

Causes of Refraining From Buying Prescribed Medications Among the Elderly in Kaunas, Lithuania

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Key words: elderly; drug use; accessibility; Lithuania.

Summary. *Background and Objective.* Accessibility to medications among the elderly is a source of concern in Lithuania and beyond. However, there are no studies carried out on this topic in Lithuania. Therefore, the aim of this study was to evaluate the causes of refraining from buying prescribed medications among the elderly in Kaunas, Lithuania.

Material and Methods. The data were collected in a cross-sectional ABUEL study in 2009. A total of 624 filled-in questionnaires (response rate, 48.9%) from the elderly aged 60–84 years living in Kaunas (Lithuania) were received. For evaluation of the impact of explanatory variables on the analyzed event (binary dependent variable), an Enter model of logistic regression was used.

Results. The study showed that 32.7% of the respondents refrained from buying prescribed medications. The most common reasons (respondents could select several options) for this decision were financial problems (48.0%), disappearance of problems (40.7%), and fear of side effects (22.5%). Refraining from buying prescribed medications was positively associated with age (OR, 0.85; 95% CI, 0.74 to 0.99). Higher education was associated with a reduced risk of refraining from buying prescribed medications due to financial problems (OR, 0.49; 95% CI, 0.31 to 0.78) and an increased risk of refraining from buying medications due to the disappearance of health problems (OR, 1.75; 95% CI, 1.15 to 2.68). An opposite association with worries about daily expenses was observed.

Conclusions. Study has revealed that one-third of the elderly refrained from buying prescribed medications, and the main reasons for this were financial problems and disappearance of health problems.

Introduction

According to the World Health Organization (WHO), the value of resources allocated to medicines is US \$440 billion or 15.2% of all global expenditures on health (1). Older people (65 years and more) are the major users of medicines in most developed countries (e.g., United Kingdom) as well as in Lithuania (2, 3). Therefore, the use of medicines in the elderly is a growing concern in the international scientific literature. Most studies in the field have focused on either medication adherence/non-adherence or accessibility to medications (4–8). To the best of our knowledge, few studies have evaluated medication nonadherence in Lithuania (9–11), and only one study has addressed medication use

among the elderly (11). The accessibility to medicines is not a common research topic among Lithuanian researchers (12, 13). Referred studies investigated the economic accessibility to medicines based on the respondent's self-reported experience associated with financial problems in obtaining necessary medications. However, only Plieskis included older people in his study (12).

The growing number of studies investigating accessibility (economic) to medications has focused on the respondent's refrains from buying the prescribed medications (14–16). However, we could not find any studies carried out in Lithuania on this topic; therefore, there is a need for further studies in this field, not least in Lithuania.

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The aim of this study was to evaluate the causes of refraining from buying prescribed medications among the elderly in Kaunas (Lithuania).

Materials and Methods

Data for this study were collected during the European project “Elder abuse: a multinational prevalence study – ABUEL” (17). The target population for the ABUEL was persons aged 60 to 84 years not suffering from dementia or other cognitive impairments and living in 7 urban communities across Europe. This study refers to the results from the Kaunas sample. Recruitment of eligible participants and data collection were performed from April to July in 2009. Registry-based random sampling was used. The Residents’ Register Service under the Ministry of the Interior composed the sample of 1276 individuals. Data were collected by face-to-face interviews, carried out by trained interviewers. More detailed description of sampling, data collection procedures, and study limitations are described in a separate paper (18).

The total number of returned questionnaires was 624 (response rate, 48.9%). The investigated sample was representative of the elderly population in Kaunas (from 60 to 84 years) with regard to the main demographic characteristics (gender and age).

The participants completed a standardized questionnaire with various scales and questions. Self-reported refrain from buying prescribed medications was measured with two multiple-choice questions: “Have you ever refrained from buying prescribed medication and care?” and “What were the reasons for not buying prescribed medications and care?”

