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Research

Patterns of borrowing to finance out-of-pocket prescription drug costs in Canada: a descriptive analysis

Ashra Kolhatkar MPH, Lucy Cheng MSc, Steven G. Morgan PhD, Laurie J. Goldsmith PhD, Irfan A. Dhalla MD MSc, Anne M. Holbrook MD PharmD, Michael R. Law PhD

Abstract

Background: Out-of-pocket drug costs lead many Canadians to engage in cost-related nonadherence to prescription medications, but our understanding of other consequences such as borrowing money remains incomplete. In this descriptive study, we sought to quantify the frequency of borrowing to pay for prescription drugs in Canada and characteristics of Canadians who borrowed money for this purpose.

Methods: In partnership with Statistics Canada, we designed and administered a cross-sectional rapid-response module in the Canadian Community Health Survey administered by telephone to Canadians aged 12 years or more between January and June 2016. We restricted our analyses to participants who responded to the question regarding borrowing money to pay for prescription drugs and used logistic regression to identify characteristics associated with borrowing.

Results: A total of 28 091 Canadians responded to the survey (overall response rate 61.8%). The weighted proportion of respondents who reported having borrowed money to pay for prescription drugs in the previous year was 2.5% (95% confidence interval 2.2%–2.8%), an estimated 731 000 Canadians. The odds of borrowing were higher among younger adults, people in poor health and people lacking prescription drug insurance. Other factors associated with increased adjusted odds of borrowing were having 2 or more chronic conditions, low household income and higher out-of-pocket prescription drug costs.

Interpretation: Many Canadians reported borrowing money to pay for out-of-pocket prescription drug costs, and borrowing was more prevalent among already vulnerable groups that also report other compensatory behaviours to address challenges in paying for prescription drugs. Future research should investigate policy responses intended to increase equity in access to prescription drugs.

All Canadian residents are insured for medically necessary hospital care and physician services, without out-of-pocket charges at the point of care. However, this insurance excludes prescription drugs used outside of hospitals. Although many Canadians have some form of prescription drug insurance through work-related benefits or public programs, others lack any drug coverage.[1] In addition, Canadians with prescription drug insurance still often have to bear some or all of the costs of their drugs owing to insurance plan deductibles, copayments and gaps in insurance whereby some drugs are not covered.[1,2] The out-of-pocket pharmaceutical costs borne by uninsured or underinsured Canadians can be substantial and tend to disproportionately affect potentially vulnerable populations,[3–6] including children, older people, ethnic minorities and those who are socioeconomically disadvantaged.[7,8] The consequences of high out-of-pocket costs vary. Patients have reported engaging in compensatory behaviours including cost-related nonadherence to prescription medications,[6,9,10] which affects about 8% of Canadians with a drug prescription.[11–14] Patients also make trade-offs against spending in other areas of the household budget to be able to afford prescription drugs.[6,9,15–17]

Patients have also reported borrowing money, including increasing credit card debt, to compensate for high drug costs and borrowing money from family and friends as a way to cope with high health care costs.[10,18–21] However, most of this evidence is from the United States, which has a markedly different health insurance system and different levels of out-of-pocket

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Correspondence to: Michael Law, michael.law@ubc.ca

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drug costs from Canada. Furthermore, few studies distinguish between borrowing to pay for medication costs specifically and health care costs in general. In addition, existing studies have tended to focus on patients with specific high-cost illnesses rather than the general population.[18,20–22] In sum, little is known about borrowing to finance prescription medicine in Canada. Therefore, we sought in this descriptive study to quantify the frequency of borrowing to pay for prescription drugs in Canada and to identify predictors of such activity.

