Linking a Survey of Clinician Benzodiazepine-Related Beliefs to Risk of Benzodiazepine Prescription Fills Among Patients in Medicare

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VISUAL ABSTRACT

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ABSTRACT

In this pilot study, we used a Medicare sample to identify primary care clinicians who prescribed a benzodiazepine (BZD) in 2017 and surveyed a random sample (n = 100) about BZD prescribing. Among 61 respondents, 11.5% (SD 5.9) of their patient panels filled a BZD prescription. Patients of primary care clinicians who agreed that potential harms to long-term BZD users were low had a greater BZD fill risk relative to patients of disagreeing primary care clinicians (adjusted risk ratio 1.31; 95% CI, 1.01-1.7). We highlight the potential of using Medicare claims to sample clinicians. Using claims-based objective measures presents a new method to inform the development of behavior-change interventions.

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INTRODUCTION

Benzodiazepines (BZDs) are a leading contributor to prescription drug deaths,[1] with the incidence of BZD-related overdose deaths increasing more than fivefold from 1996 to 2013.[2] However, the proportion of adults prescribed BZDs has remained unchanged.[2] Interventions to decrease BZD use can entail patient-, clinician-, and health system–facing efforts.[3] However, clinician beliefs (eg, regarding BZD efficacy, minimal risks of long-term use, and patient resistance to discontinuation) might limit the perceived salience of addressing BZD prescribing for their patients[4] and help account for variation in prescribing among clinicians.[5,6]

Whether clinician beliefs influence BZD prescribing is unclear, though this is critical to informing the design of clinician-facing interventions. Toward building this evidence base, we conducted a pilot study using clinician BZD-prescribing data (from Medicare Part D prescription claims linked to the American Medical Association Masterfile) to identify a national sample of primary care clinicians, who we then surveyed. Our primary goal was to show the acceptability and feasibility of this approach to survey clinicians.

METHODS

We identified all BZD prescriptions in a 20% national sample of Medicare beneficiaries with Part D coverage in 2017. After using the prescriber National Provider Identifier to identify specialty in the American Medical Association Masterfile, we limited the sample to primary care clinicians. Among BZD-prescribing primary care clinicians, we limited the potential survey population to those who prescribed a BZD to >1 beneficiary, a threshold set to limit inclusion of one-off prescribers (eg, providing cross-coverage); we then randomly sampled 100 primary care clinicians to survey.

Informed by prior qualitative work[4] and iterative feedback from 3 primary care clinicians, we developed a 22-item survey based on the capability, opportunity, and motivation behavior (COM-B) framework[7] to examine BZD-related decision making. For this analysis, we focused on a subset of belief-related items reflecting the capability and motivation domains. We also included an item assessing how often primary care clinicians spoke with patients about decreasing or discontinuing their BZD. We mailed surveys to clinicians via express mail, which could be returned by mail or completed online; on completion, they received a $100 gift card. The survey was conducted from November 2020 to July 2021.

For the 100 primary care clinicians sampled, we used the Part D file to identify all beneficiaries for whom they had prescribed any drug and created a patient-clinician–level data set. The outcome variable was whether or not each patient filled a BZD prescription (1 = yes, 0 = no) from that primary care clinician.

We used χ^2 and *t* tests to compare primary care clinician characteristics by response status and modified Poisson regression with robust standard errors to assess patient risk of being prescribed a BZD among clinician panels.[8] We collapsed clinician responses from 5 to 3 levels (strongly disagree, disagree; neither agree nor disagree; agree, strongly agree) and modeled relative risk of being prescribed a BZD as a function of primary care clinician belief using the same Poisson regression approach, accounting for patient clustered within clinician.[8] Models adjusted for patient age, gender, and Part D low-income subsidy eligibility/enrollment. All tests were 2-sided, and α was set at .05. This study was approved by the Michigan Medicine Institutional Review Board.

RESULTS

The survey response rate was 61%. Primary care clinician gender, age, and percentage of patients prescribed a BZD did not differ significantly by survey response status, though family medicine clinicians were more likely to respond (Table 1). Respondents prescribed BZDs to a clinician-level mean of 11.5% (SD 5.9) patients.