Data were computed, coded, and analyzed using the Statistical Package for the Social Sciences for Windows, version 11.0 (SPSS Inc.). Descriptive statistics and logistic regression were employed in the statistical analysis. Continuous variables are presented as a mean (standard deviation). For the evaluation of distribution, skewness and kurtosis were calculated. For evaluation of the impact of the explanatory variables on the analyzed event (binary dependent variable), an Enter model of logistic regression was used. The dependent variable was refraining from buying medications. The independent variables were sex, age, education, habitation status, present employment status, worries about daily expenses. The same independent variables were included in logistic regression models for evaluating

the chance for identifying the financial problems or the problems disappeared as the reason for not purchasing medications. Risk was measured using odds ratio (OR) and calculating the 95% confidence interval (CI). Differences in results at the $P < 0.05$ level were considered statistically significant. The Lithuanian State Data Protection Inspectorate and the Kaunas Regional Bioethics Committee granted the permission to perform this study.

Results

Of the 624 respondents, 35.4% were males and 64.6% females. The distribution of respondents by age was as follows: 144 (23.1%) aged 60–64 years, 147 (23.5%) aged 65–69 years, 144 (23.1%) aged 70–74 years, 120 (19.2%) aged 75–79 years, and 69 (11.1%) aged 80–84 years. The mean age of participants was 70.5 (SD, 6.64 years) (kurtosis, -0.993 ; skewness, 0.179). A significant proportion of the respondents (45.2%) had secondary education. Less than one-third (26.0%) had tertiary education and 28.8% primary or lower than primary education. Worries about daily expenses were reported by 72.9% of the respondents (13.9%, always worried; 21.5%, often worried; 37.5%, quite often worried). Only 27.1% reported no worries about daily expenses.

The extent of refrain from buying the prescribed medications was evaluated by the age of respondents (Table 1). The results showed that 32.7% of respondents had refrained from buying prescribed medications. Based on these findings, the highest prevalence of refrain was in the age group of 60–64 years and the lowest in the age group of 80–84 years.

Respondents were asked to name the main reasons (respondents could select several options) for refrain from purchasing prescribed medications (Table 2). Financial problems (48.0%), disappearance of health problems (40.7%), fear of side effects (22.5%), and negative experience from other medications (17.6%) were the most common reasons for refraining. As shown in Table 2, the causes differed by age. The elderly in the age groups of 60–64, 65–69, and mainly 80–84 years were more likely to identify financial problems as the main reason compared to those aged 70–74 and 75–79 years. Those aged 70–74 years reported refraining from acquiring of medications mainly due to the disappearance of health problems. The remaining reasons (fear of side effects and negative experience from

Table 1. The Distribution of Respondents by the Refrain From Buying the Prescribed Medications

Decision	Total (N=624)	Age Group				
		60–64 yr (N=144)	65–69 yr (N=147)	70–74 yr (N=144)	75–79 yr (N=120)	80–84 yr (N=69)
Did not refrain	420 (67.3)	91 (63.2)	98 (66.7)	98 (68.1)	77 (64.2)	56 (81.2)
Refrained	204 (32.7)	53 (36.8)	49 (33.3)	46 (31.9)	43 (35.8)	13 (18.8)

Values are number (percentage).

Table 2. The Distribution of Respondents by the Causes for Refraining From Buying the Prescribed Medications

Cause	Total (N=204)	Age Group				
		60–64 yr (N=53)	65–69 yr (N=49)	70–74 yr (N=46)	75–79 yr (N=43)	80–84 yr (N=13)
Financial problems	98 (48.0)	29 (54.7)	25 (51.0)	18 (39.1)	17 (39.5)	9 (69.2)
Disappearance of problems	83 (40.7)	17 (32.1)	19 (38.8)	28 (60.9)	14 (32.6)	5 (38.5)
Fear of side effects	46 (22.5)	17 (32.1)	9 (18.4)	5 (10.9)	9 (20.9)	6 (46.2)
Negative experience from previous medication	36 (17.6)	12 (22.6)	9 (18.4)	5 (10.9)	6 (14.0)	4 (30.8)
Did not have time	5 (2.5)	4 (7.5)	0 (0)	1 (2.2)	0 (0)	0 (0)
Other reasons	9 (4.4)	1 (1.9)	1 (2.0)	4 (8.7)	3 (7.0)	0 (0)

Values are number (percentage).