Methods

Data sources

The data for this study came from a cross-sectional rapid-response module in the Canadian Community Health Survey administered by telephone to Canadians aged 12 years or more between January and June 2016. In brief, our team collaborated with Statistics Canada to design a module of questions exploring the consequences of out-of-pocket drug charges for patients. The questions in the module drew on validated questions in the literature, previous iterations of the Canadian Community Health Survey and previous qualitative work by our team.[5,6,9,10,12,17,23,24] The questions were vetted and underwent qualitative testing by Statistics Canada in both French and English. The module[25] was administered by Statistics Canada in accordance with Canadian Community Health Survey guidelines.[26] Respondents were asked a range of sociodemographic and health questions, including whether they had borrowed money to pay for prescription medicines: "In the last 12 months, have you or anyone else in the household ever had to borrow money to pay for your prescriptions?" Following rigorous pilot testing conducted by Statistics Canada, the phrasing of this question specifically excluded examples of kinds of borrowing (e.g., from friends or family, on a credit card) to minimize confusion for the respondent. We restricted our analyses in this study to participants who responded to this question.

Statistical analysis

We calculated the total number of respondents and nationally representative estimates of the weighted proportions of the population reporting having to borrow money to pay for prescription drugs. We used multivariate logistic regression to investigate the factors associated with reporting having borrowed money to pay for prescription drugs. We included variables previously shown to be associated with difficulty paying for medications: sex, age, self-reported health status, number of chronic conditions (including arthritis, chronic obstructive pulmonary disease, diabetes, cancer, heart disease, high blood pressure and mood disorders), ethnicity, household income, education and prescription drug insurance status.[5,6]

We used step-wise multiple imputation methods to fill in missing data: we first imputed values for the variable missing the most data and then used the imputed values to the next highest, and so on until all missing variables had been imputed.[27,28] Once the imputation for each variable was complete, we recombined the data sets to incorporate the adjustments to variance. To incorporate the complex sampling design of the Canadian Community Health Survey into our population estimates, we used survey weights provided by Statistics Canada and bootstrapping to calculate confidence intervals (CIs).[29]

Ethics approval

This study was approved by the University of British Columbia Behavioural Research Ethics Board.

Results

Descriptive characteristics

Responses were collected from 28 091 people, with a combined Canada-wide response rate of 61.8%. Of the respondents, 572 (2.0% of the total sample) were excluded because they responded "Don't know" or refused to answer the question on borrowing, leaving a sample of 27 519 respondents. Data on 1 or more variables were missing for 1390 respondents (5.0%) across 4 variables (self-reported health status, out of pocket drug costs, education and prescription drug insurance), with a maximum of 2.4% of the total sample for any single variable (out-of-pocket drug costs). Table 1 presents weighted proportions of the total population: 50.7% of the respondents were female, 48.6% were less than age 45 years, 11.1% reported having fair or poor health, 20.3% had an annual household income of less than $40 000, and 20.3% reported having no prescription drug insurance.

Borrowing to finance out-of-pocket prescription drug costs

The weighted proportion of respondents who reported having borrowed money to pay for prescription medications in the previous year was 2.5% (95% CI 2.2%–2.8%) (Table 1). At the population level, this is equivalent to an estimated 731 000 Canadians (95% CI 639 000–824 000). Compared to respondents who did not report borrowing money to pay for prescription medications, those who reported borrowing tended to be younger and in poorer health, to have more chronic conditions, and to report government or no prescription drug insurance.

Figure 1 provides an illustration of some of the differences in rates of borrowing money to pay for prescription drugs across different groups in our sample. Respondents aged 19–34 years had the highest rate of borrowing (3.7%, 95% CI 2.9–4.4) (Figure 1, A). Respondents with a household income of less than $20 000 a year had more than twice the rate of borrowing (6.6%, 95% CI 5.0–8.3) than those earning $40 000 a year or more (Figure 1, B). Respondents who lacked any kind of prescription drug insurance had the highest rate of borrowing (4.6%, 95% CI 3.5–5.7), and those with employer-based drug insurance had the lowest rate of borrowing (1.3%, 95% CI 1.0–1.6) (Figure 1, C). As annual out-of-pocket costs on prescription drugs increased, respondents were more likely to report having borrowed money to pay for prescription drugs ($501–$1000: 9.5%, 95% CI 6.9–12.0; > $1000: 11.5%, 95% CI 8.6–14.3) (Figure 1, D).

