

Association Between Persistence with Oral Atypical Antipsychotic Medications and Hospital and Emergency Department Utilization in Medicaid Patients with Schizophrenia

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Purpose: To examine 1-year persistence with oral atypical antipsychotics (OAAPs) for Medicaid patients with schizophrenia and assess the association between OAAP persistence and hospital and emergency department (ED) resource utilization.

Patients and Methods: Using 2016–2020 multi-state Medicaid claims data, this retrospective study followed patients diagnosed with schizophrenia for 12 months after initiating OAAP therapy. Patients started on an OAAP with no evidence of antipsychotic use in the previous 6 months were included if they had a diagnosis of schizophrenia, were not dually enrolled in Medicaid and Medicare, did not switch to a long-acting injectable antipsychotic, and were continuously eligible 6 months before and 12 months after the initial OAAP prescription (index date). OAAP persistence was measured allowing for a <60-day gap. All-cause and schizophrenia-related inpatient and emergency department (ED) resource utilization during the follow-up period were compared between OAAP persistent and non-persistent groups.

Results: The study sample of 13,007 had an average age of 39.1 years and 57.0% were male. Patients were persistent with their index OAAP for 135 days on average and 73.1% had a ≥ 60 -day gap in antipsychotic therapy post-index. While 32.8% and 28.6% of patients who did not persist with their index OAAP restarted the index OAAP or switched to a different OAAP medication later in the year, respectively, a larger proportion (38.6%) had no further OAAP prescriptions. After adjustment for demographic and clinical variables, compared to non-persistent patients, persisting with OAAPs was significantly associated with fewer all-cause and schizophrenia-related hospitalizations (Incidence Rate Ratio [IRR]=0.742, $p < 0.001$; IRR=0.823, $p < 0.001$; respectively) and ED visits (IRR=0.759, $p < 0.001$; IRR=0.773, $p < 0.001$; respectively).

Conclusion: Non-persistence with OAAP medication is common among patients with schizophrenia and associated with negative outcomes including increased utilization of hospital and ED resources. Patient-centered interventions that improve antipsychotic persistence should be implemented to facilitate optimal outcomes in this population.

Keywords: antipsychotic medication, persistence, healthcare resource utilization, Medicaid, schizophrenia

Introduction

In studies of medication utilization, adherence to and persistence with prescribed medications are important outcomes to measure, as they are well recognized as contributors to the effectiveness of a drug in the real world, compared to the efficacy demonstrated in clinical trials. Adherence is a measure of the percentage of prescribed medication that a patient has presumably consumed.¹ Medication possession ratios (MPRs) or proportions of days covered (PDC) are calculated and patients are often categorized as “adherent” at or above an 80% threshold for many disease states.² Persistence is a measure of how long a patient stays on medication, providing a “chronology of adherence”.¹ It is usually reported as the number of therapy days until discontinuation or a gap in refills of a specific period of time (eg, 30 days, 60 days).

An abundance of published studies have evaluated adherence to antipsychotic (AP) medications in schizophrenia, including systemic reviews and meta-analyses.^{3–6} Most of these analyses demonstrate suboptimal adherence to APs, with a recent meta-analysis of studies conducted in Africa, Europe, and North America finding that 56% of patients with schizophrenia self-reported lack of adherence to AP medications.⁴ US studies, using Medicaid prescription claims data to assess adherence to oral and/or long-acting injectable (LAI) APs, report even higher non-adherence rates of 52–80%.^{6–9} AP non-adherence is associated with negative outcomes including higher rates of psychotic symptoms, schizophrenia relapse, high utilization of emergency department (ED) and hospital resources, and increased risk of early death.^{5,10–12}

Studies of persistence with AP medication are equally important, but less frequently published compared to adherence studies. Recent persistence studies generally treat oral atypical APs (OAAPs) as a class and often compare persistence results to those of an LAI AP cohort. Medication discontinuation rates are usually higher among those taking OAAPs compared to LAI APs, and persistence with therapy favors LAI APs, though results are somewhat mixed.^{7,10,13,14}