A total of 62.3% of clinician respondents reported they disagreed or strongly disagreed with the statement, "If a patient has been prescribed a benzodiazepine for years, the potential harms from continuing the benzodiazepine are low," whereas 18.0% agreed or strongly agreed (Table 2). Relative to patients of clinicians who disagreed with the statement, patients of clinicians who agreed (that potential harms were low) were at greater risk of being prescribed a BZD, with an adjusted risk ratio of 1.31 (95% CI, 1.01-1.7). None of the other belief survey items were associated with patient-level risk of BZD prescription fill.

DISCUSSION

In this pilot study, we showed the acceptability and feasibility of using clinician prescribing as observed in a Medicare sample to identify and survey those clinicians. It is important to consider limitations of this study. Our results generalize to primary care clinicians who prescribed BZDs to >1 beneficiary in a year, and by virtue of the data, this is prescribing to age- and disability-eligible Medicare beneficiaries. Subsequent application of this method will require careful consideration of the appropriate denominator population—of both clinicians and patients—for the study question. Whereas respondents were drawn from a national sample, this pilot study, designed to assess feasibility and acceptability, was not powered to detect small effects. Claims data reflect whether a BZD prescription was filled, but there might be unobserved prescriptions (ie, written but not filled), and the analysis was not longitudinal (eg, we did not capture whether a clinician was tapering patients off BZDs). In addition, although clinicians were sampled on the basis of prescribing in 2017, the survey was conducted several years later; ideally the prescribing and clinician survey would be contemporaneous.

A recent review of deprescribing interventions using the COM-B framework emphasized that few interventions have combined capability, opportunity, and motivation elements, which might be critical to overcome prescribing inertia.[9] Although the point estimates do not suggest that primary care clinicians' BZD-related beliefs are consistently associated with patient likelihood of filling a BZD prescription, this pilot

Table 1. Characteristics of Sample of Primary Care Clinicians Prescribing BZDs

Characteristic	Overall (n = 100)	Responded (n = 61)	Did not Respond (n = 39)	*P* Value[a]
Male, No. (%)	61 (61.0)	36 (59.0)	25 (64.1)	.61
Age, y, mean (SD)	56.8 (12.6)	56.5 (10.4)	57.4 (15.6)	.76
Physician specialty, No. (%)				
Family medicine	51 (51.0)	36 (59.0)	15 (38.5)	.04
Internal medicine	48 (48.0)	24 (39.3)	24 (61.5)	
Geriatric medicine	1 (1.0)	1 (1.6)	0	
Percentage of patients prescribed a BZD, mean (SD)[b]	12.1 (6.3)	11.5 (5.9)	13.0 (7.0)	.62
Benzodiazepine prescribed[c]				
Lorazepam	89 (89.0)	55 (90.2)	34 (87.2)	NA
Alprazolam	80 (80.0)	51 (83.6)	29 (74.4)	
Clonazepam	67 (67.0)	40 (65.6)	27 (69.2)	
Diazepam	49 (49.0)	31 (50.8)	18 (46.2)	
Temazepam	44 (44.0)	25 (41.0)	19 (48.7)	
Clorazepate	5 (5.0)	3 (4.9)	2 (5.1)	
Clobazam	3 (3.0)	0	3 (7.7)	
Triazolam	3 (3.0)	3 (4.9)	0	
Oxazepam	2 (2.0)	1 (1.6)	1 (2.6)	
Flurazepam	1 (1.0)	1 (1.6)	0	

BZD = benzodiazepine; NA = not applicable.

[a] Respondents were compared with nonrespondents using a χ^2 test for gender and physician specialty and a *t* test corrected for unequal variance for age. For physician specialty, the χ^2 test was conducted after removing 1 physician given the small sample size for geriatric medicine (n = 1).

[b] For percentage of patients prescribed a BZD, patient-level data and modified Poisson with robust SE values were used to examine if there was a relation between response status (0/1) and risk of being prescribed a BZD.

[c] Column percentages might sum to >100% because a given clinician can prescribe >1 BZD.

