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# Financial Hardship from Purchasing Prescription Drugs Among Older Adults in the United States Before, During, and After the Medicare Part D “Donut Hole”: Findings from 1998, 2001, 2015, and 2021

## Comments

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# Financial hardship from purchasing prescription drugs among older adults in the United States before, during, and after the Medicare Part D “Donut Hole”: Findings from 1998, 2001, 2015, and 2021

Anthony W Olson, PhD, PharmD; Jon C Schommer, PhD; David A Mott, PhD; Olajide Adekunle, BSc, BPharm, MSc; Lawrence M Brown, PhD

## Plain language summary

Almost all older adults in the United States have prescription drug insurance, but many still cannot afford them. This is most true for those who take many daily prescriptions, do not have prescription insurance, and have a low income.

## Implications for managed care pharmacy

Among older adults in the United States, policies that reduce the out-of-pocket expenditures for prescription drugs appeared to reduce the burden of these expenditures for older adults. Managed care policymakers should consider policies that reduce out-of-pocket costs for older adults in an effort to promote medication access. Such policies may enable older adults to reallocate funds for vital expenses like food and shelter, especially for older adults from vulnerable populations (ie, low income, underrepresented minority).

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## ABSTRACT

**BACKGROUND:** Cost-related nonadherence compromises successful and effective management of chronic disease. The Medicare Modernization Act of 2003 (MMA) and Patient

Protection and Affordable Care Act of 2010 (ACA) aimed to increase the affordability of outpatient prescription drugs for older adults (older than age 64 years). The Medicare Part D prescription drug insurance coverage gap

(“donut hole”) created by the MMA was fully closed in 2020 by the ACA.

**OBJECTIVES:** To (1) describe prescription drug coverage and financial hardship from purchasing prescription drugs among older

American adults for 2021, (2) compare these results with findings from data collected before the MMA and during the progressive elimination of the Medicare Part D coverage gap, and (3) compute the likelihood for financial hardship from purchasing prescription drugs using variables for year, prescription drug insurance coverage, health-related information, and demographics.

**METHODS:** Data were obtained from 4 nationally distributed, cross-sectional surveys of older adults to track coverage for and financial hardship from purchasing prescription drugs. Surveys in 1998 and 2001 were mailed to national random samples of US seniors. Of 2,434 deliverable surveys, 700 (29%) provided useable data. Data were collected in 2015 and 2021 via online surveys sent to samples of US adults. Of 27,694 usable responses, 4,445 were from older adults. Descriptive statistics and logistic regression analyses described relationships among financial hardship and demographics, diagnoses, and daily prescription drug use.

**RESULTS:** Five percent of older adults lacked prescription drug coverage in 2021, continuing a downward trend from 32% in 1998, 29% in 2001, and 9% in 2015. Contrastingly, 20% of older adults reported financial hardship from prescription drug purchases in 2021, bending an upward trend from 19% in 1998, 31% in 2001, and 36% in 2015. Financial hardship from purchasing prescription drugs was more likely to be reported by older adults lacking prescription drug insurance, taking multiple medications daily, and having a low annual household income across all survey years. The latter 2 of these 3 factors were still predictive of financial hardship from purchasing prescription drugs among older adults with prescription drug insurance.

**CONCLUSIONS:** Financial hardship from purchasing prescription drugs is still experienced by many older adults after the full implementation of the MMA and ACA. Lacking prescription drug coverage, taking more than 5 prescription drugs daily, and a low annual household income may increase the likelihood of experiencing this financial hardship. Pharmacists can be a resource for older adults making choices about their prescription drug coverages and purchases.

