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ROLE OF HEALTH INSURANCE COVERAGE IN WOMEN'S ACCESS TO PRESCRIPTION MEDICINES

Usha R. Ranji, MS[a]*, Roberta Wyn, PhD[b], Alina Salganicoff, PhD[a], and Hongjian Yu, PhD[b]

[a]*Henry J. Kaiser Family Foundation, Menlo Park, California*
[b]*University of California, Los Angeles, Center for Health Policy Research, Los Angeles, California*

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Objective. **To examine the effects of health insurance coverage and other factors on access to prescription medicines for non-elderly women ages 18–64.**

Methods. **Based on a nationally representative telephone survey of adult women in the United States, this study uses multiple logistic regression to determine the factors significantly associated with cost barriers among non-elderly women. The sample for the study includes 1,177 women ages 18–64 who use ≥1 prescription drug on a regular basis. Cost barriers are defined as not filling a prescription or skipping or splitting doses owing to cost. A composite variable of income and health insurance was created to examine the role of insurance in mitigating barriers for women of different income levels. Descriptive analyses report the share of subgroups of women who have faced any of these cost barriers, and logistic regression analyses were used to examine the role of health insurance, income, and other factors in predicting financial access to prescribed medications.**

Key Findings. **Over half (54%) of non-elderly women reported that they were taking a prescription medicine on a regular basis, and nearly one third (32%) of these women reported experiencing ≥1 affordability barrier in the prior year and had to either forgo or delay a prescription and/or reduce dosages to make medicines last longer because of costs. Uninsured women had the highest odds of facing a cost barrier, regardless of income level. Low-income, uninsured women were nearly 7 times as likely to face a cost barrier to prescription drugs, compared with higher income women with insurance. Even uninsured women with incomes ≥200% of the federal poverty level had 5 times the odds of facing a prescription medicine cost barrier, and low-income, insured women experienced 2 times the odds of a prescription medicine cost barrier, compared with their higher income, insured counterparts.**

Conclusion. **Lack of health insurance coverage was significantly associated with experiencing cost barriers, regardless of income level, underscoring the critical role that insurance coverage plays in protecting women from out-of-pocket costs and for accessing prescription medicines. Limiting out-of-pocket spending is also important for low-income women who have insurance, because even minimal costs can act as barriers for this group.**

Introduction

Advances in pharmaceuticals have transformed health care over the last several decades. Today, prescription drugs are an integral component of the health care delivery system and millions of women rely on prescription drugs for a wide range of needs from contraception to treatment of chronic health problems. As drugs have become ever more tightly interwoven in the fabric of the health care system, their costs have risen at unprecedented rates. Between 2000 and 2005, spending on prescription medicines rose between 5% and 15% annually (Catlin et al., 2007). The impact of this is particularly relevant for women, because they are more likely than men to take prescription medications on a regular basis (Salganicoff, Ranji, & Wyn, 2005). A host of factors may account for the greater use among women, including

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* Correspondence to: Usha R. Ranji, Henry J. Kaiser Family Foundation, 2400 Sand Hill Road, Menlo Park, CA 94025; Phone: 650-854-9400; Fax: 650-854-4800.

E-mail: ushar@kff.org

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women's higher rates of chronic illness, longer life spans, and reproductive health needs. Despite their greater reliance on prescription drugs, women have fewer resources than men to pay for out-of-pocket costs for medicines and other health care services because they have lower earnings throughout their lives.

Prescription drug costs and coverage have received much attention in recent years with the implementation of the Medicare Part D program, which provides outpatient prescription drug coverage for the first time in the program's history. Several surveys have reported that seniors utilize a variety of strategies to cope with drug expenses, including not filling prescriptions, skipping or splitting doses, stopping existing medications, not starting new medications, spending less on other basic needs such as food or electricity, or obtaining lower cost versions from other countries (Safran et al., 2005; Steinman, Sands, & Covinsky, 2001; Kitchman et al., 2002; Tseng, Brook, Keeler, Steers, & Mangione, 2004).