Table 1: Characteristics and prevalence of patients who reported having to borrow money to pay for prescription drugs among respondents to the Canadian Community Health Survey between January and June 2016

Variable	No. of respondents*	Value (95% CI)		
		Weighted proportion of total population†	Weighted proportion who report borrowing = 1†	Weighted proportion† (within those with borrowing = 1)
Total	27 519	100.0 (100.0–100.0)	2.5 (2.2–2. 8)	100.0 (100.0–100.0)
Sex				
Female	13 949	50.7 (50.5–50.9)	3.2 (2.7–3.7)	65.2 (59.5–70.8)
Male	13 570	49.3 (49.1–49.5)	1.7 (1.4–2.1)	34.8 (29.2–40.5)
Age, yr				
12–18	2372	8.6 (8.3–8.9)	1.8 (1.1–2.5)	6.1 (3.8–8.5)
19–34	6954	25.3 (25.0–25.6)	3.7 (2.9–4.4)	37.6 (31.7–43.4)
35–44	4045	14.7 (14.2–15.2)	2.4 (1.5–3.3)	14.4 (9.6–19.2)
45–54	4667	17.0 (16.2–17.7)	2.3 (1.5–3.1)	15.7 (11.0–20.5)
55–64	4447	16.2 (15.6–16.7)	2.2 (1.4–3.0)	14.2 (9.6–18.7)
65–74	3156	11.5 (11.1–11.8)	1.9 (1.2–2.7)	9.0 (5.8–12.3)
≥ 75	1877	6.8 (6.5–7.1)	1.1 (0.6–1.6)	3.0 (1.6–4.4)
Self-reported health status				
Excellent	6591	24.0 (23.1–24.9)	0.6 (0.3–0.8)	5.5 (3.1–7.9)
Very good	10 350	37.6 (36.7–38.5)	1.3 (0.9–1.8)	20.5 (15.0–26.0)
Good	7510	27.3 (26.4–28.2)	3.2 (2.5–4.0)	35.9 (29.8–41.9)
Fair	2213	8.0 (7.5–8.6)	6.4 (5.0–7.8)	20.8 (16.4–25.2)
Poor	856	3.1 (2.8–3.4)	13.8 (10.1–17.4)	17.4 (13.0–21.7)
No. of chronic conditions				
0	13 927	50.6 (49.7–51.6)	0.9 (0.7–1.2)	18.6 (14.0–23.3)
1	7147	26.0 (25.1–26.8)	2.7 (2.0–3.4)	28.1 (22.4–33.9)
2	3514	12.8 (12.2–13.4)	3.6 (2.6–4.6)	18.6 (13.8–23.4)
3	1723	6.3 (5.9–6.7)	5.9 (4.3–7.5)	15.0 (11.1–18.8)
≥ 4	1208	4.4 (4.0–4.8)	11.1 (8.6–13.5)	19.7 (15.7–23.6)
Total household income, $				
< 20 000	1885	6.9 (6.4–7.3)	6.6 (5.0–8.3)	18.5 (14.2–22.7)
20 000–39 999	3690	13.4 (12.8–14.0)	5.1 (4.0–6.1)	27.6 (22.4–32.8)
40 000–59 999	3833	13.9 (13.3–14.6)	2.9 (1.9–3.8)	16.2 (11.6–20.8)
60 000–79 999	3577	13.0 (12.3–13.7)	2.1 (1.3–2.9)	11.1 (7.2–15.0)
80 000–99 999	3214	11.7 (11.0–12.3)	1.8 (1.2–2.5)	8.7 (5.7–13.9)
100 000–149 999	5501	20.0 (19.2–20.8)	1.2 (0.6–1.7)	9.6 (5.2–13.9)
≥ 150 000	5818	21.1 (20.3–22.0)	1.0 (0.5–1.5)	8.4 (4.5–12.4)
Education				
Less than secondary school	5209	18.9 (18.3–19.6)	3.0 (2.3–3.6)	22.9 (18.4–27.5)
Secondary school	6445	23.4 (22.6–24.3)	2.7 (2.0–3.4)	25.6 (19.9–31.3)
Postsecondary school	15 865	57.7 (56.7–58.6)	2.2 (1.8–2.6)	51.5 (45.7–57.2)
Prescription drug insurance				
Employer plan	14 855	54.0 (53.0–55.0)	1.3 (1.0–1.6)	29.0 (23.4–34.6)
Association plan	2284	8.3 (7.8–8.8)	2.1 (1.0–3.2)	7.1 (3.8–10.4)
Government plan	4802	17.5 (16.8–18.1)	3.7 (3.0–4.3)	26.1 (21.3–30.9)
None	5578	20.3 (19.5–21.1)	4.6 (3.5–5.7)	37.9 (31.2–44.5)
Out-of-pocket prescription drug spending in prior year, $				
0	13 575	49.3 (48.4–50.3)	0.2 (0.1–0.4)	4.3 (1.4–7.2)
1–200	8759	31.8 (31.0–32.7)	2.6 (2.1–3.2)	33.9 (28.2–39.6)
201–500	2862	10.4 (9.9–10.9)	6.4 (4.8–7.9)	26.4 (20.8–32.0)
501–1000	1406	5.1 (4.8–5.5)	9.5 (6.9–12.0)	20.0 (15.1–25.0)
> 1000	916	3.3 (3.0–3.7)	11.5 (8.6–14.3)	15.4 (11.7–19.0)

