ORIGINAL RESEARCH

# Medication Adherence and Characteristics of Patients Who Spend Less on Basic Needs to Afford Medications

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***Introduction:*** **Among individuals with low income, cost is a well-established barrier to medication adherence. Spending less on basic needs to pay for medication is a particularly concerning cost-coping strategy and may be associated with worse health outcomes. The aims of this study were (1) to describe the demographic and health status characteristics of those who report spending less on basic needs to pay for medication, and (2) to understand the associated psychosocial and financial challenges of these individuals.**

***Methods:*** **We administered a survey to primarily low-income adults (n = 270) in St. Louis, MO, as part of a larger study from 2016 to 2018. Logistic regression was used to model odds of reporting spending less on basic needs to pay for medication.**

***Results:*** **Spending less on basic needs to pay for medication was significantly more likely in individuals with fair or poor health status, greater number of chronic conditions, greater medication expenditure, and difficulty paying bills. Individuals who spent less on basic needs were less likely to be fully adherent to their medication regimen.**

***Conclusions:*** **Screening for unmet basic needs and offering referrals to social safety net programs in the primary care setting may help patients achieve sustainable medication adherence. (J Am Board Fam Med 2021;34:561–570.)**

***Keywords:*** **Chronic Disease, Financial Stress, Health Care Disparities, Health Expenditures, Logistic Models, Medication Adherence, Minority Groups, Missouri, Primary Health Care, Surveys and Questionnaires**

## Introduction

Cost-related nonadherence (CRN) is a serious public health concern. It is estimated that approximately 50% of patients may not be taking their medications as prescribed; cost is one of the most common reasons for nonadherence.[1,2] CRN is associated with worse patient outcomes and unnecessary hospitalizations as well as billions of dollars of avoidable health care costs.[3,4] Particularly among people with low income, cost is a well-established barrier to medication adherence.[5]

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Many people with low income are unable to adhere to medication regimens, and they also face difficulties in meeting basic needs such as food, clothing, housing, and transportation. Previous studies have found that inability to meet basic needs is associated with lower medication adherence.[6–9] Several reasons may explain this association: some individuals have no money for either basic necessities or medication; others with slightly greater means may spend less on medication in an attempt to meet food needs[9–11]; conversely, other patients spend less on basic needs to afford medications.[12–14]. Individuals spending less on basic needs to afford medications were more likely to have a greater number of prescriptions and greater out-of-pocket medication costs; spending less on basic needs is also associated with a lower likelihood of actual medication adherence.[12] Previous nationwide studies found that redirecting personal spending from basic needs to health care was more common among female, non-White, younger, and low-income individuals.[13,15]

The trade-off of various expenses can be a daily reality with serious consequences for people with low income and/or those who are uninsured.[16] One study found that elderly women who were at risk of food insufficiency (ie, had to choose between food and either medication or paying bills) tended to have lower intake of energy, protein, and micronutrients.[17] Another study of adults with HIV found that both spending less on basic needs to pay for medical care and the reverse (spending less on medical care to afford basic needs) were associated with greater number of visits to the emergency department.[18] Indeed, a trade-off in either direction can compromise a person's overall well-being. However, unlike individuals who spend less on medication, those who spend less on basic needs may go unnoticed by a physician focused on assessing adherence to treatment. It is important to understand which populations are at risk for making this trade-off and how health care providers and policy makers can best assist these individuals.

Little research to date has focused on individuals who choose medication over basic needs. The primary aim of this analysis was to describe the demographic characteristics, health status, and health insurance status of those who spend less on basic needs to pay for medication. Our secondary aims were to assess (1) the association between monthly medication expenses and a decision to spend less on basic needs, as well as (2) the associated psychosocial and financial challenges of individuals who make these choices.