To lend further understanding to the medication-taking behaviors of people diagnosed with schizophrenia, we aimed to assess patients' persistence with oral atypical APs (OAAPs) during the 1-year period after OAAP initiation using recent Medicaid administrative claims data. We selected these medications and this patient population because the majority of patients being treated with APs take an oral dosage form of a second-generation (atypical) product and 70% of non-institutionalized adults with schizophrenia are enrolled in state Medicaid programs.¹⁵ In addition, we aimed to assess a hypothesized association between OAAP persistence and utilization of hospital and ED resources in order to inform medical policy within Medicaid programs.

Materials and Methods

Study Design and Data Source

This retrospective cohort study used a blinded multi-state sample of de-identified Medicaid administrative healthcare claims data from January 1, 2016 to December 31, 2020. The patient sample has previously been described in detail.⁹ Medical and pharmacy claims were utilized, along with enrollment information for 344,751 patients with evidence of a schizophrenia diagnosis (International Classification of Disease, Tenth Revision (ICD-10): F20.xx). The first prescription for an OAAP medication between July 1, 2016 and December 31, 2019 served as the index date, and all patients were followed for 12 months. The 6-month period before the index date was the source for baseline study variables. All data fully complied with the 1996 US Health Insurance Portability and Accountability Act regulations. This study was deemed exempt by The University of Texas at Austin Institutional Review Board.

Inclusion Criteria

Inclusion in the study required the following: (1) evidence of a paid OAAP medication claim between 7/1/16 and 12/31/19; (2) no evidence of oral typical or OAAP medication utilization during the 6-month baseline period; (3) not dually eligible for Medicaid and Medicare pre- or post-index; (4) presence of a schizophrenia diagnosis associated with at least 1 inpatient or 2 outpatient claims during the pre- and/or post-index periods; (5) 18–63 years of age at index; (6) continuous Medicaid enrollment pre- and post-index; and (7) no evidence of pre- or post-index LAI AP utilization.

Study Variables

Baseline variables consisted of age at index, sex, race/ethnicity, and Quan-Charlson Comorbidity Index (CCI) score.¹⁶ Pre- and post-index periods were used to identify evidence of other severe mental illnesses and alcohol/substance abuse. The primary independent variable was persistence with OAAP medication during the 12-month post-index period. Persistence was determined by identifying the last consecutive day of OAAP medication possession during the post-index period, without a gap in therapy of 60 days or greater. This gap period has also been used in previous studies examining OAAP persistence in Medicaid beneficiaries with schizophrenia.^{13,14} Since we used a 60-day runout period to determine a gap in therapy, persistence was assessed through day 300 of the post-index period. Therefore, if the last day of persistence was between day 1 and day 300 (post-index), the patient was classified as non-persistent. Persistence was calculated for the index OAAP and for all OAAPs (treated as a class) dispensed during follow-up. From the cohort of

patients who did not persist with their index OAAP, we identified those who later restarted their index OAAP or were prescribed a non-index OAAP after initial non-persistence.

Statistical Analyses

Study sample characteristics and outcomes were compared between patients who were and were not persistent with OAAP medications for one year after OAAP initiation. Wilcoxon-Mann-Whitney U and chi-square tests were used for bivariate analyses. Kaplan-Meier survival curves were generated to assess OAAP persistence. Multivariable analyses were conducted to evaluate the association of OAAP persistence with study outcomes, while controlling for baseline covariates. Logistic regression was used to assess hospitalization or ED visit outcomes and negative binomial regression was used to assess inpatient and ED visits, as well as for hospital length of stay. The level of significance was set a priori at $p < 0.05$, with confidence intervals set at 95%. All analyses were performed using Stata Statistical Software, Release 17.