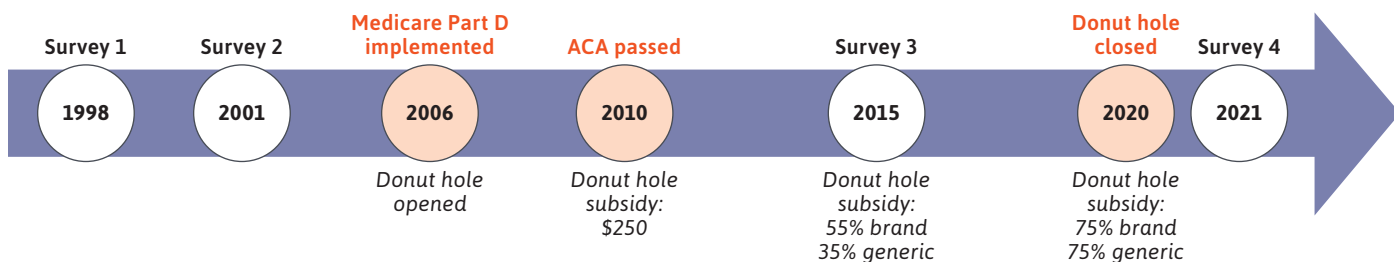
The creation of Medicare Part D by the Medicare Modernization Act of 2003 (MMA) and the Patient Protection and Affordable Care Act (ACA) in 2010 represent the 2 major legislative actions in the United States over the past 2 decades with aims to increase the affordability of outpatient prescription drugs for older adults (older than age 64 years) through federally approved, private coverage plans. The inability to pay for prescription drugs is an important determinant of medication adherence that may lead patients to ration or split doses, delay refills or new prescriptions, and even stop taking medications altogether.<sup>1</sup> Cost-related nonadherence compromises the therapeutic effectiveness in managing most chronic diseases, persists

even when patients cut back on basic health-related social needs, and consequently leads to higher preventable health care expenditures.<sup>1-5</sup>

In 2006, Medicare Part D began providing older adults with the option to enroll in outpatient prescription drug plans that progressed through 4 sequential phases each year: (1) out-of-pocket deductible (patient pays full amount owed up to deductible threshold before transitioning to the next phase of the plan); (2) initial coverage (patient pays a copay or coinsurance based on drug tier, with the insurance carrier covering the remainder up to predetermined annual threshold, and transitions to the next phase when the amount is exceeded); (3) out-of-pocket coverage gap (ie, the coverage gap, or “donut hole,” is the prescription cost range in which patients again paid the full amount up until a predetermined annual threshold prior to the ACA. Since the ACA passed, patients have progressively received coverage from insurance, plateauing in 2020 at 75% until the threshold is met and transitions to the next phase of coverage); and (4) catastrophic coverage (patients pay 5% coinsurance on their prescription drugs for the remainder of the calendar year). In the years that followed, evidence from several studies suggested an association between cost-related nonadherence and the donut hole phase that diminished potential health outcomes and overall cost savings.<sup>4,6-11</sup> Sections of the ACA attempted to address these concerns by gradually reducing the out-of-pocket costs for enrolled older adults in the Medicare Part D coverage gap using coinsurance mechanisms from 100% in 2010 to 25% in 2020.<sup>12-13</sup> The Department of Health and Human Services estimate that changes to Medicare from the ACA have saved almost 12 million older adults more than \$26 billion dollars on out-of-pocket prescription drug expenditures as of 2017.<sup>14</sup>

Results from 3 cross-sectional national surveys of US older adults from 1998, 2001, and 2015 showed an increase in financial hardship from purchasing prescription drugs between the years prior to passage of the MMA and halfway through the implementation of the ACA (Medicare Part D coverage gap out-of-pocket costs: 45% brand name and 65% generic). The increase concurred with a proportional growth in older adults with prescription drug coverage, suggesting that cost-sharing mechanisms affect financial hardship from prescription drug purchases, which is linked to cost-related nonadherence and poorer health outcomes.<sup>15,16</sup>

This study’s objectives were to (1) describe prescription drug coverage and financial hardship from purchasing prescription drugs among older adults in the United States for 2021, (2) compare these results with findings from previous surveys before the passage of the MMA (1998 and 2001) and

**FIGURE 1** Timeline of Surveys Relative to the MMA, ACA, and the Donut Hole

ACA=Patient Protection and Affordable Care Act; MMA=Medicare Modernization Act of 2003

during the progressive elimination of the Medicare Part D coverage gap (2015), and (3) compute the likelihood for experiencing financial hardship from purchasing prescription drugs by survey year, prescription drug insurance coverage, health-related information, and demographics.

