

ANALYSIS OF HEALTH EXPENDITURE IN POLISH HOUSEHOLDS OF ELDERLY PEOPLE

Marlena Piekut – Magdalena Kludacz-Alessandri

Abstract

Due to the deteriorating health of the elderly, a higher level of health expenditure is observed in their households. The aim of this article is to assess the level of health expenditure and the level of satisfaction of needs in terms of health in different types of households with elderly people in them. The criteria identified for household classification were: sex and age of household head, their socio-economic situation, household size, and level of education of household head. The data source was unpublished CSO (GUS) data for investigations into household budgets. It has been shown that the determinants most seriously affecting health expenditures in households of people aged over 65 years were level of education of household head and household size. A low but significant impact on health expenditure was recorded in relation to the sex of the household head. The structure of health expenditure in Polish households with elderly people indicates the satisfaction of basic needs in this area (medicines), and medical services are a small percentage of this structure, in particular in households headed by people with a lower educational level.

Key words: consumption, household budgets, seniors

JEL Code: D12, D14, I11

Introduction

It is a fact of life that health declines with age, which contributes to the increase in health expenditure of elderly households. The aim of this article is to assess the health expenditure of elderly households, taking into account the socio-demographic characteristics of these households and the subjective degree of satisfaction of their health needs.

According to the United Nations Organization, people aged over 65 years are considered elderly. Anglo-Saxon literature uses the division of the elderly into three age groups: 1) young - old (60/65-74 years), 2) old - old (75-84 years, 3) the oldest - old (85 years and above) (Zizza, Ellison, Wernette 2009). The World Health Organization (WHO) categorizes older people as those aged 65 to 79 years and oldest-old as aged 80 years and older when describing geriatric age groups (WHO, 2001).

Definitions of an elderly person in medical research ranged from 50 to 80 years and above (Sabharwal, Wilson, Reilly, Gupte 2015). So there are several approaches to the age limit, which should indicate that the person can be considered elderly. However, the most commonly used age to define an elderly person is 65. This study included the level and structure of health expenditure in households aged 65 and over.

The research material used in the present study was individual data from the household budget survey of 2014 which is conducted annually by the Central Statistical Office of Poland. This dataset included more than 37 thousand of households. Households with people aged 65 years and over represented 8827 cases. The structure of health expenditure includes the following three categories:

- outpatient services and services of alternative medicine (dental services, medical laboratories and X-ray laboratories, ancillary medical services, other health-related services);
- pharmaceuticals, medical devices (medical articles, therapeutic appliances and equipment, maintenance and repair services of therapeutic appliances and equipment);
- hospital and sanatorium services.

The analysis of variance was used for testing the significance of differences between arithmetic means of many groups. Pearson's correlation coefficients were used to investigate the relationship between health expenditure and household characteristics. The value of a correlation coefficient ranges between 0 and 1. If the correlation coefficient of two variables is zero, it signifies that there is no linear relationship between the variables. On the other hand an absolute value of 1 indicates a perfect positive linear relationship: as one variable increases in its values, the other variable also increases in its values via an exact linear rule. The larger the absolute value of the coefficient, the stronger the relationship between the variables.

1. Results

In the analysis of health expenditure by age of the household head¹, it was found that the older the household, the higher the level of expenditure per capita (Table 1). Health expenditure of households whose head was aged over seventy years tended to be more than three times higher than the equivalent expenditure of households whose head was aged under 30. The share of health expenditure in total income also increased with the age of the household head. The

¹ Household head = The person who contributes most to the household financial resources

correlation coefficient of the relationship between health expenditure and age of the household was 0,267.

Table 1: The level and structure of health expenditure by age of household head in Polish households, 2014

Representative age	The level of health expenditure	Share of health expenditure in disposable income	The structure of health expenditure		
			Medico-pharmaceutical articles, devices and medical equipment	Outpatient services and non-conventional medicine	Hospital services and sanatoria
< 30 years	39,59	2,7	55,7	42,4	2,0
30 - 40 years	42,33	3,2	58,3	40,2	1,4
40 - 50 years	34,75	2,9	60,3	38,5	1,3
50 - 60 years	47,57	3,6	66,1	32,2	1,7
60 - 70 years	80,21	5,5	72,4	25,0	2,6
>70 years	123,83	8,3	78,7	17,6	3,7

Source: own work

Public funding of health care in Poland provides medical services for all insured citizens, but very often the waiting time for specialists is so long that patients are forced to pay out of pocket for health services. Older households generally tend to use medical services more often, and this suggests a relatively high share of expenses on outpatient services in the structure of health expenditure. However, the largest share in the structure of health expenditure of elderly households is represented by medical and pharmaceutical articles and medical equipment (79%). This situation is due to the poor financial state of elderly households. This phenomenon is all the more worrying in view of the long-term forecasts which do not indicate an improvement in the situation of retired people. According to the results of the European Commission's Ageing Report, the ratio of average pension to average wage in the Polish economy will decrease from 47% in 2010 to 22% in 2060 (European Commission 2012).