Note: CI = confidence interval.
*Numbers sum up slightly differently from the total number owing to rounding.
†Calculated with the use of survey weights provided by Statistics Canada, which correspond to the number of people in the entire population who are represented by each individual respondent.

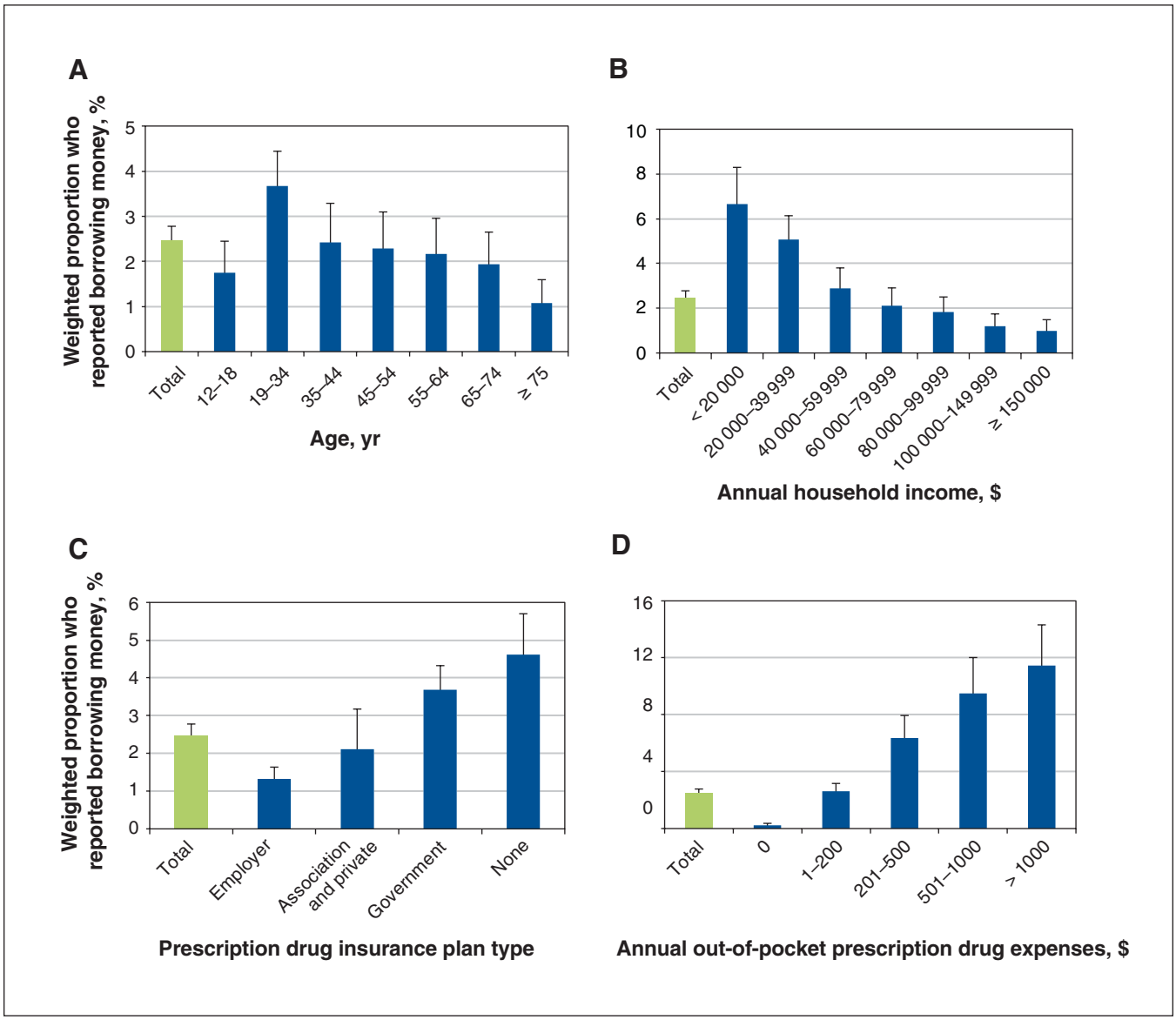

Figure 1: Weighted proportion of respondents who reported having borrowed money to pay for prescription drugs in the previous year, by age (A), annual household income (B), prescription drug insurance plan (C) and annual out-of pocket-expenses on prescription drugs (D). "Total" bar indicates the estimated national rate of borrowing. Error bars indicate 95% confidence interval.

Our multivariate logistic regression model showed that younger age was associated with higher odds of borrowing to pay for prescription medications. After we controlled for other factors (including insurance status and size of out-of-pocket costs), respondents aged 19–34 had more than 3.5 times the odds of borrowing (adjusted odds ratio [OR] 3.7, 95% CI 2.3–5.7) compared to those aged 45–54 (Table 2). Respondents aged more than 54 had less than half the odds of borrowing compared to those aged 45–54. Having poor self-reported health status was associated with substantially higher odds of borrowing (adjusted OR 7.7, 95% CI 3.7–15.9) compared to having excellent health. Insurance coverage was also important: respondents who reported having either government drug insurance or no drug insurance had twice the odds of borrowing to pay out-of-pocket costs for prescriptions (adjusted OR 2.0, 95% CI 1.4–2.9) compared to those with employer-sponsored drug insurance. Other factors associated with increased adjusted odds of borrowing were having 2 or more chronic conditions, having a household income less than $40 000 and spending more money out of pocket on prescription drugs.