## Methods

We conducted a mixed-methods study (2016 to 2018) to assess cost-coping behaviors and cost-related medication nonadherence in low-income individuals with chronic disease. The parent study included a comprehensive quantitative survey completed by all participants and qualitative semistructured interviews completed by a subset. This analysis reports on the survey data; limited data from the qualitative interviews and quantitative survey have been presented elsewhere.[19,20] Cognitive interviews were used to refine the survey before administration to study participants. Participants were recruited from multiple sites throughout St. Louis, MO, including the waiting rooms at 4 sites of a Federally Qualified Health Center, an academic medical center, and local newspaper advertisements. Some participants learned about the study by word-of-mouth from previous participants. Participants completed a 45-minute to 60-minute interviewer-administered cross-sectional survey that included 2 open-ended, audio-recorded questions.

Eligible participants were English-speaking adults aged 35 to 80 who had at least 1 chronic condition and at least 1 prescription for this diagnosis, whether or not the prescription was currently being filled. Trained research staff verbally administered the survey to participants in person and entered responses into REDCap in real time. Written informed consent was obtained from all participants, and participants received a $50 gift card on survey completion. After completion of data collection, a summary of findings was distributed to all participants who indicated a desire to receive them. All study materials and procedures were approved by the Washington University Human Research Protection Office on March 9, 2016.

### *Measures*

For our main outcome measure, a single item asked participants, "Have you spent less on basic needs to pay for medication?" (yes/no). Participants answering "yes" were then asked which basic needs they had spent less on (food/groceries, utilities, gas/

transportation, housing/rent, other medical expenses, other).

Sociodemographic measures included gender, age (continuous), race/ethnicity (non-Hispanic Black vs other), education level (no high school [HS] diploma; high school graduate or GED; some college or technical school with HS diploma; college graduate or greater), health insurance (either (1) Medicare, private, or dual Medicaid and Medicare; (2) Medicaid alone, local coverage program, or Veterans Administration; or (3) uninsured), prescription drug coverage (covered for past 12 months vs not), employment (either (1) employed, out of work for < 1 year, or homemaker; or (2) out of work for > 1 year, unable to work, disabled, or retired), monthly income (<$400; $400 to $799; $800 to $1199; >$1200), and number of dependents (0; 1; 2 or more).

Health measures included self-reported overall health (excellent/good vs fair/poor), number of chronic conditions, number of medications, and monthly medication expenditure (including cost of unfilled medications, in hundreds of dollars).

To estimate medication adherence, participants were first asked to report all prescriptions. Responses included some PRN (as needed) and over-the-counter medications. For each prescription, participants were asked, "How often do you fill it?"; response options were "usually fill on time," "sometimes delay filling," or "never filled." Participants were also asked, "How often do you miss a dose or take less than prescribed?"; response options were "usually take as directed," "sometimes miss or reduce," or "often miss or reduce." Adherence was defined as "usually" taking all medications on time and at full dosage; anything less was classified as "less than adherent."

### *Covariates*

Our measure of unmet needs over the past 12 months included food, gas/transport, housing/rent, utilities, and medical expenses. Our measure of unmet needs at present included food, transport, housing, furniture, and difficulty paying bills. One point was assigned for each category of unmet need. For each aggregate measure, a score ranging from 0 (lowest amount of unmet need) to 5 (greatest) was computed by summing across all categories within the measure. Additional measures addressing basic needs identified participants who were eligible for or receiving food stamps or had visited a food pantry in the past 30 days. We asked participants to rate the quality and quantity of food in their household (enough quantity and good quality; enough quantity but lacking in quality; sometimes/often not enough to eat). Housing-related measures included number of moves in the past 3 months (0 vs 1+) and a binary measure reflecting current homelessness or living in transitional housing or a shelter.

Financial status measures included not having a bank account and not having enough money to make ends meet. "Ability to make ends meet" is a measure that has previously been used to distinguish varying financial situations within low-income populations.[21] Difficulty paying bills assessed whether the respondent ever "had a bill that was past due," "paid the minimum on a utility bill," "paid a utility bill late," or "paid rent or mortgage late." We also assessed financial difficulties including having a disconnected phone, any disconnected utility, or a notice from a collection agency; ever having filed for bankruptcy; and inability to afford a minor emergency. For each aggregate measure, a score was computed by assigning 1 point for each problem and summing across all problems within the measure.

Psychosocial effects of financial problems were assessed with 3 items that asked how often participants worry about making ends meet, how often financial worries interfere with sleep or cause physical symptoms, and how often financial problems interfere with or limit relationships with other people. Response options were "never," "rarely," "sometimes," "often," and "always."