## Methods

### DATA COLLECTION

The timing of data collected from each respective survey relative to the MMA, the ACA, and the laws' effect on the Medicare Part D coverage gap are presented in Figure 1. A modified Dillman mailed survey method (ie, 3 recruitment contacts instead of the recommended 5) was used to collect data prior to the passage of the MMA from national random samples of US adults in 1998 (n=1,570) and 2001 (n=864).<sup>17,18</sup> The 1998 survey produced a relatively low, 29% response rate that was improved in 2001 by adding survey tracking numbers, allowing targeted follow-up mailers to nonresponders. Of the 700 survey responses from 1998 and 2001 with usable data, 87 (12%) were missing responses for income; therefore, a logistic regression equation was developed from the remaining 613 respondents to predict whether a respondent was more appropriately coded with an income “less than \$15,000” or “\$15,000 or more” (ie, representative poverty thresholds of survey time periods).<sup>19</sup> The imputation model used the median household income for the zip code of the participant responding when fewer than 5 percent of all items were unanswered throughout the survey. These resulting imputed values were also included in this study's analysis.

Data from 2015 were obtained between April and June from the National Consumer Survey on the Medication Experience and Pharmacists' Roles (NCSME-15), a self-administered online survey that contained questions

enabling comparison with data collected in 1998 and 2001. Qualtrics Panels administered the NCSME-15 to prospective respondents from panels that were screened and targeted to fulfill preestablished demographic quotas for location, age, and sex that were representative of the United States. The process yielded usable responses from 26,173 participants, of whom 3,933 were older adults (older than age 64 years) and therefore included in this analysis. The same process and administrator were used to generate data for the 2021 NCSME, which collected 1,521 usable responses between April 16th and 30th, 2021, that included 512 older adults.

Given that the samples of older adults from 1998 (n=365), 2001 (n=335), and 2021 (n=512) were approximately one-tenth the size of those from 2015 (n=3,933), 3 separate 10% random subsamples (n=378, 393, and 400) were selected from the latter to balance unequal sample sizes for use in the comparative analyses of this study.

This study was reviewed and approved by the University of Minnesota, Office of the Vice President for Research, Human Research Protection Program Institutional Review Board (IRB STUDY #1503E66742).

### STUDY VARIABLES

Survey participant responses included in the analysis provided demographic and health-related information representative of variables from the literature related to the study's objectives. These were age (n), sex (male/female), education (less than high school graduate, high school graduate, some college, associate's degree, bachelor's degree, master's degree, professional degree, and doctoral degree), marital status (single [never married], single [separated/divorced], married/partnered, and widowed), annual household income level (n), race (American Indian, Asian, Black/African American, Latino/Latina, White, and other), number of prescription drugs taken daily (n),

**TABLE 1** Comparisons of Respondent Demographics, Prescription Drug Insurance, and Financial Hardship From Purchasing Prescription Drugs From Surveys in 1998, 2001, 2015, and 2021

Characteristic	1998 (n=365)	2001 (n=335)	2015 (n=3,933) <sup>a</sup>	2021 (n=512)	P value <sup>b</sup>
Mean years of age <sup>a</sup> (range)	74.9 (65-94)	75.2 (65-95)	70.7 (65-99)	72.2 (65-89)	<0.001
Female sex <sup>c</sup> , %	52	45	63	57	<0.001
Education <sup>b</sup> (more than a high school education), %	56	45	76	56	<0.001
Marital status <sup>c</sup> (married), %	63	59	58	65	0.008 <sup>a</sup>
Income <sup>b</sup> (<\$15K/y 1998, 2001; <\$20K/y 2015, 2021), %	19	25	16	8	<0.001
White race <sup>c,d</sup> , %	90	83	91	95	<0.001
Number of prescription drugs taken daily <sup>e</sup> (average)	2.9	3.5	4.0	4.1	<0.001
Number of OTC drugs taken daily <sup>e</sup> (average)	1.0	1.7	1.5	1.7	<0.001
Proportion with arthritis <sup>c</sup> , %	39	46	53	47	<0.001
Proportion with diabetes <sup>c</sup> , %	12	16	21	24	<0.001 <sup>a</sup>
Prescription drug insurance <sup>c</sup> , %	68	71	91	95	<0.001
Financial hardship due to prescription drug expenditures <sup>c</sup> , %	19	31	36	20	<0.001

<sup>a</sup>Given 2015 samples sizes were approximately 10 times larger than those from other years, 3 separate 10% subsamples (n=378, 393, and 400) were independently analyzed to balance unequal comparisons. The 3 subsamples were stable and produced similar results. Only the marital status and diabetes variables had at least 1 subsample that did not reach statistical significance. Additional detail can be found by referencing citation the number in the references.

