

The Economic Burden of Prescription Drug Use among Elderly Patients in Ponce, Puerto Rico

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Objective. To examine the economic impact of prescription drug use on the personal income of elderly individuals in Ponce, Puerto Rico.

Methods. One-hundred elderly individuals who attend five care centers were interviewed using a four-page structured questionnaire. The interview collected information about the source and amount of income of participants, the type of insurance coverage for prescription drugs, the amount of expenditures for prescription drugs that are paid out-of-pocket and the barriers they face to use or obtain prescription drugs.

Results. Participants were mostly female (69%) and the average age was 77 years. The average monthly income reported was \$476, 79% of which was derived from Social Security. The average monthly expenditure was \$364.00 of which \$117.00 (32%) was spent on health related expenditures: \$70.00 (19%) on prescription drugs, \$31.00 (8%) on health insurance premiums, \$10.00(3%) on medical expenditures not related to

prescription drugs, and \$6.00 (2%) on over-the-counter drugs. The great majority reported having health insurance but one-third pay out-of-pocket for their prescription drugs. Nearly two-thirds expressed they have experienced problems to obtain or use medications in the past six months. Thirty-eight percent reported that the problem was that the cost of medications was too high.

Conclusion. In spite of insurance coverage, the cost of prescription drugs places a substantial economic burden on elderly individuals. On average, prescription drug expenditures comprise nearly 20% of the personal expenditures of respondents, second only to groceries. This accounts for 15% of their personal income. The economic burden of prescription drugs on the elderly may affect access to needed drugs and may adversely impact health outcomes.

Key words: Elderly, Prescription drugs, Insurance, Personal income, Expenditures

Many low-income elderly lack coverage for important medications, particularly for outpatient use, resulting in avoidable deterioration of health and use of expensive institutional services. Elderly patients are vulnerable to chronic diseases and may be forced to skip doses of their medications or avoid these medications altogether because they lack adequate outpatient prescription drug coverage and cannot afford the high cost of modern pharmaceuticals. Rapidly escalating drug costs and a dramatic increase in the elderly population will exacerbate these problems. The passage of the Medicare Prescription Drug, Improvement and Modernization Act of 2003 is

expected to reduce the economic burden of prescription drug costs on the elderly but its full impact will not be seen until 2006.

Chronic illnesses that require drug therapy are highly prevalent among elderly individuals. Persons 65 years or older take an average of five or more medications each (1). Compliance is affected by the ability of people to purchase prescription drugs. People who face high out-of-pocket drug costs are less likely to purchase the medications they are prescribed, (2) with consequences for population health and health system costs (3).

Published estimates indicate that persons aged 65 and older account for 36% of total prescription drug expenditures (4) and that more than 10 million elderly persons in the United States have no prescription drug coverage (5). In 1998, Medicare beneficiaries without drug coverage spent an average of \$546 (\$33 per prescription) out-of-pocket, whereas beneficiaries with coverage paid an average of \$325 (\$13 per prescription). Medicare beneficiaries without coverage who considered themselves to be in poor health spent even more out of pocket, \$820 (6-7). Although only 7 percent of Medicare beneficiaries

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had drug expenditures that exceeded \$4,000 in 1998, these expenditures accounted for an estimated 32 percent of a total drug expenditures incurred by beneficiaries that year. Almost one third of beneficiaries had drug expenditures of less than \$250 in 2000, but 42 percent had expenditures of \$1,000 or more (7).

Poor elderly persons without prescription coverage spend approximately 50 percent of their total income (the near poor spend 30 percent) on out-of-pocket health care cost, such as Medicare premiums and prescription drugs (3). In spite of prescription drug coverage, the elderly have to pay almost 45% of their total drug costs out-of-pocket (5). The presence of prescription drug insurance has been associated with a \$183 increase in outpatient prescription drug expenditures (5).

There are reports of low-income elderly persons who have stopped using essential drugs in order to pay for food (3). The extent to which elderly patients skip, avoid or otherwise restrict their use of prescription medications because of cost is largely unknown. Recent studies show that patients who lack prescription coverage receive fewer prescription medications than those with coverage. However, it remains unclear to what extent these disparities reflect patients restricting their own use of medications because of the cost. The lack of access to essential medicines for the growing number of elderly and chronically ill persons is likely to result in increased hospital and nursing home costs.

According to the 2000 Census of the Population, 11.2% of the population in Puerto Rico is 65 years of age or older (8). This population group increased from 10.7% (340,884) in 1990 to (377,431) in 2000 (9) and is expected to represent 14% of the population by 2010 (10). In 1999, the average annual household income for people 65 to 74 years old was \$12,113, while for people 75 years and over was \$9,551 (11). Nearly half (44%) of the people over 65 years old live under the poverty level as determined by the U.S. Bureau of the Census (12).