However, affordability problems are not limited to seniors alone (Kennedy, Coyne, & Sclar, 2004; Reed & Hargraves, 2003). Younger women are also at risk for facing cost barriers, either because they cannot afford cost sharing or because they are uninsured, as is the case for nearly 1 in 5 women ages 18–64 (Kaiser Family Foundation, 2007). Given the importance of prescription drugs for addressing non-elderly women's unique reproductive health issues, such as family planning and menopause, as well as for the management of chronic diseases, it is important to understand the factors that affect their accessibility. Cost barriers to medications have been found to be associated with subsequent declines in health status and higher rates of problems among those with chronic illnesses (Heisler et al., 2004; Piette, Wagner, Potter, Schillinger, 2004; Soumerai, Ross-Degnan, Avorn, McLaughlin, & Choodnovsky, 1991).

The vital protection that health coverage offers from health care costs and its important role in expanding access to health services is well established (Institute of Medicine, 2002). The impact of coverage on access to prescription drugs is less well understood. This study presents new data on non-elderly women's use of and access to prescription medicines using a nationally representative sample. It is based on the conceptual model of individual health care access originally developed by Andersen (1968), which examines predisposing, enabling, and need variables that influence access. The study examines the extent to which women forgo or reduce medication use because of cost and compares differences in access barriers among subgroups of women. Of particular interest in this study are the enabling factors of health insurance and income and their role in financial access to prescribed medications.

Methods

Data Source

This study is based on data from the Kaiser Women's Health Survey 2004, a telephone survey of a nationally representative sample of 2,766 adult women (≥18 years old) living in the continental United States. Survey interviews were conducted in either English or Spanish, according to the preference of the respondent.

The questionnaire was designed by researchers at the Kaiser Family Foundation, University of California Los Angeles, and Princeton Survey Research Associates International. The questionnaire covered several topics, including health care coverage, prescription medicine use, health status, health care utilization, cost barriers, family health issues, reproductive health, and demographic variables. Interviews were conducted from July 6 through September 26, 2004. Whenever possible, questions were drawn from previously validated surveys.

Survey Sample

The sample of women surveyed was based on a disproportionate stratified random-digit sample of telephone numbers selected from telephone exchanges in the continental United States and was drawn by Survey Sampling, Inc. This approach was used to ensure that the final sample would contain a sufficiently large number of African-American and Latina respondents as well as women who are uninsured or low income, to enable subgroup analysis. Of the residential numbers in the sample, 78% were contacted by an interviewer, 62% completed the screener questions, and 64% were found eligible for the interview. Of this group, 96% completed the interview, resulting in a final response rate of 47%.

The final data were weighted in analysis to remove the disproportion from the selection rates by stratum and to make the data nationally representative for age, education, race, Hispanic origin, marital status, region, and household telephone status. These parameters were derived from a special analysis of the Census Bureau's 2003 Annual Social and Economic Supplement. The weighting was accomplished in 3 stages: A first stage sampling weight to adjust for the designed oversampling in minority areas, a second stage adjustment for household demographics, and a third stage weight to adjust for individual-level demographics.

Inclusion Criteria

For this analysis, only women ages 18–64 were included to study the impact of health insurance coverage on non-elderly women. The analysis was further limited to women who reported they were taking ≥1 prescription medicine on a regular basis, based on answering yes to ≥1 of the following questions: "Do you take any prescription medicines on a regular

basis?" "Are you currently taking birth control pills?" "Are you currently taking hormone replacement therapy?" A small number of women answered "no," to the first question, but answered "yes" to ≥1 of the questions about use of birth control (n = 84) or hormone replacement therapy (n = 8), which were asked in a subsequent section of the survey. Because both of these drugs are available only by prescription, these women were included in the sample. The sample size for women in the survey ages 18–64 was 2,292; 1,177 of those women took ≥1 prescription medicine on a regular basis.

Measures and Analysis

Analyses were conducted to estimate the share of women who were taking prescription medicines on a regular basis and to examine the affordability barriers that different subgroups of women report. Multiple logistic regressions were used to identify the factors associated with affordability barriers. The dependent measures assess the impact of costs on women's access to and use of prescription medicines, and are based on responses to 2 questions that asked whether in the past 12 months the respondent, "did not fill a prescription medicine because of the cost," or "skipped doses or taken smaller doses of any of the prescription medicines you take to make them last longer"? The results for the share of women who experienced either of these barriers are also reported.