Results

A total of 13,007 patients met the criteria for inclusion in the study. The mean age was 39.1 years (sd=12.8; median=38) at index and 41.6% were between 18 and 34 years of age. Males comprised a larger proportion of the sample than females (57% vs 43%) and 36.1% were Black, 31.8% were White, and 9.7% were Hispanic. Approximately 40% of patients had claims evidence of bipolar disorder (39.2%) and schizoaffective disorder (40.1%), while 26.5% had evidence of major depressive disorder. Sixty percent had evidence of alcohol/substance abuse. The top four index OAAPs were quetiapine (25.6%), risperidone (24.8%), olanzapine (19.7%), and aripiprazole (13.7%). Overall sample characteristics are detailed in Table 1.

Table 1 Sample Characteristics by Persistence Status

Sample Characteristics	Overall N=13,007	Persistent ^a N=3504; 26.9%	Non-Persistent N=9503; 73.1%	P value
Sex, n (col%) [row%]				0.390
Female	5596 (43.0)	1486 (42.4) [26.6]	4110 (43.3) [73.4]	
Male	7411 (57.0)	2018 (57.6) [27.2]	5393 (56.8) [72.8]	
Mean age at index, yrs (sd) [median]	39.1 (12.8) [38]	40.2 (13.2) [40]	38.7 (12.7) [38]	<0.001
Age group, n (col%) [row%]				<0.001
18–34 years	5405 (41.6)	1367 (39.0) [25.3]	4038 (42.5) [74.7]	
35–44 years	2746 (21.1)	675 (19.3) [24.6]	2071 (21.8) [75.4]	
45–54 years	2768 (21.3)	780 (22.3) [28.2]	1988 (20.9) [71.8]	
55–63 years	2088 (16.1)	682 (19.5) [32.7]	1406 (14.8) [67.3]	
Race/Ethnicity, n (col%) [row%]				<0.001
Black	4697 (36.1)	1016 (29.0) [21.6]	3681 (38.7) [78.4]	
White	4131 (31.8)	1266 (36.1) [30.6]	2865 (30.2) [69.4]	
Hispanic	1263 (9.7)	406 (11.6) [32.1]	857 (9.0) [67.9]	
Other	239 (1.8)	67 (1.9) [28.0]	172 (1.8) [72.0]	
Unknown	2677 (20.6)	749 (21.4) [28.0]	1928 (20.3) [72.0]	

(Continued)

Table 1 (Continued).

Sample Characteristics	Overall N=13,007	Persistent ^a N=3504; 26.9%	Non-Persistent N=9503; 73.1%	P value
Mean Quan-CCI score (sd) [median]	0.78 (1.58) [0]	0.76 (1.53) [0]	0.79 (1.60) [0]	0.532
CCI = 0, n (%)	8330 (64.0)	2266 (64.7)	6064 (63.8)	0.366
CCI = 1, n (%)	2702 (20.8)	688 (19.6)	2014 (21.2)	0.052
CCI = 2+, n (%)	1975 (15.2)	550 (15.7)	1425 (15.0)	0.323
Co-diagnoses, n (%)				
Bipolar disorder	5099 (39.2)	1196 (34.1)	3903 (41.1)	<0.001
Major depressive disorder	3445 (26.5)	889 (25.4)	2556 (26.9)	0.080
Schizoaffective disorder	4332 (40.1)	1181 (42.7)	3151 (39.2)	0.001
Alcohol/substance abuse	7806 (60.0)	1247 (45.6)	6559 (63.8)	<0.001
Index medication, n (%)				
Aripiprazole	1779 (13.7)	421 (12.0)	1358 (14.3)	0.001
Olanzapine	2557 (19.7)	672 (19.2)	1885 (19.8)	0.402
Quetiapine	3335 (25.6)	860 (24.5)	2475 (26.0)	0.082
Risperidone	3222 (24.8)	878 (25.1)	2344 (24.7)	0.647

Notes: ^aPersistent: Continuous possession of OAAP medication for 300 days post-index without a ≥ 60 -day gap in therapy (based on post-index claims for all OAAPs). Chi-square tests used for categorical variables; Mann Whitney Wilcoxon tests used for continuous variables.