### *Statistical Analysis*

Descriptive statistics were first calculated for our outcome variable and all correlates. We used logistic regression to model the odds of spending less on basic needs to pay for medication. Predictors that were significantly associated with the outcome in bivariate models were included in the final multivariable model. However, several constructs were assessed with multiple different measures (eg, comorbidity burden as the number of chronic conditions vs number of medications; unmet basic needs at present vs past 12 months; ability to pay bills vs resulting financial difficulties; psychosocial effects of financial problems as effect on relationships vs financial worry vs physical effects of worry). In these cases, to avoid multicollinearity in the

regression model, we chose only 1 measure to include in the final multivariable model. If only 1 measure was significantly associated with the outcome in bivariate models, then that measure was chosen; otherwise, we chose the measure more conceptually linked to spending less on basic needs. We further assessed the bivariate relationship between potentially correlated constructs (number of chronic conditions and monthly medication expenses; difficulty paying bills and not enough money to make ends meet) to avoid multicollinearity. We also evaluated a potential interaction term between monthly medication expenses and medication adherence. All statistical tests were 2-sided. Statistical significance was assessed at $\alpha = 0.05$. Statistical analyses were performed in R version 3.6.1.

## Results

### *Participant Sociodemographic and Health Characteristics*

Of the 274 recruited participants, 270 were ultimately included in the analytic sample (3 no longer met age requirements when rechecked after survey administration, and 1 did not complete the survey). Of these 270 individuals, 59.6% were female, 81.9% identified as non-Hispanic Black, and 68.2% reported a monthly income of less than $1200 (Table 1). Sixty-eight percent of respondents had continuous health insurance for the past year, and the same proportion reported continuous past-year prescription drug coverage. On average, participants had been diagnosed with 4.8 chronic conditions and prescribed 6.1 medications. Average monthly medication expenditure was $82, although this amount was highly variable. Many participants (38.5%) reported asking their provider to switch their prescriptions to generic, and 95.2% of participants reported that their requests were successful.

### *Spending Less on Basic Needs to Pay for Medication*

Forty-seven percent of respondents reported spending less on at least 1 basic need to pay for medication, and 32% of respondents reported spending less on more than 1 basic need. The most common basic need participants spent less on was food (80.2%), followed by transportation (49.2%), utilities (47.6%), housing (27.8%), and other medical expenses (23.0%). Other basic needs that participants reported spending less on included household, leisure, child-related or personal expenses, and debt payments. Of the 47% of individuals who reported spending less on basic needs, only 16.8% reported full medication adherence.

### *Psychosocial Effects of Financial Problems*

Many respondents reported at least sometimes experiencing worry about being able to make their monthly living expenses (80.8%), difficulty sleeping or other physical effects due to financial worries (64.5%), and strained interpersonal relationships due to financial problems (61.8%).

### *Bivariate Associations with Spending Less on Basic Needs*

Spending less on basic needs to pay for medication was more likely among females and those with a high school education (compared with no high school diploma) (Table 2). It was also more common among individuals who did not have prescription drug coverage for all of the preceding 12 months as well as those who had worse overall self-reported health, a greater number of chronic disease diagnoses, a greater number of medications, or greater medication expenditure (Table 2). Spending less on basic needs was also associated with decreased odds of medication adherence and greater number of unmet basic needs over the past 12 months, but not unmet basic needs at present (Table 2). Eligibility for or receiving food stamps and visiting a food pantry were not associated with spending less on basic needs to pay for medications, but self-reported inability to afford a sufficient amount of food perceived as high quality was (Table 2). Finally, not having enough money to make ends meet, difficulty paying bills, financial problems, and all 3 measures of the psychosocial effects of financial problems were associated with spending less on basic needs to afford medications (Table 2).

Most demographic characteristics (gender, age, race, employment, income, and number of dependents) were not significantly associated with spending less on basic needs. Lack of a bank account, living in transitional housing or a shelter, at least 1 move in the past 3 months, and homelessness were also not associated with spending less on basic needs to pay for medication.