<sup>b</sup>P<0.05.

<sup>c</sup>Statistical comparison made using chi-square.

<sup>d</sup>Analysis of race compared White and non-White respondents given insufficient sample size to make statistical comparisons among all levels of ethnicity and race collected across the 4 surveys (American Indian, Asian, Black/African American, Latino/Latina, White, and other). Contact the corresponding author for additional information.

<sup>e</sup>Statistical comparison made using analysis of variance.

number of over-the-counter drugs taken daily (n), and diagnosis of diabetes (yes/no) and diagnosis of arthritis (yes/no; 2 chronic conditions associated with other study variables). Respondents were also provided with the following 2 prompts: “Do you have insurance coverage for prescription drugs?” (yes/no) and “Purchasing medications causes me financial hardship” (yes/no). The latter prompt used equivocal wording conducive to respondent’s self-perception of having experienced financial hardship given the subjective nature of the term.<sup>17,19</sup> Each of these variables were present in all 4 surveys, mixed among dozens of more variables that varied by survey year. The latter variables were excluded from data analysis, as they did not connect the study’s objective in a straightforward way (eg, the relationship between personality and financial hardship from purchasing prescription medications), and were not uniformly present across the 4 key data points.

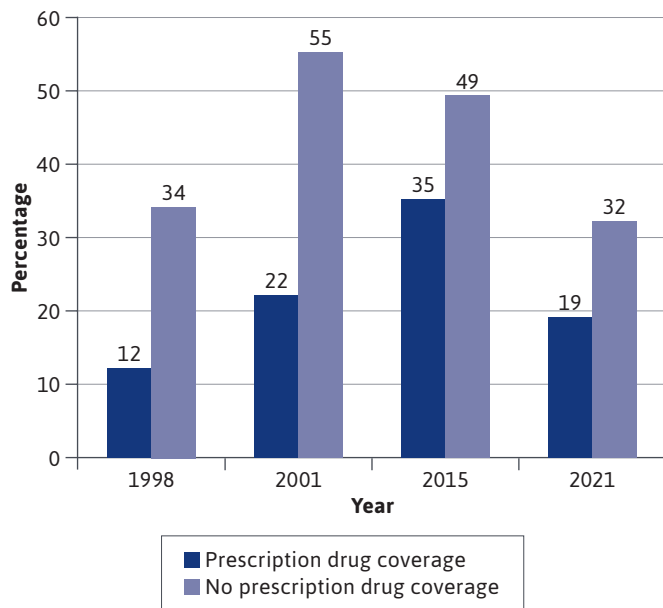
**DATA ANALYSIS**

Analysis of variance and chi-square t-test statistics were used to make descriptive comparisons for study variables among respondents from each respective survey year

(1998, 2001, 2015, and 2021), using logistic regression to control any demographic differences. The development of the logistic regression was conducted via a multiple-step process beginning with a univariate analysis of study variables. The resulting P values that rose to the level of statistical significance (P<0.5) were carried over to the next step of model building. These were age (n), sex (male/female), education (high school graduate or less and more than a high school education), income (at or above income threshold and below income threshold; in 1998 and 2001, the threshold was \$15,000 and increased to \$20,000 in 2015 and 2021), race (non-White and White), number of prescription drugs taken daily (0, 1-2, 2-5, and >5), number of over-the-counter drugs taken daily (0, 1-2, 2-5, and >5), arthritis (yes/no), prescription drug insurance (yes/no), and financial hardship (yes/no).

The remaining relationships between variables were analyzed using logistic regression, with the goodness of fit evaluated by change in -2 log-likelihood, chi-square model improvements, and parsimony judgments. Covariates were then dropped from the regression model to maximize parsimony and explanatory value (eg, age

**FIGURE 2** Proportion of US Adults Older Than Age 64 Years Experiencing Financial Hardship by Year of Survey and Prescription Drug Insurance Coverage Status



All associations statistically significant ( $P < 0.05$ ) using chi-square analysis.

was a covariate of the number of prescription drugs taken daily with weaker explanatory relationships with the dependent). This step-wise development of the logistic regression models were used to select the most valuable variables across samples that differed in composition and context for each year. These were year (reference group=1998), number of prescription drugs taken daily (reference group=0), income (reference group=at or above income threshold), and prescription drug coverage (reference group=yes). The corresponding author can be contacted for more specific information about the study variables and model building process.

