthy life years;
- healthy life years over 65 are so high in the most developed and some Mediterranean countries that expected years are two-three times more than in those mostly ex-communist EU members having only 4-7 years;
- not taking into account applied methods, some of the richest countries and Malta, further in opposite point of view Germany, Austria, Italy have surprising value.

Unfortunately Hungary is in lower end in this rank. Position is worst than Poland, Czech Republic but in healthy life years was better than Slovakia was in 2013.

Thinking of food consumption those countries have more similar nutrition structure to generally typical for the state where the more healthy population is. The population of less healthy countries consume more specific food (e.g. sugar-free, allergen-free). These types of food are produced more intricately. Those processes need more energy and substances and they are more expensive as well.

### 3.3. Criteria of SD in food consumption

Sustainable development (SD) in term of UN is more or less well known („...sustainable development, which implies meeting the needs of the present without compromising the ability of future generations to meet their own needs...” [1]). The key words are: future generations and their ability to meet their needs. The needs are different from demands [5]. For example a shoe is a need but the thirtieth one belongs to demands. Moderation in life is other basis of sustainability.

Criteria of sustainability are commonly used all over the world. Less energy and material use are general approaches. According to the natural cycle these types of economic and technological processes are desired. Low-waste technologies are preferred.

What does it mean in practice? Many aspects of food processing could be examined from agricultural fields to the waste of foods. The most typical phenomena of consumer society is absence of seasonal difference of food supply in developed market economies. If we take thought for sustainability it is exactly contrary to idea of UN definition. More energy and material are used for transport. The main two criteria are:

- a. production as close to consumption as it can be (local food)
- b. use so little material as possible
- c. consume less processed food
- d. avoid packaging or prefer natural materials

The c. point means that the more natural state is food consumed the more sustainable nutrition is. It is true that nutrition is today more than to be satisfied the needs of essential biological needs, but the less transferred vegetables, fruits are belongs the most healthy aliments. It connects to the type of food in other words:

- b. Type of food, produced less use of natural resources (water, land use, etc.)

exactly demand of sustainable consumption. Water, CO2 footprints are widely calculated and readable on internet. It is well known that foodstuffs of animal origin concentrate about one tenth of energy than food plants. Not to go more detail it is an extremely important question that is the more sustainable food



consumption is fit to the healthy nutrition or no? In the case if the answer is negative we are really in trouble.

### 3.4. Healthy food consumption vs. sustainable food consumption

Biology, diet of man originated from historic time. The evolution of nutrition is much slower than our customs change. In point of view of digestion we are paleo-man yet. Many of diseases are connected to our changed alimentation. Cancer, diabetes have significantly increasing role in statistics of death. These multifactorial causes of death can be connected to unhealthy food intake.

General specific features of malnutrition are:

- high energy intake
- refined sugar over-consumption
- under dose fibrous food intake

It is necessary to mention insufficient physical activity. It is about one fourth, one fifth of when we lived in tribes. Furthermore the Palaeolithic man ate honey and fruits instead of refined sugar, more edible plants, seeds and meat was much rarer in his food than today is. We are adapted to this food intake and it has not yet changed.

The healthy nutrition consists of more fibrous plants as fruits, vegetables, honey instead of sugar and as much natural food as it is possible. Artificial substances, chemicals and most of processed aliments are not “friendly” for our digestive system.

If we take it into account and compare with main criteria of sustainable food consumption positive correlation can be recognized between them. More sustainable food consumption is healthier, the effect is not opposite.

The renaissance of eco-food, Palaeolithic-diet confirms this. Survey on consumption segments of elderly people has resulted that two of four closely connected to food consumption: focus-on-food and experience-oriented group and focus-on-home and health-oriented group [6]. Health has been increasing the value in the life of old men.

### 3.5. How much we eat? And elders?

Although it seems to be easy to answer that how much food is consumed but there no correct data. The nutrition of a man is not clear from the first step! It is true not only in quantity but in quality, also. In Hungary there are two different statistics based on household consumption and on balances drawn up on major products. These are not comparable KSH [10]. For elderly people are household data. However from methodology those are households of old people where the householder is old. There are quantity data more than 60 foods but their production country is not known although it would be important for sustainable evaluation. Territorial point of view region data are accessible only. The analysis is not easy but the data published on base of same method can be compared in time, on long time period too.

Food consumption of elderly people by households shows extremely interesting values. According them the household of old people eat the most food per capita, more than any other cohorts! Even though in real elderly men eat less than adults. It could be caused:

- they are households data, average of members are
- only those consumption is involved which has happened at home (canteen, restaurants not included)
- in younger families the children eat less, there are smaller ones
- elderly people feed their grandchildren
- elders keep more food in reserve



## 4. CONCLUSIONS

Elderly people have more and more important role in all countries of the world. The increasing life expectancy is a general indicator of better life. Ageing is caused by. However healthy life years, as a new indicator, have more relevance for man and country also. There are differences between them in ranks and its values are more extreme in healthy life years by EU data. The gender difference disappears and remarkable is best position of Malta. The state of health effects to the food consumption especially for elderly people.

If we want to survey food consumption for giving assist to implement sustainable development many problems are fund. There are from exact interpretation of sustainable development lasted to the problems of databases. Criteria of sustainability are chosen that are before improving. It is not negligible to define not only elements of food consumption of consumption but of healthy nutrition. Their theoretical comparison resulted positive correlation between them. Bio-food, Palaeolithic diet, vegetarian food are not only more healthy but better fit for sustainable consumption.

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