The main covariate of interest was the effect of insurance coverage on mitigating cost barriers to prescription drug use; however, the relationship between income and insurance is complex, and both factors can affect affordability. Therefore, to understand whether insurance coverage has a differential effect on different income levels, we combined income and insurance into a 4-level composite variable. The composite variable included the following categories: Uninsured with family incomes <200% of the federal poverty level (FPL), uninsured with family incomes ≥200% FPL, insured with family incomes <200% FPL, and insured with family incomes ≥200% FPL. *Insurance coverage* refers to coverage status at the time of the survey, and insured women include those with private coverage, Medicaid, or other public programs.

Other covariates included demographic factors, health status, and presence of a regular provider. Age was categorized as 18–44 years or 45–64 years, and race/ethnicity was measured as the mutually exclusive categories of non-Hispanic white, non-Hispanic black, Latina, and other. Owing to small sample size, women who were Asian, Alaska Native, American Indian, or other racial and ethnic groups were combined in the category labeled *other*. Self-reported health status was categorized as excellent/very good, good, and fair/poor. Whether women had a regular provider was dichotomized as yes/no.

Multicollinearity among the categorical independent variables was examined by first creating a dummy variable for each category of the independent variables. Then, a collinearity diagnosis was conducted to calculate the condition indices. The largest condition index is the condition number of the scaled **X** matrix, the matrix of independent variables. Belsey, Kuh, and Welsch (1980) suggest that when this number is around 10, weak dependencies may be starting to affect the regression estimates. When this number is >100, the estimates may have a fair amount of numerical error. The condition number of the **X** matrix in this study was 4.26, suggesting no substantial collinearity among the independent variables.

To assess the accuracy in the analysis, we calculated the variance estimates to account for the design effect. The derivation of the design effect is based on the weight associated with observations. For regression coefficients, normalized weights were applied in the analysis to take into account unequal probability sampling. All the analyses were conducted using SAS version 9 (SAS Institute, Cary, NC).

Results

Descriptive Findings

Over half (54%) of non-elderly women reported they took ≥1 prescription medicine on a regular basis in the prior year (Table 1). The share of women using prescription drugs increased with age, with 7 in 10 (71%) women ages 45–64 reporting they used a prescription medicine regularly, compared with fewer than half (43%) of their younger counterparts. White women were most likely and Latina women the least likely to take a prescription medicine regularly. Three-quarters (75%) of women in the poorest health status reported that they took a prescription medicine on a regular basis, compared with fewer than half (46%) of women in excellent/very good health. Uninsured women had lower rates of prescription medicine use than insured women, regardless of family income. Further, the rates of prescription medicine use among insured women were similar across the 2 income groups measured. Women who had a regular health care provider were more likely to use a prescription medicine than women without a regular provider.

Approximately 1 in 4 (26%) women reported that in the past year they did not fill a prescription medicine owing to costs, and 1 in 5 (21%) reported that in the past year they skipped or took smaller doses to make prescription medicines last longer because of the costs (Table 2). Nearly 1 in 3 (32%) women experienced ≥1 of the cost barriers. Women without health insurance, lower incomes, poorer health status, or no regular provider were all more likely to experience cost barriers than their counterparts. The share of women who

Table 1. Weighted Percentage of Women Ages 18–64 Who Take ≥1 Prescription Medicine on a Regular Basis, by Selected Characteristics

Characteristic	Takes Medicine on Regular Basis (%)
Total (n = 1,177)	54
Age (yrs)	
18–44 (n = 535)	43
45–64 (n = 642)	71*
Income†	
<200% FPL (n = 343)	52
≥200% FPL (n = 703)	56
Race/ethnicity	
White (n = 712)	58
Black (n = 192)	52
Hispanic (n = 208)	35*
Other‡ (n = 52)	46
Health status	
Excellent/very good (n = 493)	46
Good (n = 390)	56*
Fair/poor (n = 286)	75*
Insurance status	
Insured (n = 1,004)	57
Uninsured (n = 159)	36*
Insurance and income status	
>200% FPL insured (n = 642)	58
>200% FPL uninsured (n = 42)	39*
<200% FPL insured (n = 238)	57
<200% FPL uninsured (n = 97)	40*
Regular health care provider	
Yes (n = 1,059)	61
No (n = 118)	25*