Extent of out-of-pocket costs among borrowers

Among those who reported having borrowed money to pay for prescription drugs in the previous year (n = 6798), the largest group (an estimated 247 397 [33.8%], 95% CI 28.1–39.5) borrowed money to pay for comparatively low drug costs, $200 or less. Another estimated 195 859 (26.8%)

Table 2: Logistic regression on borrowing money to pay for prescription drugs

Variable	Unadjusted OR (95% CI)	Adjusted OR (95% CI)*
Sex		
Female	1.7 (1.3–2.4)	1.3 (1.0–1.8)
Male	Reference group	Reference group
Age, yr		
12–18	0.9 (0.5–1.6)	2.7 (1.2–6.5)
19–34	1.8 (1.2–2.6)	3.7 (2.3–5.7)
35–44	1.1 (0.7–1.9)	2.1 (1.2–3.9)
55–64	0.9 (0.6–1.5)	0.5 (0.3–0.9)
65–74	0.7 (0.4–1.3)	0.2 (0.1–0.4)
≥ 75	0.6 (0.3–1.2)	0.1 (0.1–0.2)
45–54	Reference group	Reference group
Self-reported health status		
Very good	2.0 (1.1–3.7)	1.5 (0.8–2.7)
Good	5.3 (3.1–9.1)	3.0 (1.7–5.3)
Fair	11.8 (7.0–19.9)	4.5 (2.4–8.4)
Poor	26.0 (14.2–47.6)	7.7 (3.7–15.9)
Excellent	Reference group	Reference group
No. of chronic conditions		
1	2.7 (1.6–4.3)	1.8 (1.1–3.1)
2	4.0 (2.7–6.0)	2.2 (1.4–3.5)
3	6.3 (3.9–10.0)	2.4 (1.4–4.2)
≥ 4	11.9 (7.6–18.6)	4.5 (2.5–8.1)
0	Reference group	Reference group
Total household income, $		
< 20 000	7.3 (4.0–13.4)	3.9 (1.9–8.2)
20 000–39 999	5.3 (2.9–9.5)	2.7 (1.3–5.4)
40 000–59 999	2.9 (1.6–5.4)	1.9 (0.9–3.9)
60 000–79 999	2.1 (1.1–4.1)	1.5 (0.7–3.2)
80 000–99 999	1.8 (0.9–3.5)	1.3 (0.6–2.6)
100 000–149 999	1.1 (0.5–2.4)	0.9 (0.4–1.9)
≥ 150 000	Reference group	Reference group
Education		
Secondary school	0.8 (0.6–1.2)	0.8 (0.5–1.3)
Postsecondary school	0.7 (0.5–1.0)	0.8 (0.5–1.2)
Less than secondary school	Reference group	Reference group
Prescription drug insurance		
Association plan and private plan	1.6 (1.0–2.8)	1.7 (1.0–3.0)
Government plan	2.9 (2.1–3.9)	2.0 (1.4–2.9)
None	3.5 (2.5–5.0)	2.3 (1.5–3.5)
Employer plan	Reference group	Reference group
Out-of-pocket prescription drug spending in prior year, $		
0	0.1 (0.0–0.2)	0.1 (0.0–0.2)
201–500	2.7 (1.9–3.8)	2.5 (1.7–3.7)
501–1000	3.7 (2.6–5.3)	3.6 (2.3–5.7)
> 1000	5.1 (3.2–8.0)	3.8 (2.2–6.6)
1–200	Reference group	Reference group

Note: CI = confidence interval, OR = odds ratio.
*Adjusted for sex, age, self-reported health status, number of chronic conditions, total household income, education, insurance status, size of out-of-pocket costs, cultural background and province of residence.

(95% CI 21.2–32.4) borrowed money to pay out-of-pocket drug costs of $201–$500. Finally, an estimated 143 601 (19.6%) (95% CI 14.7–24.6) and 113 303 (15.5%) (95% CI 11.8–19.2) of those who reported borrowing money did so for out-of-pocket drug costs of $501–$1000 and more than $1000, respectively.