Abbreviations: sd, standard deviation; CCI, Charlson Comorbidity Index.

OAAP Persistence

Nearly three in four patients (73.1%) were non-persistent with OAAP medication, with [Figure 1](#) displaying a pronounced drop in persistence rates with both the index and any OAAP at 30 days, followed by a smaller decline at 60 days. Age, race/ethnicity, evidence of other severe mental illness, and index OAAP medication were significantly different ($p < 0.001$) between the persistent and non-persistent groups. ([Table 1](#)) Unadjusted analysis results showed that persistent patients were slightly older (1.5 years; $p < 0.001$) than their non-persistent counterparts and less likely to initiate aripiprazole as the index OAAP therapy ($p < 0.001$). They were less likely to have evidence of bipolar disorder ($p < 0.001$) and alcohol/substance abuse ($p < 0.001$), but more likely to have schizoaffective disorder diagnoses ($p = 0.001$). A greater percentage of Black patients (78.4%) did not persist with OAAP treatment compared to Hispanic and White patients (67.9% and 69.4%, respectively). [Figure 2](#) shows persistence curves for Black, Hispanic, and White patients for the index and any OAAP medication.

Overall, patients were persistent with their index OAAP therapy for an average of 135.1 days (sd=107.2, median=95) and, when including non-index OAAPs, mean persistence increased to 155.4 days (sd=109.3, median=125). ([Table 2](#)) Among 73.1% of patients who were classified as non-persistent to OAAPs overall, the average days of persistence with the index and any OAAP medications were 89.6 (sd=72.3, median=63) and 102.0 (sd=76.0, median=82), respectively.

For those patients meeting the criteria for non-persistence with their index OAAPs, 3370 patients (32.8% of 10,275 index OAAP non-persistent patients) restarted their index OAAP after an average of 130.3 days (sd=67.7, median=107). Nearly 29% (n=2937, 28.6%) were prescribed an alternative OAAP at a mean of 86.7 days (sd=94.0, median=53) after index OAAP non-persistence and 6.2% (n=635) were prescribed a first-generation antipsychotic. The remaining 32.4% (n=3333) had no evidence of typical or atypical AP utilization during the study period after discontinuing their index OAAP.