In 2003, the number of Medicare beneficiaries 65 years or older in Puerto Rico with either Part A or Part B was 427,296 (13). Of these, 78% had Part B which is much lower than the 95.8% participation in Part B at the national level. The lack of ability to pay the additional monthly premium for part B may account for this substantial difference. On the other hand, the number of Social Security beneficiaries 65 years or older in 2002 was 396,597 and the average monthly income for all beneficiaries was \$530 (14).

The increasing cost of prescription drugs is also an issue in Puerto Rico. The Consumer Price Index for drugs and related products in Puerto Rico has risen at a rate 4.5% per year in the past ten years, at a faster pace than general inflation and medical care (15). The average general

inflation rate for Puerto Rico at the end of 2003 was 221.1 (1984=100), while for medical care was 258.4 and for drugs and related products was 271.2.

In spite of the growth of elderly and drug expenditures in Puerto Rico, no studies have been found that document the extent of insurance coverage and the economic impact of prescription drug use on the elderly budget. Such information would be necessary to understand the burden that prescription drug expenditures place on the elderly and to develop health and public policy regarding prescription medication coverage for Puerto Rico's elderly.

The objective of this exploratory study was to examine the economic impact of prescription drug use on the personal income of a sample of elderly individuals in Ponce, a city of 186,475 inhabitants, 11.6% of which are 65 years or older, (6) located in the southern coast of Puerto Rico.

Methods

Participants. Participants were elderly patients 65 years or older who attended on a daily basis one of five elderly care centers: four day care centers and one long-term care center in Ponce. It was determined that a random process of selection would not be feasible with this population, especially since financial information was requested. Therefore, a convenience sample of twenty patients from each site was selected based on the patient's willingness to participate and provide the information.

Data Collection. Due to the nature of the information, data were collected by personal interviews using a four-page structured data collection form. The form was reviewed for completeness by two faculty members from the schools of pharmacy at NOVA Southeastern and the University of Puerto Rico and by a practicing pharmacist from Farmacia Lourdes, an independent community pharmacy in Ponce. Besides demographic information, the data collection form assessed the source and monthly amount of income of the elderly, the monthly amount of expenditures by category (e.g., rent, food, clothing, electricity, water, telephone), the type of insurance coverage for prescription medications, the amount of expenditures for prescription medications that are paid out-of-pocket, the most common prescribed medications and the cost of these medications not covered by insurance and the barriers that elderly face to use or obtain prescribed medications.

Visits were scheduled to each of the five sites by contacting the center's director. One week before the visit, letters describing the purpose of the study were distributed to the potential participants through the center's administration office. Participants completed the study questionnaire by personal interview during the day of the

visit to the center. All persons wishing to participate in the study signed a consent form approved by the NOVA Southeastern University Institutional Review Board.

Data Analysis. Our primary outcome variables were monthly out-of-pocket expenditures for prescription medications in dollars and as a percent of total monthly income. All the information was self-reported by the study participants.

Due to the exploratory nature of this study, data was analyzed using descriptive statistics including frequency distributions, mean, median, standard deviation and percentages. Statistical analyses were performed using SPSS for Windows (Version 12, SPSS, Inc., Chicago, Illinois).

Results

One-hundred persons were interviewed. The sample was mostly female (69%) with an average age of 77 years old. More than half of the sample reported having hypertension (52%) followed by diabetes (29%), arthritis (25%), high cholesterol (24%) and hypothyroidism (12%).

Ninety-six percent of the sample reported the use of prescription or non-prescription medications. The average number of medications per patient was three, with a range from zero to nine. The most common medications used by the respondents were antihypertensives (89%), aspirin (24%), and vitamins (21%) (Table 1).

Table 1. Prescription Medication Use by Therapeutic Category

Therapeutic Category	Percent of Patients* (n=100)
Antihypertensives	89
ACE inhibitors	32
Diuretics	23
Beta blockers	18
Calcium channel blockers	16
Vitamins	21
Aspirin	24

*Numbers do not add to 100 due to multiple responses.

The average monthly income reported was \$476 (SD=\$335). Seventy-nine percent of the income reported was derived from the Social Security. The average monthly expenditure was \$364 (SD=\$340), of which \$117 (32%) was spent on health related expenditures: \$70 (19%) on prescription drugs, \$31 (8%) on health insurance premiums, \$10 (3%) on medical expenditures not related to prescription drugs, and \$6 (2%) on over-the-counter (OTC) drugs (Table 2).