Interpretation

The out-of-pocket costs associated with having to pay for prescription drugs have important implications for Canadians. We found that 2.5% of Canadians, or an estimated 731 000 people, borrowed money to pay for the out-of-pocket costs of their prescription drugs in the previous year. This represents another form of compensatory behaviour to deal with drug charges on top of the substantial rates of cost-related nonadherence to prescription medications and trade-offs with other expenditures patients in Canada report.[11] Furthermore, we found that borrowing was most common among groups who also display these other compensatory behaviours, including younger people, those with lower self-reported health, those with government or no drug insurance, and those with lower household income.[11] Notably, we found that borrowing to pay for prescription drugs occurred at all levels of out-of-pocket costs, and over 60% of borrowing reported by our respondents in the previous year occurred for out-of-pocket costs of $500 or less.

Our findings are consistent with other research on cost-related nonadherence and associated compensatory behaviours.[6,9,11] Studies from the US have shown cost-related nonadherence to be associated with food insecurity and cutting back on necessities.[10,16] This is sobering in light of the fact that most drugs for which patients need to make these trade-offs are relatively inexpensive.[10,11] Our findings suggest that the consequences of high drug costs are more extensive than just reducing adherence to medicines; there are likely impacts on other aspects of patients' quality of life.

There is an opportunity for health care providers to intervene and initiate conversations with patients to help support those who are at greatest risk of cost-related nonadherence and the attendant compensatory behaviours. Prior research suggests that patients who have high levels of trust in their health care providers tend to be at lower risk for cost-related nonadherence.[30] Although many physicians feel they are not well positioned to manage conversations about medication costs, many health care providers also believe it is their responsibility to engage patients in these conversations.[31,32] Prescribers can improve medication affordability for patients by staying up to date on drug costs, prescribing the most cost-effective alternative, frequently reviewing medication regimens for opportunities to deprescribe and prescribing generic drugs.[31,33]

Multiple policy interventions can be used to address the negative impacts on patients who are struggling to pay for prescription drugs.[34] For example, some provinces have recently implemented policy changes to help address cost-related nonadherence: Ontario implemented a pharmacare program for youth under the age of 25 who lack private prescription drug insurance, and British Columbia has reduced or eliminated public drug insurance deductibles for families earning less than $45 000 per year.[36,36] Future studies should investigate the impact of such changes on both cost-related nonadherence to prescription medications and borrowing behaviours.

Limitations

Like other survey-based study designs, our results are based on patient self-report, which is potentially susceptible to recall bias and social desirability bias. If recall bias had an effect on our findings, this likely would have resulted in conservative estimates.[37] We were unable to ask more specific questions about the kind of borrowing patients engaged in (e.g., from family and friends, a financial institution, or a payday loan or cash advance lender, against a mortgage or home, on a credit card) and were unable to assess how respondents interpreted the question or to gauge the amount of money that might have been borrowed.

Conclusion

Our findings show that many Canadians have borrowed money to pay for out-of-pocket prescription drug costs. Borrowing occurred for relatively inexpensive drugs as well as more costly ones and disproportionately affected vulnerable groups such as those who have low income, those with poor self-reported health status and those who lack prescription drug insurance. In Canada, some provinces are already taking steps to implement policy changes to help these more vulnerable groups address cost-related nonadherence to prescription medications and other associated behaviours. Future research should investigate the impacts of such changes that could increase equity in access to prescription drugs.

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Affiliations: Centre for Health Services and Policy Research (Kolhatkar, Cheng, Law), School of Population and Public Health; School of Population and Public Health (Morgan), University of British Columbia, Vancouver, BC; Faculty of Health Sciences (Goldsmith), Simon Fraser University, Burnaby, BC; Health Quality Ontario (Dhalla); Li Ka Shing Knowledge Institute (Dhalla), St. Michael's Hospital; Institute for Clinical Evaluative Sciences (Dhalla), Toronto, Ont.; Division of Clinical Pharmacology and Toxicology (Holbrook), Department of Medicine, McMaster University, Hamilton, Ont.

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