**Table 1. Sample Characteristics of Respondents Who Had versus Had Not Spent Less on Basic Needs to Pay for Medication (St. Louis, MO; 2016-2018), n = 270**

| | Total N (%) | Not Spending Less on Basic Needs (n = 144) N (%) | Spending Less on Basic Needs (n = 126) N (%) |
|---|---|---|---|
| Gender | | | |
| Female | 161 (59.6) | 78 (54.2) | 83 (65.9) |
| Race/ethnicity (ref: non-Hispanic White/other) | | | |
| Non-Hispanic Black | 221 (81.9) | 121 (84.0) | 100 (79.4) |
| Education level | | | |
| No high school (HS) diploma | 57 (21.1) | 37 (25.7) | 20 (15.9) |
| High school graduate or GED | 101 (37.4) | 49 (34.0) | 52 (41.3) |
| Some college/technical school (with HS diploma) | 68 (25.2) | 35 (24.3) | 33 (26.2) |
| College graduate or greater | 44 (16.3) | 23 (16.0) | 21 (16.7) |
| Employment status (ref: employed; out of work < 1 year; homemaker) | | | |
| Out of work > 1 year; unable to work; disabled; retired | 169 (62.8) | 91 (63.2) | 78 (62.4) |
| Monthly income | | | |
| < $400/mo | 46 (17.2) | 24 (16.9) | 22 (17.6) |
| $400-$799/mo | 77 (28.8) | 49 (34.5) | 28 (22.4) |
| $800-$1199/mo | 59 (22.1) | 26 (18.3) | 33 (26.4) |
| > $1200/mo | 85 (31.8) | 43 (30.3) | 42 (33.6) |
| Number of dependents | | | |
| 0 | 184 (68.1) | 96 (66.7) | 88 (69.8) |
| 1 | 38 (14.1) | 22 (15.3) | 16 (12.7) |
| 2+ | 48 (17.8) | 26 (18.1) | 22 (17.5) |
| Health insurance status | | | |
| Private; Medicare; dual | 119 (44.1) | 65 (45.1) | 54 (42.9) |
| Medicaid; local coverage program; veteran's health benefits | 115 (42.6) | 64 (44.4) | 51 (40.5) |
| Uninsured | 36 (13.3) | 15 (10.4) | 21 (16.7) |
| Prescription drug coverage (ref: full year) | | | |
| Less than full year | 87 (32.2) | 38 (26.4) | 49 (38.9) |
| Self-reported overall health (ref: excellent/good) | | | |
| Fair/poor | 180 (66.7) | 84 (58.3) | 96 (76.2) |
| Medication adherence (ref: adherent) | | | |
| Less than adherent | 183 (68.0) | 79 (54.9) | 104 (83.2) |
| | Mean ± SD | Mean ± SD | Mean ± SD |
| Age | 55.2 ± 9.6 | 54.9 ± 10.3 | 55.5 ± 8.9 |
| Number of chronic conditions | 4.8 ± 2.5 | 4.1 ± 2.2 | 5.5 ± 2.6 |
| Number of medications | 6.1 ± 3.9 | 5.3 ± 3.7 | 7.0 ± 3.8 |
| Monthly medication expenditure ($) | 82 ± 152 | 47 ± 122 | 113 ± 179 |

Note: Due to rounding, not all percentages may add to exactly 100.
SD, standard deviation.

### *Multivariable Model*

Spending less on basic needs to afford medications was significantly more likely in individuals with fair or poor health status (OR = 2.00; 95% CI, 1.03-3.93), greater number of chronic conditions (OR = 1.21 per additional 1 condition, 95% CI, 1.06-1.40), greater medication expenditure (OR = 1.41 per $100; 95% CI, 1.11-1.89), and difficulty paying bills (OR = 1.43; 95% CI, 1.11-1.85) (Table 3). Individuals who spent less on basic needs were less likely to be fully adherent to their medication regimen (OR = 0.38; 95% CI, 0.18-0.77), controlling for all other covariates. All other variables (education level, prescription drug coverage,

