

**OLD, POOR, AND UNTREATED?
DEMAND FOR ANTIDEPRESSANTS
AMONG OLDER WOMEN IN
THE UNITED STATES**

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Old, Poor, and Untreated? Demand for Antidepressants among Older Women in the United States

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Depressive illness is a serious problem that affects the lives of approximately 15 percent of older Americans. Older women are at significantly greater risk than men. For women ages 65 and older, 17.8 percent suffered from depressive symptoms in 2004, while the rate for men of the same ages was 10.9 percent (Federal Interagency Forum on Age-Related Statistics, 2004). Although depressive symptoms among older persons can be successfully treated, numerous barriers prevent older women from seeking and receiving treatment. Because of these barriers, the number of women using mental services represents only a small portion of those women suffering from depressive symptoms (Phillis H. Mutschler, 2001).

This paper addresses the barrier presented by the high out-of-pocket cost of prescription antidepressants. Older women, the majority of the older population, are especially affected by high health care costs. Because older women are more likely to live on modest incomes, they are more limited than men in their ability to pay out-of-pocket for health care expenses not covered by Medicare. Prior to 2005, Medicare paid only for inpatient prescription drugs and drugs included in several special drug categories. Consequently, older women without supplementary coverage were forced to pay for prescription drugs out-of-pocket. Given their limited financial resources, these out-of-pocket costs might be prohibitively high for lower income women, causing them to forego treatment of their depressive illnesses.

We address this potentially serious problem by investigating gender differences in the effects of income, supplementary health coverage, and health status on the use of prescription antidepressants among Medicare recipients. Using data for 2614 men and women enrolled in Medicare from the Medical Expenditure Panel Survey (2000), we find that prescription drug coverage significantly increases the probability of using an antidepressant for both men and women. Further, we find that lower income older

women without supplementary health insurance use significantly fewer prescription antidepressants than women with supplementary health insurance. In contrast, antidepressant levels of lower income men are not significantly affected by supplementary coverage.

I. Background

Older persons in the United States are large consumers of prescription drugs. Stephen H. Long (1994) found that 85 percent of older Americans use at least one prescription drug during the year. The demand for prescription medication by the elderly depends critically on the out-of-pocket price of drugs, which varies with health insurance coverage. Many older Americans have health insurance coverage supplementing their Medicare coverage. This supplementary coverage may be provided by Medicaid or other public programs, privately purchased Medigap policies, and/or employment-related health insurance provided by current or former employers (or unions). Not only does insurance coverage reduce the proportion of the price paid by the insured person, but because insurers often contract with providers for discounted drug prices, the price itself often depends on whether the person has insurance coverage for prescription drugs.

Several empirical studies provide evidence that supplementary drug coverage increases prescription drug utilization (W. Wei et al., 2006, and Bruce C. Stuart and James R. Grana, 1998; Jeanette Rogowski et al., 1997). These studies report that the primary effect of drug coverage is to induce more people to use prescription medicines as opposed to increasing prescription drug use among current users. Estimates indicate that prescription drug coverage will increase the probability of any prescription being filled by between 4 and 16 percent depending on the population subgroup and the magnitude of drug coverage. Poisal et al. (1999) finds that Medicare recipients ages 85 and older with supplementary prescription drug coverage spent 60 percent more on prescription drugs than those without coverage.

Prescription drug use by persons with private Medigap drug coverage is expected to exceed that of enrollees with only Medicare coverage. In addition to the effect of the lower out-of-pocket cost, we expect

to observe adverse selection among purchasers of Medigap drug policies. That is, individuals who expect high drug expenses are more likely to purchase policies with drug coverage than persons who do not expect high drug expenses. Long (1994) finds that persons with Medigap drug coverage are younger, elderly, more educated, and come from families with income above 200 percent of the poverty threshold. Drug coverage is also available to some Medicare enrollees through Medicaid. Because of the income requirement for Medicaid eligibility, Long (1994) finds that Medicaid's highest coverage rate is for the poorest income group compared with those with higher incomes.

Because of the incomplete coverage provided by Medicare drug benefits, income is a critical determinant of prescription drug use for many older Americans. Unfortunately, the high cost of commercial insurance (high premiums, deductibles and co-payments) for individual consumers of older ages limits access to privately purchased Medigap drug coverage. Longitudinal evidence from older and disabled persons indicates that limiting prescription drug coverage has grave adverse outcomes for the ill and low-income older population, leading to increased health care costs (Dennis G. Shea et al., 2006; Jessie X. Fan et al., 2003).

The studies described above pertain to all types of prescription drugs. Despite the attention in the health literature on the relatively high prevalence of depressive symptoms among older women, there are no empirical studies of the use of antidepressants by this group. In this paper, we examine the factors affecting expenditure on antidepressants among older women and test whether lower income women without supplementary drug coverage use significantly lower levels of antidepressants.