Table 3. Risk of Refraining From Buying Prescribed Medications, for Identifying the Financial Problems or the Problems Disappeared as the Reason for not Purchasing Medications (Logistic Regression Analysis)

Factor	OR	95% CI	P
Refrain from buying the prescribed medications*			
Being male**	0.94	0.65–1.36	0.738
Age (each age group)**	0.85	0.74–0.99	0.035
Education (higher level of education)**	0.96	0.76–1.22	0.739
Living not alone**	1.03	0.68–1.55	0.895
Being unemployed**	0.73	0.44–1.22	0.228
Daily worries about expenses (each group of more intensive worries)**	1.09	0.92–1.23	0.333
Financial problems*			
Being male**	1.16	0.58–2.33	0.676
Age (each age group)**	0.87	0.65–1.15	0.319
Education (higher level of education)**	0.49	0.31–0.78	0.003
Living not alone**	0.73	0.33–1.62	0.434
Being unemployed**	1.39	0.52–3.68	0.512
Daily worries about expenses (each group of more intensive worries)**	2.95	2.06–4.20	<0.001
Problems disappeared*			
Being male**	1.08	0.57–2.05	0.810
Age (each age group)**	1.13	0.87–1.47	0.356
Education (higher level of education)**	1.75	1.15–2.68	0.009
Living not alone**	1.35	0.67–2.76	0.403
Being unemployed**	0.80	0.32–2.04	0.647
Daily worries about expenses (each group of more intensive worries)**	0.65	0.48–0.87	0.003

OR, odds ratio; CI, confidence interval. *Dependent variable; **independent variable.

other medications) pertain mainly to older people aged 80–84 years.

Logistic regression revealed that only age was associated with a decreased risk of refraining from buying prescribed medications (OR=0.85) (Table 3). The identification of financial problems as the reason was associated with economic deprivation (OR=2.95) and higher education (OR=0.49). Daily worries about expenses (OR=0.65) were associated with a decreased risk of the identification of *the problems disappeared* as the reason for not buying the prescribed medications, while an opposite association was observed with education (OR=1.75).

Discussion

Our findings revealed that every third older (aged 60–84 years) person refrained from buying the prescribed medications. The most common reason was financial problems. Similar studies from other countries support the existence of refraining from buying drugs due to financial aspects. The reported underuse of medicines due to costs in older

age varies from 3% in the Australia, Canada, New Zealand, the Netherlands and 8% in Germany to 9% in the United States (16). It should be mentioned that the prevalence in these studies was calculated for all participants, whereas in our study, the prevalence was calculated only for those who refrained from buying the prescribed medications. In our study, the underuse due to financial problems of the whole participants would be 15.2%. Overall, our results showed that the elderly in Lithuania are more likely to refrain from buying medicines due to economic reasons than their counterparts in Australia, Canada, Germany, the Netherlands, New Zealand, the United States, and the United Kingdom.

Logistic regression showed that age was independently associated with a decreased risk of refraining from buying prescribed medications. However, age was not significant for the identification of financial problems as the main reason of this decision. Studies have shown that economic problems become a less important factor for refraining from buying drugs in older age (15, 16, 19). However, our findings do

not support this finding. The explanation could be that the referred studies compared older respondents with middle-aged. The influence of age on refraining from buying the prescribed medications can be explained from two aspects: economic and health.

According to some authors (20), older people are less likely to refrain from buying medications due to financial problems because they can spend more money for this than younger ones. Is this explanation relevant to the elderly in Lithuania? According to the Department of Statistics, the average salary in 2008 was at least two times higher than old-age pension (21). However, the cited authors (20) emphasized that younger people had more expenses (i.e., costs for children's education) than older ones. On the other hand, the Lithuanian Sickness Fund provides 100% reimbursement for buying most of the drugs used by the elderly (22). It is noteworthy that data for this study were collected during the economic crisis in Lithuania (23, 24). It might be that "hard times" could have a negative impact on the economic accessibility to medications. On the other hand, it should be mentioned that the Lithuanian Government cut old-age pensions only from the year 2010 (25). Therefore, we think that the influence of crisis on respondents' answers is very limited. However, further investigations on this issue are needed.

As to the health aspects, some studies have emphasized that the chronic nature of health problems among older persons reduces the risk of refraining from buying the prescribed medications (7). The presence of chronic health problems causes older people to follow the physician's recommendations more precisely and to buy the prescribed drugs (26–29).