**Table 2. Bivariate Associations with Spending Less on Basic Needs to Pay for Medication (St. Louis, MO; 2016-2018), n = 270**

| Variable | Odds Ratio | 95% Confidence Interval | *P* Value |
|---|---|---|---|
| Gender: male | 1.00 | referent | |
| Female | 1.63 | (1.00, 2.69) | 0.05 |
| Age | 1.01 | (0.98, 1.03) | 0.57 |
| Race/ethnicity: non-Hispanic Black | 1.00 | referent | |
| Non-Hispanic White/other | 1.37 | (0.74, 2.56) | 0.32 |
| Education level: no high school (HS) diploma | 1.00 | referent | |
| High school graduate or GED | 1.96 | (1.01, 3.88) | 0.05 |
| Some college/technical school (with HSdiploma) | 1.74 | (0.85, 3.63) | 0.13 |
| College graduate or greater | 1.69 | (0.76, 3.80) | 0.20 |
| Employment status: employed; out of work < 1 year; homemaker | 1.00 | referent | |
| Out of work > 1 year; unable to work; disabled; retired | 0.97 | (0.59, 1.59) | 0.89 |
| Monthly income: < $400/mo | 1.00 | referent | |
| $400-$799/mo | 0.62 | (0.30, 1.31) | 0.21 |
| $800-$1199/mo | 1.38 | (0.64, 3.02) | 0.41 |
| > $1200/mo | 1.07 | (0.52, 2.19) | 0.86 |
| Number of dependents: 0 | 1.00 | referent | |
| 1 | 0.79 | (0.39, 1.60) | 0.52 |
| 2+ | 0.92 | (0.49, 1.74) | 0.81 |
| Health insurance status: private; Medicare; dual | 1.00 | referent | |
| Medicaid; local coverage program; veteran'shealth benefits | 0.96 | (0.57, 1.61) | 0.87 |
| Uninsured | 1.69 | (0.80, 3.64) | 0.18 |
| Prescription drug coverage: full year | 1.00 | referent | |
| Less than full year | 1.78 | (1.06, 2.98) | 0.03 |
| Self-reported overall health: excellent/good | 1.00 | referent | |
| Fair/poor | 2.29 | (1.36, 3.91) | <0.01 |
| Number of chronic conditions | 1.27 | (1.15, 1.43) | <0.01 |
| Number of medications | 1.13 | (1.06, 1.21) | <0.01 |
| Monthly medication expenditure (hundreds of dollars) | 1.66 | (1.29, 2.24) | <0.01 |
| Medication adherence | 0.25 | (0.14, 0.43) | <0.01 |
| Unmet basic needs over the past 12 months | 1.31 | (1.11, 1.54) | <0.01 |
| Unmet basic needs at present | 0.82 | (0.64, 1.05) | 0.12 |
| Receiving/eligible for food stamps | 0.89 | (0.54, 1.46) | 0.64 |
| Visited food pantry in past 30 days | 1.13 | (0.70, 1.84) | 0.62 |
| Characterization of food at home: enough quantity, good quality | 1.00 | referent | |
| Enough food, but lacking in quality | 4.40 | (2.37, 8.44) | <0.01 |
| Sometimes/often not enough to eat | 4.35 | (2.21, 8.82) | <0.01 |
| Number of moves in past 3 months: 0 | 1.00 | referent | |
| 1+ | 0.94 | (0.49, 1.78) | 0.85 |

*Continued*

**Table 2. Continued**

| Variable | Odds Ratio | 95% Confidence Interval | *P* Value |
|---|---|---|---|
| Transitional housing, shelter, or homeless | 1.11 | (0.57, 2.15) | 0.77 |
| No bank account (savings or checking) | 0.89 | (0.55, 1.44) | 0.64 |
| Not enough money to make ends meet | 2.72 | (1.67, 4.48) | <0.01 |
| Difficulty paying bills | 1.51 | (1.24, 1.85) | <0.01 |
| Financial problems | 1.48 | (1.24, 1.79) | <0.01 |
| Worry about making monthly living expenses (at least sometimes vs rarely or never) | 4.16 | (2.10, 8.90) | <0.01 |
| Unable to sleep well or other physical effects of financial worry (at least sometimes vs rarely or never) | 3.93 | (2.30, 6.88) | <0.01 |
| Financial problems interfere with or limit relationships (at least sometimes vs rarely or never) | 2.67 | (1.60, 4.50) | <0.01 |

number of unmet basic needs over the past 12 months, inability to afford foods perceived as high quality, not enough money to make ends meet, and worry about living expenses) showed no statistically significant association in the adjusted model. Using alternate measures for certain constructs (comorbidity burden, financial consequences, psychosocial effects of financial