Logistic regression was also used to analyze survey respondents with prescription drug insurance using the same model building process, given previous work suggesting a weakening relationship between insurance coverage for prescription drugs and financial hardship from purchasing medications.<sup>15</sup> The most valuable variables were year (reference group=1998), number of prescription drugs taken daily (reference group=0), and income (reference

group=at or above income threshold). The corresponding author can be contacted for more specific information about the study variables and model building process.

## Results

From 1,570 delivered surveys in 1998, a total 463 (29%) were returned and 365 (23%) provided useable responses. The sizeable number of nonusable responses prompted the authors to include a question in a follow-up survey in 2001 to understand the primary reasons behind nonusable responses. From 864 delivered surveys in 2001, a total 483 (56%) were returned and 335 (39%) provided usable responses. Of the 148 nonusable responses, 18% stated the intended recipient had deceased, 15% stated the intended recipient was not physically or mentally capable of responding, 11% did not provide a reason (ie, left unanswered), 6% stated the intended recipient had changed addresses, 4% stated the intended recipient resided in a nursing home or assisted living facility, and 46% selected “other.” The most common reasons provided by recipients who selected “other” included not being interested in the survey or feeling it did not apply to them (eg, not taking prescription drugs and receiving prescription drugs through the military).

### RESPONDENT DEMOGRAPHICS, PRESCRIPTION DRUG INSURANCE, AND FINANCIAL HARDSHIP FROM PURCHASING PRESCRIPTION DRUGS

Demographic comparisons among the respondents for each survey are presented in Table 1 and show some variable differences among the years, although stable and similar findings were found for the original and subsamples from 2015. The variable differences among each survey year were controlled using multivariate analytical tools following the linear regression model building process described in the Methods.

Table 1 shows the proportion of older adults with prescription drug insurance increased between each survey, from 68% in 1998, 71% in 2001, 91% in 2015, and 95% in 2021 ( $P < 0.001$ ). However, Table 1 shows a different pattern for the proportion of older adults experiencing financial hardship from purchasing prescription drugs, beginning with 19% in 1998, rising to 31% in 2001 and 36% in 2015, followed by a decline to 20% in 2021 ( $P < 0.001$ ). For both variables, the three 10% randomized subsamples from 2015 were stable and consistent with each other and the whole sample (a detailed description of this process and rationale, as well as results, is presented by Olson et al<sup>15</sup>).

The proportion of older adults with and without prescription drug insurance reporting financial hardship

**TABLE 2** Logistic Regression Results for Likelihood of US Adults Older than Age 64 Years Experiencing Financial Hardship Because of Prescription Drug Expenditures in 1998, 2001, 2015, and 2021 (n = 5,096)

Variable	P value	Odds ratio	95% CI
<b>Survey year</b>			
1998 (reference group)	NA	NA	NA
2001	0.004 <sup>b</sup>	1.7	1.2-2.5
2015 <sup>a</sup>	<0.001 <sup>b</sup>	2.8	2.1-3.8
2021 <sup>a</sup>	0.156	1.3	0.9-1.9
<b>Number of prescription drugs taken daily</b>			
0 (reference group)	NA	NA	NA
1-2	0.046 <sup>b</sup>	0.8	0.7-1.0
3-5	0.002 <sup>b</sup>	1.4	1.1-1.7
>5	<0.001 <sup>b</sup>	2.5	2.1-3.1
<b>Annual household income<sup>c</sup></b>			
At or above threshold (reference group)	NA	NA	NA
Below threshold	<0.001 <sup>b</sup>	2.2	1.9-2.6
<b>Prescription drug coverage</b>			
Yes (reference group)	NA	NA	NA
No	<0.001 <sup>b</sup>	2.5	2.1-3.0

The sample (n = 5,096) does not equal 5,145 because of missing values. The variables presented in this table reflect a multistep model build for optimizing parsimony and explanatory value from variables collected across all 4 data collection points. The variables dropped from the model for which findings are not presented in the table are age, sex, education, marital status, race, number of over-the-counter drugs taken daily, diagnosis of arthritis, and diagnosis of diabetes.