From Kaiser Women's Health Survey 2004. Kaiser Family Foundation.
*Significant difference from reference group (18–44, <200% FPL, white, excellent/very good health, insured, >200% FPL insured, has regular provider); $p < .05$.
†In 2004, 200% of the federal poverty level (FPL) was $29,552 for a family of 3 in the 48 contiguous United States.
‡*Other* includes Asian, Alaska Native, American Indian, and other racial and ethnic groups.

reported that they did not fill a prescription medicine because of costs was similar between low and higher income, uninsured women, namely, 61% and 60%, respectively.

Regression Findings

Multiple logistic regressions were used to examine the role of health insurance coverage and other covariates, in cost-related barriers to medications (Table 3). The inclusion of the composite variable of health insurance and income yielded significant results in identifying which women were at greatest risk for experiencing cost barriers.

Being uninsured, whether low-income (odds ratio [OR], 7.9; 95% confidence interval [CI], 4.5–14.0) or relatively higher income (OR, 7.0; 95% CI, 3.5–14.0), had the strongest effect on the likelihood of not filling a prescription. Being insured and low income also increased the likelihood that a woman would not fill a prescription (OR, 2.3; 95% CI, 1.6–3.2) compared with higher income, insured women, but not to the same extent as the uninsured groups. Other covariates associated with the probability of not filling a prescription were health status and race/ethnicity. Individuals in poorer health (good or fair/poor health) were more likely to not fill a prescription owing to costs.

The composite income/insurance variable was also significantly associated with the likelihood of skipping or splitting doses. Uninsured low-income women (OR, 4.4; 95% CI, 2.6–7.7), uninsured higher income women (OR, 2.5; 95% CI, 1.2–5.1), and insured low-income women (OR, 2.1; 95% CI, 1.4–3.1) were all more likely to skip or split their prescription medicine because of costs than higher-income, insured women. Poorer health status (good or fair/poor health) also had a

Table 2. Weighted Percentages of Reported Barriers in Past Year Among Women Ages 18–64 Who Take ≥1 Prescription Medicine on Regular Basis, by Selected Characteristics

	Didn't Fill Prescription Because of Cost (%)	Skipped or Split Doses (%)	Any Cost Barrier (%)
Total	26	21	32
Age (yrs)			
18–44	29	22	35
45–64	24	21	29
Income†			
<200% FPL	42*	36*	50*
≥200% FPL	19	15	24
Race/ethnicity			
White	24	20	29
Black	29	26	40*
Hispanic	28	21	34
Other‡	46*	28	49*
Health status			
Excellent/very good	16	13	21
Good	28*	22*	34*
Fair/poor	41*	36*	47*
Insurance status			
Insured	22	19	27
Uninsured	60*	42*	65*
Insurance and income status			
>200% FPL insured	17	14	22
>200% FPL uninsured	60*	36*	63*
<200% FPL insured	37*	32*	43*
<200% FPL uninsured	61*	48*	69*
Has a regular health care provider			
Yes	25	20	30
No	34	34*	46*

From Kaiser Women's Health Survey 2004. Kaiser Family Foundation.
*Significant difference from reference group (18–44, <200% FPL, white, excellent/very good, insured, >200% FPL insured, has regular provider); $p < .05$.
†In 2004, 200% of the federal poverty level (FPL) was $29,552 for a family of 3 in the 48 contiguous United States.
‡*Other* includes Asian, Alaska Native, American Indian, and other racial and ethnic groups.