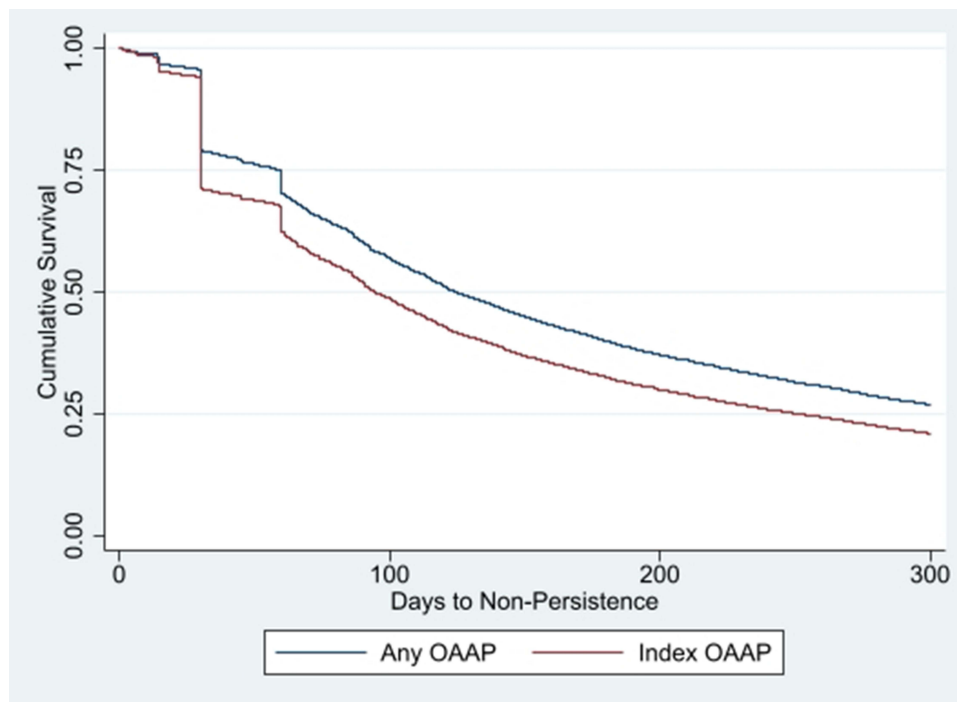


Figure 1 Kaplan-Meier survival curve to assess time to OAAP non-persistence.

Notes: Dependent variable: days to non-persistence measured through post-index day 300. Allowed a gap in therapy of <60 days.

Abbreviation: OAAP, oral atypical antipsychotic.

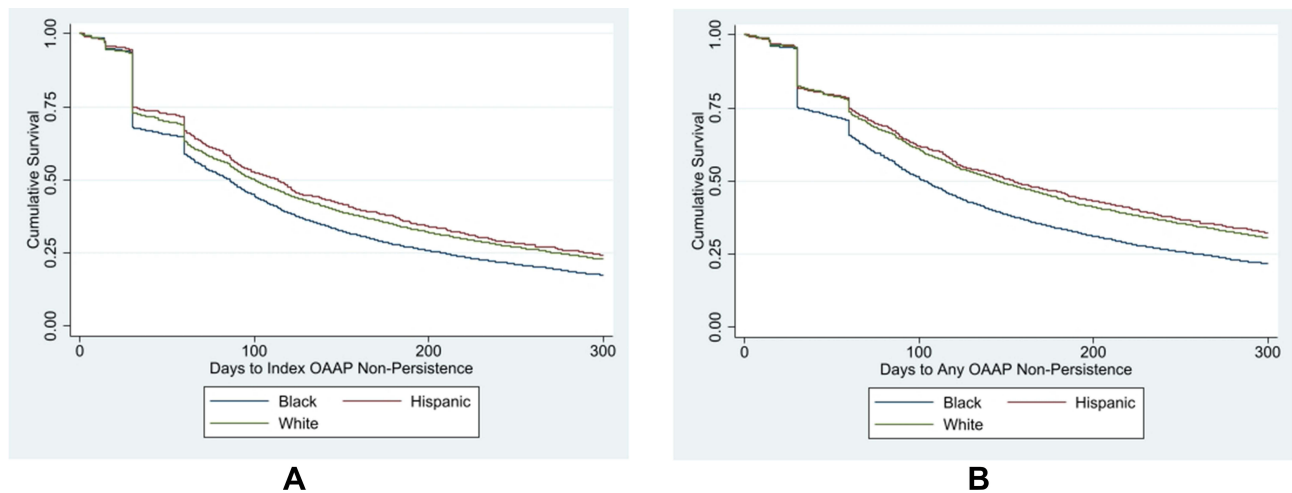


Figure 2 Kaplan-Meier survival curves to assess time to OAAP non-persistence by race/ethnicity. **(A)** Days to index OAAP non-persistence; **(B)** days to any OAAP non-persistence.

Notes: Dependent variable: days to non-persistence measured through post-index day 300. Allowed a gap in therapy of <60 days.

Abbreviation: OAAP, oral atypical antipsychotic.

Hospital and Emergency Department Utilization

Table 3 presents overall all-cause and schizophrenia-related hospital and ED utilization, as well as results for persistent and non-persistent patients. Nearly 40% of all patients (39.8%) were hospitalized during the 1-year follow-up period with a mean of 0.97 ± 2.04 visits per patient, and 23.3% of all patients had a schizophrenia-related hospitalization (0.54 ± 2.56 per patient). All-cause and schizophrenia-related hospital days averaged 17.0 ± 22.3 and 11.3 ± 14.3 , respectively. Nearly 70% of the sample had at least one ED visit, with a mean of 3.5 ± 6.4 visits.