II. Hypotheses and Estimating Model

In our theoretical model the individual's utility depends upon the consumption of prescription drugs and other goods. Maximizing utility subject to the budget constraint yields the demand function for prescription drugs that is used to derive our testable hypotheses. Our first hypothesis is that Medicare recipients with supplementary prescription drug insurance will have a higher probability of access to

antidepressants and higher levels of antidepressant use than recipients without prescription drug coverage, other things equal. Our second hypothesis is that the effect of supplementary insurance coverage will be larger in magnitude among Medicare recipients with lower incomes, other things equal. Finally, we test the above hypotheses in separate analyses for women and men to determine if there are inherent gender differences in the response to supplementary insurance coverage and income.

The general form of the estimating model is $AD = a + INCOME\ b + SUPP\ c + HEALTH\ f + Z\ g + e$. **INCOME** is a vector of variables representing family income and **SUPP** is a vector of endogenously determined variables representing public and private supplementary health insurance. **HEALTH** is a vector of variables representing physical and mental health status, **Z** is a vector of sociodemographic control variables, and **e** is the error term. We estimate the model for the entire study sample and for lower income respondents only to identify the effects of income level and type of supplementary health insurance on the dependent variable.

We first estimate a probit analysis for which the dependent variable is a dichotomous indicator variable (**ADRXUSE**). We then estimate a negative binomial model of the number of antidepressant prescriptions and free samples used by the respondent during the survey year (**ADRXNUM**). To control for the endogeneity of supplementary prescription drug coverage, we estimate both the probit and negative binomial models with endogenous treatment effects.² Supplementary coverage is determined by the price of private Medigap insurance, current and prior employment status of the respondent and his or her spouse, as well as the health status, income, and socioeconomic and geographic variables included in the demand model described above.³

III. Data

The data are annual observations of 2614 noninstitutionalized respondents, ages 65 and greater, to the Medical Expenditure Panel Survey (MEPS) in 2000. The MEPS provides nationally representative data on geographic and sociodemographic characteristics, health status, and medical services of survey

respondents. Our study sample includes 1503 women (57 percent) and 1111 men (43 percent) residing in the United States. The percentage of women among Medicaid recipients is much higher (68 percent). The average respondent is 75 years old and has 11.2 years of education. Age varies little across the coverage categories, with the notable exception that the average years of education for respondents receiving supplementary Medicaid coverage is only 7.8 years. Fifty-four percent of the sample is married and the average family size is 1.9 persons. The percent married vary from a low of 29 percent among Medicaid recipients to a high of 67 percent among persons with private prescription drug coverage.

Approximately 12 percent of respondents are black and 11 percent report hispanic ethnicity. Both blacks and hispanics are heavily represented among Medicaid recipients and very lightly represented among respondents with private medical coverage and private prescription drug coverage. A larger proportion of respondents with Medicaid coverage report being in poor physical and mental health compared to the other coverage categories. Similarly, 11 percent of respondents in the Medicaid category report a diagnosis of depression, compared to only six to eight percent of respondents in the other coverage categories.

Because we are exploring the affordability of prescription antidepressants, we focus on low-income respondents without supplementary drug coverage. Because many of the very poorest respondents have Medicaid coverage, it is the near poor who are the most vulnerable. In our study sample, 60 percent of respondents living in low-income households have no drug supplemental coverage. In comparison, 52 percent of respondents living in poor households and 54 percent of respondents living in middle and high-income households are without supplemental drug coverage. Clearly, more low-income individuals are at risk of inadequate antidepressant treatment because they cannot afford the out-of-pocket expense. Indeed, the average number of prescriptions for antidepressants is lower among low-income respondents without supplementary drug coverage compared to respondents with Medicaid or those living in higher income households.

IV. Results

In Table 1 we report coefficient estimates for probit analyses of any antidepressant use. Three important findings stand out: (1) Women are significantly more likely to use antidepressants than men. The significant positive coefficient of female in the first column and the differing pattern of coefficient signs indicate that separate analyses for women and men are appropriate. (2) The most important determinant of antidepressant use is health status. For men and women, poor physical health, poor mental health, and a diagnosis of depression are significant determinants of antidepressant use. (3) Compared to persons without supplemental coverage, private prescription drug coverage has a significantly positive effect on use of antidepressants for women but not for men. This suggests that prescription drug coverage is especially important in ensuring that women receive needed antidepressants.

In Table 2 we present estimates from separate analyses for lower and higher income women and men of our count model for the number of antidepressant prescriptions. (1) Again, health status is a primary determinant of the number of antidepressant prescriptions for both men and women. A diagnosis of depression has a large and significant effect on the number of prescriptions used during the year for respondents of either gender with a larger effect among men. Among men self-reported poor physical health also has a larger impact on the number of antidepressant prescriptions than among women, while self-reported poor mental health is not significantly related to the dependent variable.

(2) Among higher income respondents, the estimates in the first two columns indicate that Medicaid coverage significantly reduces the number of prescriptions used by women and men compared to use by persons with no supplemental coverage. Interestingly, private drug coverage also appears to reduce utilization of antidepressants among men. This finding for higher income recipients does not support our hypothesis that drug use will be positively related to supplementary coverage.

