Patient Factors Associated with Nonadherence of Oral Hypoglycemics in an Oklahoma Medicaid Population

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Background

- The Centers for Medicare and Medicaid Services (CMS) may expand star ratings to dual Medicare-Medicaid plans, introducing a necessity in understanding factors associated with nonadherence in Medicaid patients.[1-2]
- The CMS outcome measure for medication adherence for oral hypoglycemic medications is weighted three times as much as other measures.[1]
- Previous research has found age, sex, race, residence, obesity, mental illness, substance abuse, hypercholesterolemia, and Charlson Comorbidity Index (CCI) to be associated with nonadherence.[3-5]
- There remain opportunities for findings to be investigated in a different Medicaid population using proportion of days covered (PDC) as the tool to measure adherence.

Objectives

- Determine level of nonadherence of oral hypoglycemic medications in Oklahoma Medicaid beneficiaries.
- Identify patient factors associated with nonadherence in oral hypoglycemic agents.

Methods

- Study Design and Database Characteristics: Cross-sectional historical cohort of comprehensive state-specific Medicaid administrative claims data (pharmacy and medical) from January 1, 2015 through December 31, 2015.
- Inclusion Criteria: Adult Oklahoma Medicaid enrollees (≥18 years) taking at least one oral hypoglycemic medication during 2015 and who has been continuously enrolled in Medicaid throughout calendar year 2015.
- Theoretical Framework: Andersen Model for Healthcare Utilization[6]
- Outcome (Dependent) variable: Adherence (defined as a PDC of 0.80 or greater).
- Predictor (Independent) variables: Patient demographics (age, sex, race, residence) and comorbidities (obesity, mental illness, substance abuse, hypercholesterolemia, and a modified CCI of at least 1).
- Statistical Method: Multivariable logistic regression.

Result

Table 1. Descriptive Summary of Patient Characteristics by Adherence (Overall N=9838)

FACTOR	ADHERENT N=4437 (45%)	NONADHERENT N=5401 (55%)	P-VALUE
Sex[1]: n (%)			
Male*	1610 (36%)	1641 (30%)	<0.0001
Female	2827 (64%)	3760 (70%)	.
Race[1]: n (%)			
American Indian or Alaskan Native	385 (9%)	576 (11%)	<0.0001
Asian	110 (3%)	99 (2%)	.
Black or African American	635 (15%)	972 (19%)	.
White or Caucasian*	3091 (71%)	3369 (65%)	.
Other	126 (3%)	176 (3%)	.
Location[1]: n (%)			
Rural*	980 (22%)	1047 (20%)	0.0014
Urban	3416 (78%)	4280 (80%)	.
Weight Status[1]: n (%)			
Low or Normal Weight*	3372 (76%)	3786 (70%)	<0.0001
Overweight	1065 (24%)	1615 (30%)	.
Presence of Diabetes With Complications[1]: n (%)			
No*	2694 (61%)	3563 (66%)	<0.0001
Yes	1743 (39%)	1838 (34%)	.
Presence of Hypercholesterolemia[1]: n (%)			
No*	1139 (26%)	1855 (34%)	<0.0001
Yes	3298 (74%)	3546 (66%)	.
Presence of Mental Illness[1]: n (%)			
No*	2961 (67%)	3459 (64%)	0.0053
Yes	1476 (33%)	1942 (36%)	.
Presence of Substance Abuse[1]: n (%)			
No*	3699 (83%)	4129 (76%)	<0.0001
Yes	738 (17%)	1272 (24%)	.
Presence of Opioid Dependence[1]: n (%)			
No*	4408 (99%)	5331 (99%)	0.0015
Yes	29 (1%)	70 (1%)	.
Modified Charlson Comorbidity Index[2]: mean			
	2.15	2.05	0.0469
Age[2]: mean			
	51.9	47.5	<0.0001

Adherence is defined as a proportion of days covered (PDC) greater than or equal to 0.80.
*Reference group in logistic regression. [1]Chi square test/Fisher exact test [2] t test (independent samples)

Summary of Significant Associations with Nonadherence from Multivariable Logistic Regression

FACTOR	TYPE	OR	95% CI
Female	Predisposing	0.803	0.734 to 0.878
Race – Native American	Predisposing	0.804	0.696 to 0.928
Race – African American	Predisposing	0.727	0.648 to 0.816
Urban County	Enabling	0.888	0.801 to 0.985
Substance Abuse	Need-Related	0.663	0.597 to 0.737
Opioid Dependence	Need-Related	0.564	0.358 to 0.890
Modified CCI	Need-Related	0.970	0.953 to 0.987

OR = Odds Ratio, CI = Confidence Interval, CCI = Charlson Comorbidity Index

Conclusions

- This project found mixed results of factors found to be associated with nonadherence compared to previous research.
- Opportunities exist for pharmacists to improve adherence to oral hypoglycemic medications, especially in populations known to have disparities in access to care.
- Further research should be done to better identify factors associated with nonadherence across other populations.

Limitations

- Potential coding errors and omissions may have been present within the data and/or analyses.
- Sample limited to Medicaid population, so unable to assess income level as a potential factor.
- Patients over the age of 65 are underrepresented due to many having coverage switched to Medicare.
- Caution should be undertaken in generalizing findings to other Medicaid programs.

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