**Table 3. Multivariable Logistic Regression Model Examining Characteristics of Individuals and Associations with Spending Less on Basic Needs to Pay for Medication (St. Louis, MO; 2016-2018), n = 270**

| Variable | Odds Ratio | 95% Confidence Interval | *P* Value |
|---|---|---|---|
| Education level: no high school (HS) diploma | 1.00 | Referent | |
| High school graduate or GED | 1.79 | (0.77, 4.26) | 0.18 |
| Some college/technical school (with HS diploma) | 1.09 | (0.43, 2.78) | 0.86 |
| College graduate or greater | 0.99 | (0.34, 2.90) | 0.99 |
| Prescription drug coverage: full year | 1.00 | Referent | |
| Less than full year | 1.36 | (0.70, 2.65) | 0.36 |
| Self-reported health status: excellent/good | 1.00 | Referent | |
| Fair/poor | 2.00 | (1.03, 3.93) | 0.04 |
| Number of chronic conditions | 1.21 | (1.06, 1.40) | <0.01 |
| Monthly medication expenses (hundreds of dollars) | 1.41 | (1.11, 1.89) | <0.01 |
| Medication adherence | 0.38 | (0.18, 0.77) | <0.01 |
| Unmet basic needs over past 12 months | 1.08 | (0.87, 1.35) | 0.49 |
| Characterization of food in house: enough quantity, good quality | 1.00 | Referent | |
| Enough quantity, lacking in quality | 2.00 | (0.91, 4.44) | 0.08 |
| Sometimes/often lacking in quantity | 1.68 | (0.70, 4.09) | 0.25 |
| Not enough money to make ends meet | 1.36 | (0.70, 2.67) | 0.36 |
| Difficulty paying bills | 1.43 | (1.11, 1.85) | <0.01 |
| Worry about making monthly living expenses (at least sometimes vs rarely or never) | 1.09 | (0.39, 3.18) | 0.88 |

problems) did not change statistically significant results.

## Discussion

We studied the demographic and health characteristics of individuals who spend less on basic needs to pay for medication as well as the related financial and psychosocial challenges of individuals who make this trade-off. Participants who reported poor overall health and those who had more chronic conditions and greater medication expenditure were more likely to spend less on basic needs to afford medications. Doing so was also associated with a lower likelihood of medication adherence and greater likelihood of financial problems. Further, the strong bivariate associations between spending less on basic needs and each of the psychosocial measures suggests that individuals who spend less on basic needs may experience mental and physical effects from financial worries.

We found that lower income or education levels were not significantly associated with reduced spending on basic needs to afford medications. The majority of participants in this study would be considered "low-income," but nonincome resources (eg, food stamps or access to food pantries, housing support) can heavily impact individual financial situations.[22] Thus, medication costs and ability to meet basic needs likely characterize their day-to-day financial status better than typical measures like income.

Previous research has found that a greater number of prescriptions and more expensive medications are associated with spending less on basic needs to afford those medications[13,15]; our study supports those findings. Perceived poor health or serious chronic comorbidities may prompt individuals to prioritize medication over basic needs. However, it is also possible that other factors drive the decision to spend less on basic needs, and that poorer self-reported health status and greater number of chronic conditions are the results rather than the causes. Depending on the type and cost of medication, the health consequences of food insecurity may outweigh the benefits of increased medication spending. A short report published on this data highlighted this counterproductive trade-off, demonstrating that individuals with diabetes were significantly more likely than others with chronic disease to spend less on basic needs, mostly food, to afford medication.[20] Further, decreased food security may immediately impact health, whereas many long-term preventive medications do not reap benefits until years later. Physicians must openly communicate with patients about their financial situation and, ideally, make referrals to medication and basic needs assistance programs. Such assistance programs often require lengthy waits[19]; in the meantime, physicians can help patients prioritize spending in a manner most conducive to good health, as medications may not always be the most urgent need.