<sup>a</sup>Not a complete sample.

<sup>b</sup>P < 0.05.

<sup>c</sup>In 1998 and 2001, the annual household income threshold was \$15,000. In 2015 and 2021, the threshold was \$20,000.

NA = not applicable.

from purchasing prescription drugs is depicted by survey year (1998, 2001, 2015, and 2021) in Figure 2. The proportion of older adults with prescription drug coverage experiencing financial hardship from purchasing prescription drugs rose from 12% in 1998 to 22% in 2001 and 35% in 2015 but then fell to 19% in 2021 (P < 0.001). The proportion of older adults without prescription drug coverage experiencing financial hardship from purchasing prescription drugs also rose from 34% in 1998 to 55% in 2001 but then fell to 49% in 2015 and 32% in 2021 (P < 0.001).

Table 2 displays the logistic regression models with the best goodness of fit, and parsimony for the likelihood of reporting financial hardship due to purchasing prescription drugs were the following variables: year, the number of prescription drugs taken daily, income, and prescription drug insurance coverage. When controlling for other variables in the models, financial hardship from purchasing prescription drugs was more likely to be reported by respondents taking 3-5 prescription drugs daily (odds ratio [OR] 1.4; P = 0.002), more than

5 prescription drugs daily (OR 2.5; P < 0.001), lacking prescription drug insurance (OR 2.5; P < 0.001), and having an annual household income below the study threshold (OR 2.2; P < 0.001) at a statistically significant level. Compared with 1998, financial hardship from purchasing prescription drugs was more likely to be reported by respondents in 2001 (OR 1.7; P = 0.004) and 2015 (OR 2.8; P < 0.001) at a statistically significant level.

Table 3 shows the logistic regression models with the best goodness of fit and parsimony for the likelihood of reporting financial hardship due to purchasing prescription drugs among respondents with prescription drug insurance coverage. When controlling for other variables in the models, financial hardship from purchasing prescription drugs was more likely to be reported by respondents taking more than 5 prescription drugs daily (OR 2.2; P < 0.001) and having an annual household income below the study threshold (OR 2.1; P < 0.001). Compared with 1998, financial hardship from purchasing prescription drugs was more likely to be reported by respondents in 2001 (OR 1.8; P = 0.03), 2015 (OR 3.8; P < 0.001), and 2021 (OR 1.7; P = 0.03) at a statistically significant level. Additionally, the proportion of older adults in this subgroup who experienced financial hardship from purchasing prescription drugs was 12% in 1998, 22% in 2001, 35% in 2015, and 19% in 2021 (P < 0.05).

## Discussion

One in 5 older adults in the United States experiences financial hardship from purchasing drugs after the full implementation of 2 major pieces of legislation designed, in part, to offer prescription insurance plans to address this problem. This finding, together with continued growth



**TABLE 3** Logistic Regression Results for Likelihood of US Adults Older Than Age 64 Years Experiencing Financial Hardship Because of Prescription Drug Expenditures in 1998, 2001, 2015, and 2021 for Respondents Who Have Prescription Drug Insurance (n=4,496)

Variable	P value	Odds ratio	95% CI
<b>Survey year</b>			
1998 (reference group)	NA	NA	NA
2001	0.030 <sup>b</sup>	1.8	1.1-3.1
2015 <sup>a</sup>	<0.001 <sup>b</sup>	3.8	2.5-5.6
2021 <sup>a</sup>	0.03 <sup>b</sup>	1.7	1.1-2.8
<b>Number of prescription drugs taken daily</b>			
0 (reference group)	NA	NA	NA
1-2	0.011 <sup>b</sup>	0.7	0.6-0.9
3-5	0.072	1.2	0.9-1.5
>5	<0.001 <sup>b</sup>	2.2	1.7-2.7
<b>Annual household income<sup>c</sup></b>			
At or above threshold (reference group)	NA	NA	NA
Below threshold	<0.001 <sup>b</sup>	2.1	1.8-2.6

The sample (n=4,496) does not equal 4,532 because of missing values. The variables presented in this table reflect a multistep model build for optimizing parsimony and explanatory value from variables collected across all 4 data collection points. The variables dropped from the model for which findings are not presented in the table are age, sex, education, marital status, race, number of over-the-counter drugs taken daily, diagnosis of arthritis, and diagnosis of diabetes.