Table 3. Impact of selected variables on prescription drug cost barriers among women ages 18 to 64, weighted, multiple regression results

	Didn't Fill Prescription Because of Cost, Odds Ratios (95% CI)	Skipped or Split Doses, Odds Ratios (95% CI)	Any Cost Barrier, Odds Ratios (95% CI)
Age (yrs)			
18–44	—	—	—
45–64	0.83 (0.61–1.1)	1.0 (0.74–1.4)	0.82 (0.61–1.1)
Race/ethnicity			
White	—	—	—
Black	1.10 (0.67–1.7)	1.30 (0.79–2.0)	1.5 (1.0–2.4)
Hispanic	0.55 (0.29–1.0)	0.62 (0.32–1.2)	0.60 (0.33–1.1)
Other†	2.20 (1.2–4.1)*	1.10 (0.57–2.2)	2.0 (1.1–3.7)*
Health status			
Excellent/very good	—	—	—
Good	2.0 (1.4–2.9)*	1.6 (1.1–2.4)*	1.8 (1.3–2.6)*
Fair/Poor	3.2 (2.2–4.9)*	3.1 (2.0–4.7)*	3.1 (2.1–4.6)*
Insurance and income status‡			
>200% FPL insured	—	—	—
>200% FPL uninsured	7.0 (3.5–14.0)*	2.5 (1.2–5.1)*	5.2 (2.6–10.3)*
<200% FPL insured	2.3 (1.6–3.2)*	2.1 (1.4–3.1)*	2.0 (1.4–2.8)*
<200% FPL uninsured	7.9 (4.5–14.0)*	4.4 (2.6–7.7)*	6.5 (3.7–11.4)*
Has a regular health care provider			
Yes	—	—	—
No	0.79 (0.45–1.40)	1.50 (0.89–2.60)	1.30 (.75–2.10)

From Kaiser Women's Health Survey 2004. Kaiser Family Foundation.
—, reference group; CI, confidence interval.
*Significant difference from reference group (18–44, white, excellent/very good, >200% FPL insured, has regular provider); $p < .05$.
†*Other* includes Asian, Alaska Native, American Indian, and other racial and ethnic groups.
‡In 2004, 200% of the federal poverty level (FPL) was $29,552 for a family of 3 in the 48 contiguous United States.

significant effect on skipping or splitting doses because of costs.

Table 3 also reports in the "any cost barrier" column the odds of having experienced either of the 2 cost barriers.

Discussion

In this study, a sizable share of women reported having to forgo, skip, or split medications because they could not afford the medication. Although costs affected many subpopulations of women, the effects were strongest among women who did not have insurance coverage, regardless of income. Uninsured women were more than twice as likely as women with private or public coverage to experience cost barriers that resulted in forgoing medications. Additionally, women who were low income or in poorer health were more likely to forgo or reduce medications compared with their counterparts. This is not surprising, given that they have fewer financial resources to draw on for out-of-pocket health care costs, yet in many cases have greater need.

The persistent importance of insurance in facilitating access to care is evidenced by the results of the regression analysis, in which uninsured women had the highest odds of not filling a prescription because of cost, regardless of income. Women who were low income and uninsured had the highest likelihood—nearly 7 times the odds as higher income, insured women—of experiencing any cost barriers. Yet, even among uninsured women in the higher income group, the odds were 5 times as high as their insured counterparts that they experienced a cost barrier, suggesting that coverage is vital for alleviating the impact of drug costs, even for higher income women. The annual wholesale price for atorvastatin (Lipitor), a commonly prescribed cholesterol medication, is reported to exceed $1,000 annually (McCloskey, 2001). Such expenses are significant and may explain why even some higher income uninsured women could not afford their prescriptions.

This study also underscores the limitations of coverage. A substantial share of women with coverage still experienced significant challenges with out-of-pocket drug costs. Health plans employ a variety of techniques to limit their drug expenses, such as charging co-payments and co-insurance, as well as capping the scope of drug coverage, for example, by restricting coverage to a certain number of prescriptions. These out-of-pocket costs can pose significant economic hurdles for women, particularly for women with fewer financial resources, who were the most likely to compromise medication use.

Limitations

Although this research raises several important findings on cost barriers to medications for women, the analysis has limitations. Only women who reported

taking ≥1 prescription medicine were included in this study; however, women who reported that they were not taking any prescription medicines may regularly have also experienced cost barriers. For example, an uninsured woman could have been issued a prescription, but may not have filled it because she could not afford it. Therefore, women with some of the most severe affordability challenges may have been excluded from this study, possibly underestimating the share of women experiencing cost barriers.