Zullig et al noted that multiple cost-coping strategies, including reducing spending on basic needs, requesting less expensive medicine, and borrowing money to afford medications, were all associated with nonadherence.[12] Our results on spending less on basic needs were in line with these findings. Individuals with fewer resources may be continually and purposefully alternating where to spend limited resources, unable to fully meet basic needs or achieve complete adherence. Patients may be making significant efforts to adhere to medical guidelines, even if they are unsuccessful.[23] Adherence is not a binary affair ("adherent" vs "nonadherent") but rather a continuum that reflects not only the medication's effectiveness, side effects, and patient's willingness to take the medication but also a patient's resources and trade-offs between competing financial priorities.[23,24] This challenge of "competing priorities" has been documented across diverse low-income populations and for various health care–related behaviors[18,25,26] and was highlighted in the qualitative interviews we conducted with survey participants.[19] Participants explained how limited resources constantly force them to make undesirable trade-offs, large and small. Often, participants sacrificed their time or exchanged an immediate benefit for a larger future reward. In other cases, participants were forced to forgo one immediate need to meet another more pressing need. Spending less on basic needs to afford medications—the outcome of our present analysis—is in fact one of a broad spectrum of trade-offs that participants employed.[19]

There is some evidence that housing and food instability are associated with a shift from use of primary care to more emergency department and hospital care.[27] Individuals who cannot afford basic needs may spend less on chronic disease management—including medications and primary care visits—to try to allocate resources for basic needs.

Some participants in our study recognized that this may cause health conditions to worsen over time, such that balancing health and basic needs becomes even more difficult.[19] Conversely, our study included many people with unmet basic needs who made the opposite trade-off, namely, spending less on basic needs to afford medications. This too may lead to negative outcomes.

Our findings reinforce the importance of ongoing efforts in primary care to address social determinants of health and unmet basic needs. Health Leads[28] and other social prescription programs[29] in health care systems are beginning to address unmet basic needs by connecting patients to community resources such as food pantries and utility assistance programs. Such promising solutions may free up patients' resources and help patients achieve sustainable medication adherence. Currently, these programs are far from universal. Promisingly, most participants in our study reported being comfortable talking about the cost of medication with their doctor and other members of the health care team.[20] While we recognize the time constraints of a busy primary care practice, our findings support the implementation of a seamlessly integrated screening and referral process to address basic needs and medication cost in the primary care setting.

Our study is one of the first to examine the trade-off between basic needs and medication in a very low–socioeconomic status (SES) population with diverse chronic health conditions. Our broad range of health, sociodemographic, and financial measures enabled us to characterize those who reduce spending on basic needs to pay for medication. We collected adherence data separately for each medication, which we believe is more accurate than global adherence measures for individuals with large numbers of chronic conditions and associated prescriptions. However, our study has several limitations. Our study is based on a sample from a single metropolitan area and included few Hispanics, Asians, or Native Americans. Thus, our results may not be generalizable to all demographic subgroups. Many participants did not know whether all their medications were generic or branded; hence, we were unable to accurately analyze potential savings from switching to generic medications. Spending less on basic needs to pay for medication was determined by a single yes/no question with no specified time frame within a rather long survey, which may affect response bias. Further, the cross-sectional design prevented determination of causality, and a one-time quantitative assessment cannot easily characterize the cyclic and interrelated nature of spending less in one area to afford another among resource-limited adults. Understanding an individual's decisions over time may be difficult; however, at both the clinical and population levels, a multifaceted approach is needed to increase access to both basic needs and medical care.

This research adds to extensive prior work on medication adherence and begins to characterize individuals who reduce spending on basic needs to afford medications. The findings are highly relevant for clinicians who treat low-SES patients with multiple chronic diseases and related prescription medications. Further research is needed to understand how patients prioritize competing financial pressures and how clinicians can support them to improve medication adherence, ensure adequate support for basic needs, and ultimately improve health outcomes.

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