<sup>a</sup>Complete sample.

<sup>b</sup>P<0.05

<sup>c</sup>In 1998 and 2001, the annual household income threshold was \$15,000. In 2015 and 2021, the threshold was \$20,000.

NA=not applicable.

in proportional enrollment of older adults in prescription drug insurance plans across the survey years, suggests that lacking drug coverage is not a sufficient predictor of cost-related nonadherence for older adults. The number of drug prescriptions taken daily and annual household income also make for informative predictors, although the latter is not currently available in Medicare claims or utilization data. Additionally, it is notable that multiple medication use, annual household income, and lacking drug coverage retained their predictiveness across the survey years even when conducted with differing sample compositions and contexts.

The overarching pattern of financial hardship from purchasing medications also indicates that the creation of Medicare Part D and subsequent closure of the coverage gap has helped older adults. Survey results from 2021 show financial hardship returning to levels and likelihoods just above those found in 1998 after being substantially higher in 2001 and 2015. This recent progress is also notable given the presence of new, high-cost specialty drugs and increased prices for existing drugs that have outpaced inflation since the implementation of the MMA.<sup>20-22</sup>

Although the comparative findings produced from this analysis do not

enable definitive statements on the causes of the results, they provide an ecological heuristic with snapshots relevant to 2 significant laws passed, in part, to increase the affordability of prescription drugs for older adults. This lens may be informative for policymakers looking to make future decisions in the same areas. The findings appear at odds with concerns at the time of the MMA's passage that prescription drug insurance introduced a “moral hazard” (ie, individuals buy prescriptions they do not need because of lower out-of-pocket costs) that would substantially shift purchasing prescription drugs away from being a “derived demand” (ie, individuals buy prescriptions when needed to treat illness).<sup>23,24</sup> This may be especially true for older adults in households with incomes below the poverty line, who have lower discretionary funds to begin with. This may represent a lesson learned for policymakers interested in further increasing the affordability of prescription drugs for older adults. Policies that ignore or misjudge the nature of economics and health behaviors may give birth to or exacerbate avoidable unintended consequences that compromise or reverse progress toward its goals.

Beyond prescription drug coverage policies, other contributors to the observed decrease in reported hardship for older adults from 2015 to 2021 could be learnings by prescribers, pharmacists, patients, and third-party firms about ways to save money on prescription drug purchases. This may include increased familiarity with the nuances of Medicare Part D (eg, phase spending thresholds, low income subsidies, copayment vs coinsurance, and preferred/listed drugs), as well as changes in the utilization of copay cards, charitable assistance, and point-of-sale discount programs like GoodRx, OptumPerks, ScriptSave WellRx, SingleCare, and Walgreen's

Prescriptions Savings Club that discount prescription drugs independent of a patient’s insurance plan.<sup>25–30</sup> The recent decrease in financial hardship from purchasing medications may also reflect a growing separation between the majority of older adults utilizing lower-cost generics to manage their medical needs and a smaller plurality who require high-cost specialty and biologic prescriptions, which quickly lead the catastrophic coverage phase in Medicare Part D.<sup>31</sup> This may indicate that although the prevalence of financial hardship in 2021 may have fallen to near 1998 levels overall, today’s older adults who experience financial barriers may be experiencing higher degrees of financial hardship than their 1998 counterparts.<sup>29,32</sup>

Pharmacists may be able to provide important support for older adults making informed choices about their coverage plans and prescription drug purchases that impact medication adherence and effectiveness. This is especially true for older adults more likely to experience financial hardship from purchasing prescription drugs (ie, take several prescription drugs each day, have a low annual household income, and lack prescription coverage).