Table 2. Average Monthly Expenditure by Category

Category	Expenditure (\$)	Expenditure (%)
Utilities		
Electricity	26.80	7.37
Water	14.97	4.12
Telephone	21.35	5.87
Groceries	115.35	31.69
Clothing	5.40	1.48
Entertainment	13.08	3.59
Medical	10.22	2.82
Health insurance	31.39	8.64
Drugs		
Prescription	69.79	19.17
Non-Prescription	6.31	1.74
Other	4.93	13.51
TOTAL	\$364.02	100%

The great majority of the sample (99%) reported having health insurance: 35% Medicare and Puerto Rico Health Reform (a managed care model for Medicaid eligible), 28% Puerto Rico Health Reform only, and 21% Medicare and private health insurance. The primary source of payment for health insurance premiums among the sample was the government. In spite insurance coverage, one-third of the respondents (33%) reported paying out-of-pocket for prescription drugs.

Nearly two-thirds of the participants expressed they have experienced problems to obtain or use prescription medications in the past six months. Thirty-eight percent of these reported that the problem was that the cost of the medications was too high (Table 3).

Table 3. Problems Reported by Participants to Obtain or Use Medications

Problem	Percent of Patients* (n=100)
Cost of the medication is too high	38
Forget to take my medications	29
Do not have enough medications for the month	11
Cannot read the instructions	7
Do not have transportation to the pharmacy	20
Experienced side effects	4
Have difficulty using them	11
Do not know where to go to get medications	1
Cannot go to the pharmacy by myself (e.g. disabled)	0
Do not understand medication instructions	0
Cannot open medication vials	20
I finish medications before refill	1
Do not like to use them	0

*Numbers do not add to 100 due to multiple responses

Regarding their source of prescription drugs, nearly two-thirds of the participants (65%) preferred to obtain their medications from an independent neighborhood community pharmacy, 38% from a chain pharmacy, and 7% were getting medications from their physician.

Discussion

Despite the increase in prescription drug use and expenditures, little research has been conducted to examine the impact of such expenditures on the discretionary income of elderly individuals. Income limitations may force individuals to seek strategies to manage prescription costs. One study conducted on Medicare+Choice beneficiaries with a capped annual prescription drug benefit found that patients use strategies such as obtaining samples, reducing spending on food and/or clothing, shopping around pharmacies to obtain medications at a lower cost, taking less than the prescribed amount, receiving financial assistance from family and friends and stopping one or more regular-use medications (16). This study showed that the most common problems respondents face regarding obtaining or using their medications relate to financial considerations. Interestingly, a number of patients reported using the physician as the principal source of medications.

Prescription noncompliance due to cost has been found to be more of a problem among women, racial and ethnic minorities, low income families and those lacking health insurance (17). Most patients in this study were low income, female Hispanics, one-third of which reported paying out-of-pocket for their prescriptions. This puts them at a higher risk of not being able to comply with their medication regimen and, therefore, to lack adequate control of their conditions with its resulting consequences on health status and health care services utilization.

The average monthly income reported by respondents was less than the average reported by the Social Security Administration for retired workers in Puerto Rico for December 2002 (\$476 vs. \$592) and almost half the average income for retired workers in the United States (18). Notwithstanding, the average expenditure for prescription drugs as a proportion of total personal expenditures was found to be substantially higher (19%) than those reported for persons 75 years or older in the United States (3.2%) and for families with head of household over 65 years (2%) (19). Therefore, the burden of prescription drug costs seems to be larger for the sample surveyed than for their counterparts in the United States. This burden may be forcing elderly patients to refrain from spending on basic needs such as food and shelter.

Almost all participants in this study reported having prescription drug insurance coverage, contrary to what has been reported in the literature (5,17,20). Nevertheless, one-third reported having to pay for prescription drugs out-of-pocket. This may be related to the fact that most respondents indicated that they have the government insurance program, which covers outpatient prescription

drugs using a formulary system. Therefore, these respondents may be receiving prescriptions for medications that are not covered under the formulary system.

This study has several limitations. All data were self-reported depending on the ability of the participants to recall the information requested. The only information gathered that was able to be confirmed was the information from the participants on the long-term care center. This study was conducted in five elderly care centers in Ponce, Puerto Rico therefore its generalizability is limited.

Conclusions

In spite of insurance coverage, the cost of prescription drugs places a substantial burden on the income of the elderly. This study found that, on average, prescription drug expenditures comprises nearly one-fifth of the personal expenditures of the elderly, which accounts for 16% of their personal income. This finding may reflect the financial burden of medication cost faced by the elderly in Ponce experiencing high out-of-pocket expenditures and paid a large fraction of household income on prescription medication.

The economic burden of prescription drugs on the elderly may affect access to needed drugs and may adversely impact health outcomes. Providing adequate coverage for effective medications could reduce adverse events among the elderly and help to avoid costly hospitalizations and illness complications.

Future studies should include a larger, more representative sample of the population in order to determine the burden of drug expenditures on the elderly. The results of these studies could be used to identify specific public policy issues to be addressed by decision makers to decrease financial barriers to prescription drugs by this population group.

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