Subjective perceptions of satisfaction of health needs in elderly households are worse than in other types of households. With the increase in the age of the household head, the percentage of households positively evaluating the satisfaction of health needs decreases, and the percentage of households negatively evaluating the satisfaction of their needs increases.

Nearly 48% of households whose head was aged over seventy years, rated the satisfaction of health needs as good and rather good, and 17% as poor and rather poor. On the other hand, in households whose head was aged under 30, more than 62% of respondents

indicated good and rather good satisfaction of their health needs, and only 6.7% of respondents indicated poor and rather poor satisfaction.

The situation in the individual types of elderly households is varied, influenced by various economic and socio-demographic factors.

1.1 Socio-economic status and health expenditure

An analysis of health expenditure by socio-economic status showed, that the highest expenditure was recorded in households of pensioners, and then in households headed by non-manual workers (Table 2). Socio-economic status plays also an important role in determining a structure of health expenditure. Relatively more favorable relationships were observed in the group of non-manual employees than in households of pensioners, whose expenditure is dominated by medico-pharmaceutical articles. In other studies it has been emphasized that the low economic status of the household and chronic illness are the factors which may have a strong negative impact on the satisfaction of health needs. (Lee, Shin, Do, Yang 2016; Flores, Krishnakumar, O'Donnell, van Doorslaer 2008). The correlation coefficient between the level of health expenditure and the socio-economic status of the household was 0,118.

Table 2: The level and structure of health expenditure in elderly households by socio-economic category, Poland, 2014

Socio-economic group	The level of health expenditure	The structure of health expenditure		
		Medico-pharmaceutical articles, devices and medical equipment	Outpatient services and non-conventional medicine	Hospital services and sanatoria
Households of manual workers	38,52	77,7	22,3	0,0
Households of white-collar workers	98,86	63,6	35,5	0,9
Households of farmers	45,34	68,2	29,2	2,6
Households of self-employed	87,00	66,3	31,2	2,5
Households of retirees	117,39	76,7	19,5	3,7
Households disability pensioners	118,97	84,6	12,9	2,5
Households living on supplementary welfare allowance	51,80	72,5	27,5	0,0
Households having income from other sources	44,56	81,8	18,2	0,0

Source: own work

1.2 Household size and health expenditure

The analysis of health expenditure by household size has shown that there is also a strong correlation between health expenditure and the number of active persons in the household. Together with the increase in the number of people in the household, we observe the decrease in the level of health expenditure per capita (Table 3). This fact is not surprising, as members of multi-family households are children and people of relatively younger age. Health expenditure was the highest in single-person households and the lowest within households with five or more persons. The single-person households spent on average 155 PLN per household member, while households with five and more members – 37 PLN. The link between the level of health expenditure and the household size was relatively high. The correlation coefficient between these variables was 0,256.

Table 3: The level and structure of health expenditure in elderly households by the number of people, Poland, 2014

Number of people	The level of health expenditure	The structure of health expenditure		
		Medico-pharmaceutical articles, devices and medical equipment	Outpatient services and non-conventional medicine	Hospital services and sanatoria
One person	155,23	78,6	17,7	3,7
Two persons	123,86	75,6	20,5	3,9
Three persons	73,73	80,1	18,2	1,7
Four persons	52,64	77,0	22,6	0,4
Five persons or more	37,47	70,5	27,8	1,8

Source: own work

1.3 Education of household head and health expenditure

Education is an important determinant of health expenditure (Varlamowa, Larinova 2015, Piekut, Kludacz 2015). We found that the health expenditures increased with increasing education of the household head (Table 4). The mean health expenditure of households whose head had a higher level of education tended to be twice as high as the equivalent expenditure of households whose head had a basic level of education. In households whose head had lower level of education, expenses on health services accounted for only 14 percent of total health expenditures. This indicates that that such households cover only the necessary medical expenses. The strength of the relationship - measured by Pearson's correlation coefficient - between the health expenditure and the level of education of the household head was 0,222.