Lower self-reported financial hardship from purchasing prescription drugs by older adults may have important implications. Reduced financial hardship likely reduces cost-related nonadherence, which may increase access to medications, improve adherence to medications, and improve medication-related health outcomes. Future research using Medicare Part D claims data, combined with Medicare medical utilization data, could examine trends in medication access, adherence, and outcomes for patients. Examining these issues by patient race and income level (not currently provided by Medicare claims and utilization data) could explore whether reduced financial hardship benefited more vulnerable populations to a greater extent. Additionally, future research could explore the relationship between reduced financial hardship for prescription drugs and access to other necessities of living, such as food, shelter, heating, and transportation.

## LIMITATIONS

There are some potential limitations to this study inherent to bias from self-report measurements, as well as sampling and selection methods, that should inform how the results are interpreted. First, solitary self-report questions were used to collect information about respondents’ status of drug coverage, medication utilization, and experience of financial hardship from purchasing medications. Instances of poor reliability and bias from self-report measurements in cross-sectional surveys on topics related to income and health care utilization are well documented.<sup>33,34</sup> Furthermore, respondent perceptions of what constitutes

financial hardship were open to wider interpretations than more granular, multi-item indicators of the cost-related nonadherence construct. However, the congruity of recent findings from these respective measures speaks to the face validity each provides, albeit from different vantage points.<sup>35</sup>

Bias from sampling and selection represent another potential study limitation. Previous work has demonstrated that individuals who are older, in poorer health, and use more medications may be underrepresented in survey data because of nonresponse.<sup>36,37</sup> However, the data collected in this study from 2001 also suggest that many older adults who did not use any daily prescription drugs felt the survey did not apply to their situation and, therefore, did not participate. These data also suggested that roughly half of older adults from the 1998 and 2001 sample who were mailed surveys and did not respond were deceased, had changed addresses, or were unable to complete the instrument because of physical or mental incapacities. The remaining half of nonresponders from these years were attributed to a low level of interest in completing the survey or believing that the survey did not apply to them. The data collected for 1998 and 2001 also utilized some imputed values for the income variable, which may have introduced bias of higher respondent incomes (ie, the median income of most zip codes was above the income threshold used for this variable, which approximated the poverty line). However, this approach was standard practice at the time and is still used contemporarily when more accurate techniques or data are not available. It should also be pointed out when interpreting results that survey respondents identifying as White were overrepresented in all study years relative to the US population of older adults, introducing bias affecting all study variables.<sup>38</sup>

The data generated from the online, panel surveys in 2015 and 2021 addressed this limitation through dynamic screening and monitoring of response patterns by Qualtrics Panels to match characteristics of the US population. The online format also substantially reduced the lag time between when samples were selected and surveys were delivered compared with mailing. However, the transition to a new data collection approach in the later years may also have introduced bias.

Finally, the data collected from the 4 survey time points over the 24-year period could not capture other macrolevel forces beyond the MMA and ACA that likely impacted financial hardship among older American adults, both in general and in relation to the purchase of prescription medications. This includes the US stock market and productivity gains in the latter half of the 1990s, the following US recession and September 11th terror attacks, effects from European austerity measures and the Chinese stock market crash in

2015, the ongoing COVID-19 pandemic in 2021, and changes in political leadership, technological innovation, and workforce dynamics throughout the entire time period. Additionally, the relative meaning and experience of financial hardship are likely different in 2021 than it was in 1998. However, despite this significant variation in the ecological environment over time, the key variables informing this study's models remained stable across each of the 4 survey time periods.

## Conclusions

The proportion of older adults in the United States carrying prescription drug coverage appears to have continually risen since the passage and full implementation of the MMA and the ACA (68% in 1998, 71% in 2001, 91% in 2015, and 95% in 2021). However, the proportion of older adults experiencing financial hardship from purchasing prescription drugs has not followed the same trendline (19% in 1998, 31% in 2001, 36% in 2015, and 20% in 2021). A sizable proportion of older adults in 2021 remain at risk for cost-related nonadherence despite the reversal of perverse incentives addressed by closing the donut hole. Findings show that the lack of prescription drug coverage, taking more than 5 prescription drugs daily, and a low annual household income may increase the likelihood of experiencing financial hardship from purchasing prescription medications. Prescription drug discount programs may be enabling older adults to more affordably purchase prescription medications outside of their managed care insurance. Pharmacists can be a resource for older adults making choices about their prescription drug coverages and purchases.

## DISCLOSURES

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