Our study has revealed that higher education was associated with a reduced risk of refraining from buying medications due to financial problems. This is in line with other surveys showing a positive impact of education on the utilization of health and health care services (30–32). According to Graham, the education, among other factors, is related to higher material living standards and better accessibility to health, which ensure better health (33). However, it is agreed that the level of education is directly associated with better health within the population. This could be explained by better health literacy of more educated people. According to Zagurskienė and Misevičienė (34), more educated patients demand more information about their health status, treatment procedures, and use of medications. It might be that better educated respondents were more likely to adhere to the recommendations of physicians and, thus, did not refrain from buying the prescribed medications. The adherence

to medication use in the elderly is described in the scientific literature (35) and will not be discussed in this paper. However, our results have revealed that education was associated with an increased risk of refraining from buying the prescribed medications due to the disappearance of health problems. This association and the scientific literature show that more educated respondents have better health and that their health problems are not so serious. However, for the confirmation of this explanation, a more detailed study that would evaluate association between the use of medications and self-rated health, somatic complaints, diagnosed diseases, and quality of life is needed.

These considerations, and mainly when referring to the financial problems, are very crucial with regard to the aging population in Europe, to the fact that the elderly people aged 65 years and more are a growing part of society and are the greater consumers of medications (36) and are also at high risk of poverty (about 13 million in 25 EU Member States) (37). In the light of this context, the objective of "poverty reduction and social inclusion of the elderly is to be monitored" (37), keeping in mind the recommendations of the European Medicines Agency with regard to the strategy of geriatric medicines, which aims to take into account the needs of older people in the development of new medicines, ensuring their safety and effective use in the elderly, mainly "frail" patients (38).

Conclusions

One-third of Kaunas inhabitants in the age group of 60–84 years refrained from buying prescribed medications. The main reasons for this were financial problems and disappearance of the health problems. Moreover, older age was associated with a reduced risk of refraining from buying prescribed medications. Higher education was associated with a reduced risk of refraining from buying prescribed medications due to financial problems and an increased risk of refraining from buying medications due to the disappearance of health problems, whereas an opposite association was observed with worries about daily expenses.

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Statement of Conflict of Interest

The authors state no conflict of interest.

Priežastys, lemiančios Kauno miesto pagyvenusių žmonių susilaikymą įsigyti išrašytus vaistus (Lietuva)

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Raktažodžiai: senyvas amžius, vaistų vartojimas, prieinamumas, Lietuva.

Santrauka. Tyrimo tikslas. Vaistų prieinamumas vyresnio amžiaus žmonėms sulaukia dėmesio ne tik Lietuvoje, bet ir už jos ribų. Mums nepavyko rasti Lietuvoje atliktų šios srities mokslinių tyrinėjimų. Todėl tyrimo tikslas – įvertinti priežastis, dėl kurių vyresnio amžiaus Kauno (Lietuva) gyventojai susilaiko nuo recepte išrašytų vaistų įsigijimo.

Tyrimo medžiaga ir metodai. Duomenys buvo renkami vienmomentinio ABUEL tyrimo metu, 2009 m. Gražintos 624 anketos (atsako dažnis – 48,9 proc.), kurias užpildė 60–84 metų Kauno miesto (Lietuva) gyventojai. Siekiant įvertinti nepriklausomų veiksnių įtaką tiriamam veiksniai (priklausomasis kriterijus), naudotas *Enter* logistinės regresijos modelis.

Rezultatai. Tyrimas parodė, kad 32,7 proc. respondentų susilaikė nuo recepte išrašytų vaistų įsigijimo. Pagrindinės šio sprendimo priežastys (respondentai galėjo nurodyti kelias): finansinės problemos (48,0 proc.), sveikatos sutrikimai praėjo (40,0 proc.), baimė dėl šalutinio vaistų poveikio (22,5 proc.). Susilaikymas nuo vaistų įsigijimo buvo teigiamai susijęs su amžiumi ($\text{SS}=0,85$). Aukštesnis išsilavinimas mažino tikimybę ($\text{SS}=0,49$), kad finansinės problemos bus įvardytos kaip priežastis vaistams neįsigyti bei didino tikimybę ($\text{SS}=2,95$) atsakyti vaistų įsigijimo dėl sveikatos sutrikimų savaiminio išnykimo. Nustatytos kitos sąsajos, susijusios su kasdienėmis išlaidomis.

Išvados. Tyrimas parodė, kad trečdalis pagyvenusio amžiaus žmonių susilaikė nuo išrašytų vaistų įsigijimo, o pagrindinės priežastys buvo finansinės problemos bei sveikatos sutrikimų savaiminis išnykimas.

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