In the last two columns of Table 2, we examine the relationship between coverage and the number of prescriptions for women and men living in households in the poor and low-income categories. The

coefficient estimates are strikingly different than those reported in the first two columns. (1) For both women and men, health status is again both statistically significant and of important magnitude in determining the number of antidepressant prescriptions used during the year. (2) However, for this group of lower income women, supplemental coverage has significant positive effects of relatively large magnitude on the number of prescriptions. In contrast, supplemental coverage has no effect on the number of prescriptions used by poorer men during the year.

V. Discussion

In this paper we report the findings of our research on the relationship between income level, supplementary health insurance, and use of prescription antidepressants among older women and men in the United States. Using data for 2614 observations of older men and women from the Medical Expenditure Panel Survey, we find that private supplemental drug coverage increases the probability of using at least one antidepressant prescription during the survey year. However, we find that poorer older women without supplementary health insurance use fewer prescription antidepressants than women with public or private supplementary health insurance and that the antidepressant use of lower income women is much more responsive to insurance coverage than that of lower income men. We conclude that supplementary drug coverage crucially affects an older woman's use of antidepressants.

Will Medicare Part D provide adequate coverage for lower income women in need of antidepressant drug therapy? Not necessarily. There is evidence that many eligible seniors, particularly those with poor health or cognitive impairment, are less likely to enroll in Part D or may make poor enrollment choices and plan choices (Joachim K. Winter et al., 2006). This appears to be a population that is particularly vulnerable, so it is of utmost importance to assist these seniors in the enrollment process and carefully follow their antidepressant use as data describing the effects of Medicare Part D becomes available.

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ENDNOTES

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¹ Other barriers include inadequate knowledge of mental health services and treatment, stigma attached to mental health problems, inability to obtain adequate time off from work and/or other responsibilities to obtain treatment, unavailability of transportation, and susceptibility to the side effects of various medications.

² Negative binomial regressions are performed rather than poisson regressions because **ADRXNUM** displays poisson overdispersion.

³ Estimation is performed in STATA using the biprobit, ssm, and mtreatnb commands. Ssm is a wrapper for the gllamm program (Alfonso Miranda and Sophia Rabe-Hesketh, 2006) and mtreatnb estimates negative binomial models with endogenous multinomial treatment effects (Partha Deb and Pravin K. Trivedi, 2006).

Table 1
Probit Estimation of Any Antidepressant Prescriptions¹

<u>Variable</u>	WOMEN & MEN	WOMEN	MEN
	<u>Coefficient</u>	<u>Coefficient</u>	<u>Coefficient</u>
PUBLIC	- 0.16	- 0.18	- 0.25
PRIV-NO RX	0.08	0.12	- 0.07
PRIV-RX	1.11 ²	1.53 ²	- 0.02
POOR	- 0.11	- 0.19	0.06
LOW	0.08	0.12	- 0.24
POORPHYS	0.36 ²	0.41 ²	0.39 ²
POORMENT	0.22 ²	0.16	0.33 ³
DEPRESS	1.55 ²	1.40 ²	1.96 ²
Sample Size	1448	1503	1111
X ²	162.44	598.11	126.6
Pr > X ²	.0000	.0000	.0000

¹ Bivariate probit analysis (with endogenous treatment of health coverage) of 2614 respondents ages 65 and older from MEPS, 2000. Control variables include age, education, marital status, family size, race, hispanic ethnicity, metropolitan statistical area, and region.

² Coefficient statistically significant for alpha=.05.

³ Coefficient statistically significant for alpha=.10.

Table 2
Count Model Estimation of
Number of Antidepressant Prescriptions¹

<u>Variable</u>	<i>Higher income levels</i>		<i>Lower income levels</i>	
	<u>WOMEN</u>	<u>MEN</u>	<u>WOMEN</u>	<u>MEN</u>
	<u>Coefficient</u>	<u>Coefficient</u>	<u>Coefficient</u>	<u>Coefficient</u>
PUBLIC	- 1.14 ³	- 1.09 ²	2.73 ²	1.11
PRIV-NO RX	1.48	1.15	3.94 ²	0.32
PRIV-RX	- 0.12	- 2.76 ²	2.23 ²	- 0.81
POORPHYS	0.98 ²	1.60 ²	1.47 ²	0.24
POORMENT	0.65	- 0.97	1.55 ²	3.30 ²
DEPRESS	5.34 ²	7.26 ²	5.55 ²	4.13 ²
# obs	788	722	715	389
X²	264.7	197.1	348.6	36.35
Pr > X²	.0000	.0000	.0000	.0026

¹ Negative binomical analysis (with endogenous treatment of health coverage) of 2614 respondents ages 65 and older from MEPS, 2000. See Table 1, footnote 1 for control variables.

² Coefficient statistically significant for alpha=.05.

³ Coefficient statistically significant for alpha=.10.