Table 2 Patterns of Antipsychotic Medication Persistence

	Overall N=13,007
Number of persistent ^a days, mean (sd) [median]	
Index OAAP	135.1 (107.2) [95]
Any OAAP	155.4 (109.3) [125]
Patients who did not persist with index OAAP, n (%)	10,275 (79.0)
Patients with no claims for OAAP medication After index OAAP non-persistence, n (%)	3968 (30.5) (38.6% of index OAAP non-persistent patients)
Patients who restarted the index OAAP after Index OAAP non-persistence, n (%) Days to index OAAP restart, mean (sd) [median]	3370 (25.9) (32.8% of index OAAP non-persistent patients) 130.3 (67.6) [107]
Patients who were prescribed a non-index OAAP after index OAAP non-persistence ^b Days to non-index OAAP start, mean (sd) [median]	2937 (22.6) (28.6% of index OAAP non-persistent patients) 86.7 (94.0) [53]
Patients who did not persist with any OAAP, n (%)	9503 (73.1)

Notes: ^aPersistent: Continuous possession of OAAP medication for 300 post-index without a ≥60-day gap in therapy. ^bIncludes non-index OAAP claims dispensed from 30 days before OAAP non-persistence to the end of follow-up.

Abbreviations: OAAP, oral atypical antipsychotic; sd, standard deviation.

Table 3 Unadjusted and Adjusted Comparisons of Hospital and Emergency Department Utilization by Persistence Status

	Overall N=13,007	Unadjusted Comparisons			Adjusted Comparisons (Reference: non-Persistent)				
		Persistent ^a N=3504	Non-Persistent N=9503	P value	Estimate	95% CI	Wald X ²	P value	
All cause									
Patients with ≥ 1 inpatient visit, n (%)	5175 (39.8)	1086 (31.0)	4089 (43.0)	<0.001	OR = 0.706	0.645	0.772	2067.2	<0.001
Inpatient visits, mean (sd) [median]	0.97 (2.04) [0]	0.68 (1.57) [0]	1.08 (2.18) [0]	<0.001	IRR = 0.742	0.691	0.797	2598.4	<0.001
Inpatient days, mean (sd) [median]	17.0 (22.3) [9]	14.6 (18.2) [8]	17.7 (23.3) [10]	<0.001	IRR = 0.683	0.618	0.755	1155.1	<0.001
Patients with ≥ 1 ED visit, n (%)	8894 (68.4)	2032 (58.0)	6862 (72.2)	<0.001	OR = 0.624	0.571	0.682	2118.2	<0.001
ED visits, mean (sd) [median]	3.5 (6.4) [1]	2.5 (5.3) [1]	3.8 (6.8) [2]	<0.001	IRR = 0.759	0.720	0.801	2946.2	<0.001
Schizophrenia-related									
Patients with ≥ 1 inpatient visit, n (%)	3036 (23.3)	215 (6.1)	947 (10.0)	<0.001	OR = 0.713	0.644	0.790	781.5	<0.001
Inpatient visits, mean (sd) [median]	0.54 (2.56) [0]	0.08 (0.37) [0]	0.14 (0.53) [0]	<0.001	IRR = 0.823	0.742	0.914	662.9	<0.001
Inpatient days, mean (sd) [median]	11.3 (14.3) [7]	11.0 (10.2) [8]	12.1 (14.5) [8]	0.815	IRR = 0.727	0.631	0.836	282.1	<0.001
Patients with ≥ 1 ED visit, n (%)	2487 (19.1)	168 (4.8)	757 (8.0)	<0.001	OR = 0.835	0.750	0.929	511.1	<0.001
ED visits, mean (sd) [median]	0.19 (0.39) [0]	0.06 (0.35) [0]	0.13 (0.63) [0]	<0.001	IRR = 0.773	0.691	0.864	517.4	<0.001