Table 4: The level and structure of health expenditure of elderly households by the level of education of the household head, Poland, 2014

The level of education of the household head	The level of health expenditure	The structure of health expenditure		
		Medico-pharmaceutical articles, devices and medical equipment	Outpatient services and non-conventional medicine	Hospital services and sanatoria
lower secondary, primary or lower	83,97	85,8	13,2	1,0
basic vocational education	90,53	80,2	18,1	1,7
secondary and post-secondary	127,54	76,0	19,5	4,5
higher	184,28	66,2	27,7	6,1

Source: own work

1.4 Sex of household head and health expenditure

The link between health expenditure and the sex of household head was not too high, although the relationship was statistically significant. The correlation coefficient between these two variables was 0,044. The health expenditure of households whose head was female tended to be slightly higher than the equivalent expenditure of households whose head was male.

Table 5: The level and structure of health expenditure of elderly households by the sex of the household head, Poland, 2014

Sex of household head	The level of health expenditure	The structure of health expenditure		
		Medico-pharmaceutical articles, devices and medical equipment	Outpatient services and non-conventional medicine	Hospital services and sanatoria
man	105,94	75,9	20,6	3,5
woman	119,63	78,1	18,4	3,4

Source: own work

Conclusion

In conclusion it has to be stated that the level and share of household health expenditure were increasing with the age of the household head. The older age of household head was also associated with lower satisfaction of health needs expressed by household members.

It has been shown that health expenditure of households whose head was over 65 was strongly correlated with a variety of socio-economic household characteristics such as the number of persons living in the household, the level of education of the household head, but less correlated with socio-economic status of the household. Furthermore, the variable "sex of the household head" had a small but significant impact on health expenditures.

The structure of expenditure of elderly households was dominated by the costs of medico-pharmaceutical articles. In particular, the high share of these expenditure was observed in households of pensioners and households whose head had a basic vocational or primary level of education. A high priority for expenditures on medical-pharmaceutical articles indicates the satisfaction of only basic needs. The largest share of expenses on medical services in total health expenditure was observed in households whose head had higher level of education and in households headed by self-employed or non-manual workers.

In general, the structure of health expenditure in Polish households whose head is over 65 is not favorable. Relatively low incomes of this group of Polish society influence the reduction of expenditure even for basic needs.

References

The 2012 Ageing Report, Economic and budgetary projections for the 27 EU Member States (2010-2060), (2012). European Commission, European Economy, no 2.

Flores, G, Krishnakumar, J., O'Donnell, O., & van Doorslaer, E. (2008). Coping with health-care costs: implications for the measurement of catastrophic expenditures and poverty. *Health Econ.* No 17(12), 1393-412.

Lee, J. E., Shin, H. I., Do, Y. K., & Yang, E. J. (2016). Catastrophic Health Expenditures for Households with Disabled Members: Evidence from the Korean Health Panel. *Journal of Korean medical science*, 31(3), 336-344.

Piekut, M., Kludacz, M. (2015). Determinants Of Health Expenditure In Poland. The 9th International Days of Statistics and Economics, Prague, Czech Republic, 1316-1325

Sabharwal, S., Wilson, H., Reilly, P., & Gupte, C. M. (2015). Heterogeneity of the definition of elderly age in current orthopaedic research. *SpringerPlus*, 4(1), 516.

Varlamova, J., & Larionova, N. (2015). Macroeconomic and Demographic Determinants of Household Expenditures in OECD Countries. *Procedia Economics and Finance*, 24, 727-733.

World Health Organization (2001). Men, ageing and health: Achieving health across the life span.

Zalega, T. (2016). Zachowania konsumenckie osób starszych w Polsce. *Handel Wewnętrzny*, No 2 (361), 410-422.

Zizza, C. A., Ellison, K. J., Wernette, C. M. (2009). Total Water Intakes of Community-Living Middle-Old and Oldest-Old Adults. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*. 64A (4), 481-486.

Contact

Marlena Piekut

Warsaw University of Technology, The College of Economics and Social Sciences

ul. Łukasiewicza 17, 09-400 Płock

Marlena.Piekut@pw.edu.pl

Magdalena Kludacz-Alessandri

Warsaw University of Technology, The College of Economics and Social Sciences

ul. Łukasiewicza 17, 09-400 Płock

Magdalena.Kludacz@pw.edu.pl