Table 2. Associations Between Primary Care Clinician Beliefs Related to BZD Prescribing and Patient-Level Risk of Being Prescribed a BZD

Survey Item	Clinicians, No. (%) (n = 61)	Patients, No. (%) (n = 5,385)[a]	Patients Filling BZD, No. (%)[b]	Adjusted RR (95% CI)[c]
The following statements were introduced by, "To what extent do you agree with the following statement about benzodiazepine treatment?"				
If a patient has been prescribed a benzodiazepine for years, the potential harms from continuing the benzodiazepine are low.				
Strongly disagree/disagree	38 (62.3)	3,352 (62.2)	403 (12.0)	1.0 (reference)
Neither	12 (19.7)	908 (16.9)	75 (8.3)	0.67 (0.47-0.94)[d]
Agree/strongly agree	11 (18.0)	1,125 (20.9)	167 (14.8)	1.31 (1.01-1.7)[d]
If a patient has been prescribed a benzodiazepine for years, a taper would be an unnecessary source of distress.				
Strongly disagree/disagree	52 (85.2)	4,750 (88.2)	588 (12.4)	1.0 (reference)
Neither	7 (11.5)	483 (9.0)	37 (7.7)	0.7 (0.36-1.36)
Agree/strongly agree	2 (3.3)	152 (2.8)	20 (13.2)	1.09 (0.75-1.6)
Patients are usually unwilling to be tapered off benzodiazepines.				
Strongly disagree/disagree	9 (14.8)	991 (18.4)	144 (14.5)	1.0 (reference)
Neither	13 (21.3)	1,299 (24.1)	156 (12.0)	0.82 (0.58-1.15)
Agree/strongly agree	39 (63.9)	3,095 (57.5)	345 (11.1)	0.73 (0.5-1.04)
For anxiety, benzodiazepines work better than other treatments.				
Strongly disagree/disagree	33 (54.1)	3,042 (56.5)	372 (12.2)	1.0 (reference)
Neither	21 (34.4)	1,750 (32.5)	214 (12.2)	1.03 (0.79-1.33)
Agree/strongly agree	7 (11.5)	593 (11.0)	59 (9.9)	0.82 (0.48-1.4)
For insomnia, benzodiazepines work better than other treatments.				
Strongly disagree/disagree	43 (70.5)	3,700 (68.7)	444 (12.0)	1.0 (reference)
Neither	12 (19.7)	1,055 (19.6)	129 (12.2)	1.04 (0.79-1.37)
Agree/strongly agree	4 (6.6)	415 (7.7)	50 (12.0)	0.99 (0.6-1.62)
No response	2 (3.3)	215 (4.0)	22 (10.2)	NA
Tapering a benzodiazepine would involve more frequent patient visits.				
Strongly disagree/disagree	9 (14.8)	789 (14.7)	86 (10.9)	1.0 (reference)
Neither	10 (16.4)	1,086 (20.2)	159 (14.6)	1.38 (0.87-2.18)
Agree/strongly agree	42 (68.9)	3,510 (65.2)	400 (11.4)	1.0 (0.65-1.54)
In the past year, among all your patients who take benzodiazepines regularly (either scheduled or PRN), with what percentage of patients did you discuss decreasing or discontinuing the benzodiazepine?				
0%	0	NA	NA	NA
1% to 25%	7 (11.5)	597 (11.1)	76 (12.7)	1.0 (reference)
26% to 50%	16 (26.2)	1,463 (27.2)	185 (12.6)	0.98 (0.67-1.43)
51% to 75%	16 (26.2)	1,254 (23.3)	148 (11.8)	0.96 (0.64-1.43)
76% to 100%	21 (34.4)	1,981 (36.8)	232 (11.7)	0.89 (0.61-1.32)
No response	1 (1.6)	90 (1.7)	4 (4.4)	NA

BZD = benzodiazepine; NA = not applicable; PRN = pro re nata (as needed); RR = relative risk.

[a] These 5,385 patients were all Medicare beneficiaries who filled a Part D prescription in 2017 written by the 61 clinician survey respondents.

[b] Among patients of clinicians with a given response level (eg, among 3,352 patients whose clinicians disagreed or strongly disagreed with the statement, "If a patient has been prescribed a benzodiazepine for years, the potential harms from continuing the benzodiazepine are low," 403 [12.0%] filled a BZD prescribed by those clinicians).

[c] From a modified Poisson regression model with robust SE values. Adjusted for patient age, gender, and Part D low-income subsidy.

[d] $P < .05$

study shows the potential of applying this survey method to isolate key intervention targets. This study provides a method to inform the development of multipronged interventions to modify a variety of physician behaviors.

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Key words: benzodiazepine; survey; Medicare; primary care

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