Notes: ^aPersistent: Continuous possession of OAAP medication for 305 days post-index without a ≥60-day gap in therapy (based on post-index claims for all OAAPs). Unadjusted analyses: Chi-square tests used for categorical variables; Mann-Whitney Wilcoxon tests used for continuous variables. Adjusted analyses controlled for covariates: age, sex, race, Quan-Charlson Comorbidity Index score, other severe mental illnesses, alcohol/substance abuse, index OAAP. Adjusted analyses: Logistic regression for categorical dependent variables; Negative binomial regression for continuous variables.

Abbreviations: CI, confidence interval; IRR, incidence rate ratio; OR, odds ratio; sd, standard deviation; ED, emergency department.

Unadjusted comparisons of hospital and ED utilization showed that patients who were persistent to OAAP therapy, compared to their non-persistent counterparts, had lower rates of hospitalizations (31.0% vs 43.0%; $p<0.001$) and ED visits (58.0% vs 72.2%; $p<0.001$). (Table 3) The persistent group also had lower mean numbers of all-cause and

schizophrenia-related ED and hospital visits, and spent fewer days (all-cause) in the hospital (all $p < 0.001$). The adjusted analyses demonstrated that being persistent with OAAPs was associated with 25.8% and 17.7% fewer all-cause (IRR: 0.742, 95% CI: 0.691–0.797) and schizophrenia-related (IRR: 0.823, 95% CI: 0.742–0.914) hospitalizations, respectively; 31.7% shorter all-cause (IRR: 0.683, 95% CI: 0.618–0.755) and 27.3% shorter schizophrenia-related (IRR: 0.727, 95% CI: 0.631–0.836) inpatient lengths of stay; and 24.1% and 22.7% fewer all-cause and schizophrenia-related ED visits (IRR: 0.759, 95% CI: 0.720–0.801; IRR: 0.773, 95% CI: 0.691–0.864, respectively).

Discussion

Poor persistence with oral AP therapy among people diagnosed with schizophrenia is a long-standing trend that has been documented in the literature. Studies using multi-state Medicaid claims data between 2004 and 2015 and allowing for a <60-day gap between medication refills have reported that approximately 30–50% of patients with schizophrenia persist with their index oral AP over a 12-month period.^{7,10,13,14} Our study, based on more recent data (2016–2020), found that only 21% of the sample persisted with the index medication, and 27% persisted when allowing for a switch to a different OAAP medication. We found that patients filled their index OAAP prescription consistently (without a ≥ 60 -day gap) for an average of only 4.5 months (135 days) before discontinuation. Shah et al reported similar findings (135.6 days to oral AP discontinuation), though they used a more conservative gap (15 days) in their persistence definition.⁷ The pattern of suboptimal persistence with oral AP medications has not improved over time.

Kaplan-Meier curves provide a valuable visualization of medication discontinuation in this population. **Figure 1** shows a precipitous drop in persistence rates at 30 days, with nearly 30% of the sample discontinuing their index OAAP during the first month of therapy. At 60 days, nearly 40% of the sample had discontinued the index medication and more than half discontinued within 100 days of initiation of the medication. Prior studies have produced similar patterns of use.^{7,14} Sharp drops in medication persistence so early in the course of therapy are concerning, and even more troublesome when comparing these patterns by patient race/ethnicity. Our study found that 32% of Black patients discontinued their index OAAP medication during the first month of treatment, compared to 25% and 27% of Hispanic and White patients, respectively. Though persistence was poor for all groups, the Kaplan-Meier curves (**Figure 2**) show a clear disparity in OAAP persistence for Black patients throughout the follow-up period. These findings point to potential inequity in access or tolerance issues being experienced by Black patients that impact persistence to OAAP therapy. Identifying direct causes for these differences was beyond the scope of our objectives; however, we suggest this as an opportunity to investigate potential predictors of non-persistence using more comprehensive data sources that include non-medical drivers of health information.