Further, because the women in this study were not asked which drugs they were skipping, splitting, or forgoing, we have limited understanding of the clinical implications of cost barriers. It is possible that women were managing medication costs by forgoing or splitting the medicines with the least clinical consequence. However, given the higher rates of cost barriers among women in poorer health status, it is likely that for many women cost barriers could have serious clinical effects. Prior research has investigated the effects of medication nonadherence on health status, and found that it does often result in poorer clinical outcomes (Heisler et al., 2004).

This study also faced some methodologic limitations. Combining women covered by employer-sponsored insurance and those with non–group insurance may overestimate the share of women with drug coverage, because coverage for prescription drugs is less prevalent and typically not as comprehensive in the non–group market (Gabel, Dhont, Whitmore, Pickreign, 2002; Pollitz & Sorian, 2002). Furthermore, in this study, women with private insurance and women with Medicaid were combined in 1 group, because the study sample size was not sufficient to examine barriers among women with Medicaid separately. Finally, the study sample was based on a random-digit dial model, which likely underrepresents some segments of the population, particularly low-income women without land line telephones.

Despite these limitations, this study provides valuable, original data on use of and access to prescription medicines among non-elderly women and the important role of health insurance. In addition to their clinical impact, these findings have several consequences for health policy.

Implications

This study demonstrates the importance of coverage for women's access to prescription medicines. Uninsured women were most likely to experience barriers, and those in the higher income group fared only slightly better than their low-income counterparts. However, recent trends suggest that health coverage in the private and public sectors is being scaled back. Most employer-sponsored health plans cover prescription medicines, but many employees have seen their cost sharing for brand-name prescriptions increase substantially (Kaiser Family Foundation & Health Research and Educational Trust, 2006). Passing on more drug costs to employees is likely to further reduce access to and affordability of prescription medicines, particularly to low-income women, but not limited to this group.

Several states have adopted drug cost-containment actions in their Medicaid programs, a critical safety net for low-income women. Medicaid policies such as prior authorization, mandatory use of generics, and greater latitude for states to charge co-payments and premiums, have been associated with restricted access, particularly when states employ a combination of measures (Cunningham, 2005). Previous research has found positive associations between even nominal cost sharing and limited access to health care for low-income people (Cunningham, 2002; Lohr et al., 1986). Policymakers should be cautious about imposing more cost burdens on this very low-income population.

The study findings also have numerous implications for clinical practice. Women who reported fair or poor health status were more than twice as likely as women in excellent or very good health to face cost-related barriers. This disparity is alarming, because for women who are sick, access to medications may be particularly important for preventing further deterioration in health status. Much of the research and effort in the clinical setting on improving medication adherence and "compliance" among patients has not addressed the cost issues embedded in nonadherence, but this study calls attention to the link between cost and coverage issues with medication use. Furthermore, some providers and insurers have suggested that pill splitting could be useful as a cost-saving method; however, this could have negative clinical consequences and is not universally embraced by the medical profession (Stafford & Radley, 2002).

Although policymakers across the political spectrum agree that extending coverage should be a national priority, there are sharp differences in opinion on how to achieve progress and what populations should be targeted. What is clear is that without secure access to medications, women's ability to effectively prevent, manage, and treat debilitating health conditions and take advantage of the important advances that have been made in women's health is likely to be compromised.

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Author Descriptions

Usha Ranji, MS, is a Senior Policy Analyst at the Kaiser Family Foundations. Her work addresses issues related to women's health coverage and access to care, with an emphasis on low-income populations.

Roberta Wyn, PhD, is an associate director at the UCLA Center for Health Policy Research. She conducts research in several health care policy areas with a particular focus on access to health insurance coverage and health care for women, ethnic populations, and low-income groups.

Alina Salganicoff, PhD, is Vice President and Director of Women's Health Policy at the Kaiser Family Foundation. Her work focuses on health policy issues of importance to women, with an emphasis on health coverage, financing, and access to care for underserved women.

Hongjian Yu, PhD, is the director for statistical support at the UCLA Center for Health Policy Research. His research in statistics has involved mixed generalized linear models, hierarchical models, survey design, and small-area estimation.