Medication re-initiating patterns after AP discontinuation are infrequently reported in the literature. On a positive note, though the majority of our sample had a gap in AP therapy of at least 60 days, approximately 60% of those who initially discontinued their index OAAP resumed the same medication (~33%) or initiated a different OAAP (~29%) 3–4 months later, on average. Still, more than 30% had no evidence of any AP re-initiation after discontinuing their index medication. These results demonstrate the heterogeneity of schizophrenia treatment patterns during a 12-month period and point to the need to better understand the medication-related decisions made by patients and prescribers which future studies could explore.

AP non-adherence is strongly associated with negative outcomes (eg, schizophrenia relapse) that may result in the increased utilization of costly resources including hospitals and EDs.^{17,18} Similar results would be expected regarding AP non-persistence. We found that patients who persistently took OAAP medication had significantly fewer all-cause ED visits and hospitalizations, as well as significantly shorter hospital stays compared with the non-persistent cohort. The same patterns were observed for schizophrenia-related visits, and these findings are aligned with previous findings of studies examining AP persistence and healthcare resource utilization.^{13,18}

In summary, the current study provides updated findings on persistence with OAAP medication, the mainstay of treatment, among patients with schizophrenia. Furthermore, it strengthens the evidence regarding the importance of AP medication persistence in this population. Persisting with AP medication is associated with improved clinical outcomes and fewer hospitalizations and ED visits, which has a positive impact on patient quality of life and an economic benefit for state Medicaid programs. The study also provides insight into medication treatment patterns after initial

discontinuation, with most patients resuming AP therapy a few months later. Patients discontinue AP medication for a variety of reasons, including negative attitudes regarding medication, drug side effects, and impaired insight into their illness.^{19,20} Thus, efforts to better understand and address these issues at the point of prescribing should be encouraged in order to improve medication persistence among patients with schizophrenia. Furthermore, AP medication persistence should continue to be evaluated as the study of schizophrenia expands (eg, exosome biomarkers for diagnosis and treatment)²¹ and therapies for schizophrenia evolve and improve.

Limitations

This study has several limitations that should be considered when interpreting results. Duration of illness could not be determined and heterogeneity of this variable in our sample could impact our results. We assume that these patients were newly started on an OAAP after at least a 6-month period with no evidence of AP utilization, but we had no insight into any previous AP utilization that could play a role in patients' medication-taking behavior. We used claims data compiled for administrative purposes which comes with inherent limitations. For example, evidence that an OAAP was dispensed does not guarantee consumption. We were limited to only those variables provided in the dataset and could not account for services that may have occurred outside of the Medicaid system. Data miscoding is a possibility and could not be identified. Finally, as we were blinded to the number and identity of the states included in our dataset, we advise caution in the generalization of results to the entire US Medicaid population of patients with schizophrenia.

Conclusion

This study adds to the literature by contributing updated insight into the issue of persistence with AP medications among Medicaid patients with schizophrenia. Persistence findings, which provide valuable temporal information regarding medication discontinuation, are not as abundantly available in the literature as adherence results. Our findings confirmed that medication persistence is poor during the first 12 months after OAAP initiation, and a substantial proportion of patients discontinue their medication within the first 2 months of treatment. Moreover, discontinuation of these drugs is associated with increased hospital and ED resource utilization. Opportunities for future research include investigations of non-medical drivers of health that contribute to medication non-persistence using primary data sources that build on our findings of differences in treatment utilization among racial/ethnic groups. To achieve better outcomes among patients with schizophrenia, efforts to improve and sustain persistence with AP medications are warranted and should address patient-reported barriers to persistent medication use.

Disclosure

Kristin Richards and Michael Johnsrud are employees of The University of Texas at Austin and conducted the research through a grant from Cerevel Therapeutics. Christopher Zacker and Rahul Sasané are employees of Cerevel Therapeutics.

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