# Evaluation of the Impact of a Pharmacist-Led Medication Group on Medication Adherence in Psychiatric Inpatients

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## Background

- In a systematic review, a combination educational, behavioral, and affective strategies improved patient adherence to antipsychotic medications.[1] Medication adherence is calculated as Proportion of Days Covered (PDC).[2] The PDC can range from 0 to 1 with a value of 1 corresponding to 100% adherence. Using PDC and similar metrics, adherence has been defined as >0.8 or 80%. The Centers for Disease Control's (CDC) definition of adherence, which is determined to be a PDC of >80%, will be used for this study.[2]

$$PDC = \frac{\text{Number of days in period covered}}{\text{Number of days in period}}$$

- Pharmacist-led medication education group (PMEG) is offered to adult inpatient psychiatric patients on a weekly basis, and all patients on the less severe unit are encouraged to attend. There have been two previously conducted assessments of the impact of PMEG at Mercy Hospital Springfield. The data from previous studies performed at Mercy Hospital Springfield shows that PMEG led to improvement in patient's perceived understanding about their medications and contributed to reduced readmission rates which was found to be statistically significant.[3,4] However, the question of whether PMEG could improve adherence amongst this population has not been investigated.

## Objectives

### Primary Objective

- To compare 90-day medication adherence rates, using PDC, in psychiatric inpatients who attended PMEG versus those who did not attend PMEG.

### Secondary Objectives

- To assess the rates of PDC >80% in 90 days for patients who attended PMEG versus those who did not attend PMEG.
- To compare baseline characteristics.

## Methods

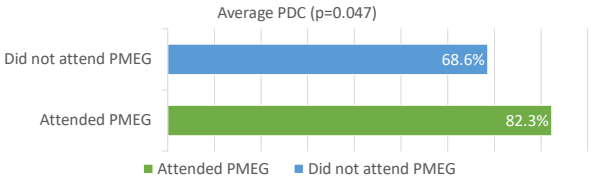
- Mercy Research Institutional Review Board granted approval of this study's protocol.
- Using the electronic health record (EHR) and CyberAccess ℠, adult patients were retrospectively identified as meeting inclusion criteria:
  - Admitted to the psychiatric adult-inpatient unit for which PMEG is available from 08/01/2019-09/30/2020
  - Ages 18 years and older
  - Publicly insured with Missouri Medicaid
  - Received a psychotropic medication
  - Diagnosed with a psychiatric illness based on Diagnostic and Statistical Manual of Mental Disorders-V (DSM-V) criteria
- Exclusion criteria:
  - Available adherence data was less than 3 months after admission
  - Not given the opportunity to attend group
- Data analysis was conducted using the student t-test for adherence rate, chi-square test for meeting adherence, and t-test for baseline characteristics.
- 63 patients per group were needed to meet 80% power in achieving higher medication adherence at an alpha set at 0.05.

## Results


- 373 patients were excluded due to other insurance coverage (n=326) or unavailable adherence data from Missouri Medicaid (n=47).
- The study did not meet power.
- Three patients who have not yet met the 90-day post-discharge date for inclusion in CyberAccess℠ will be reviewed later.

- **Figure 1:** Of the 467 patient charts reviewed, 36 attended PMEG and meet the inclusion criteria and 58 were eligible controls

### Primary Outcome




- **Figure 2:** Patients who attended PMEG had statistically significant higher adherence rates than those who did not.

### Secondary Outcomes

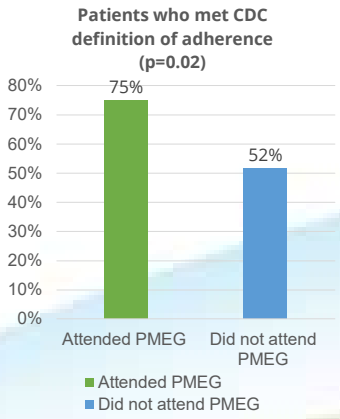



**Table 1: Baseline Characteristics**

| | Attended medication group | Did not attend medication group | P-value |
|---|---|---|---|
| **Gender, total (%)** | | | 0.63 |
| Male | 19 (52.8) | 31 (53.4) | |
| Female | 17 (47.2) | 27 (46.6) | |
| **DSM-V diagnosis, total (%)** | | | |
| Bipolar disorder | 14 (38.8) | 14 (24.1) | 1.00 |
| Major depressive disorder | 8 (22.2) | 15 (25.9) | 0.12 |
| Schizophrenia | 5 (13.9) | 6 (10.3) | 0.76 |
| Substance use disorder | 3 (8.3) | 13 (22.4) | **0.009** |
| Other | 6 (16.7) | 10 (17.2) | 0.30 |
| **Mean number of psychiatric medications per patient** | 4.75 | 3.74 | **0.03** |
| **Mean number of total medications per patient** | 7.72 | 4.67 | 0.51 |
| **Mean number of pills at discharge per day per patient** | 11.5 | 9.07 | **0.001** |
| **Long acting injectables usage, total (%)** | 5 (13.9) | 3 (5) | 0.47 |

- **Figure 3:** A statistically significant greater number of patients who attended PMEG met medication adherence with a PDC of >80% (p=0.02).
- **Table 1**: Substance use disorder showed a statistical difference between groups (p=0.009). Number of psychiatric medications (p=0.03) and pills per day at discharge (p=0.001) was statistically significant for in the group that attended PMEG

## Conclusion

Preliminary results from this study suggests patients who attended PMEG had statistically significant higher adherence rates overall and achieved a PDC greater than 80% in comparison to those who did not attend PMEG. Although the study did not meet power, the adherence outcomes were found to be statistically significant. Further investigation may be warranted to study PMEG's effect on other variables.

## Discussion

- This study indicates that PMEG was statistically significant in improving both adherence rates and meeting adherence as defined by the CDC.
- Patients who are diagnosed with Bipolar disorder were more likely to attend medication group. Patients who are diagnosed with substance use disorder and major depressive disorder were least likely to attend PMEG.
- Limitations:
  - Did not meet power
  - Statistical significance in baseline characteristics could influence PDC scores
  - Potential to not include most severe psychiatric cases
  - Study investigated only patients with Missouri Medicaid
- Future Directions:
  - Assessing medication adherence utilizing other measures such as Medication Possession Ratio (MPR)
  - Assessing medication adherence with greater than 90- day history
  - Including all insurance plans
  - Comparing other disease states such as personality disorders

## Disclosures

The personnel involved in this study have nothing to disclose at this time.

## Contact

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## Resources

1. Rosen O, Friedman R, Rosen B, et al. Medication adherence as a predictor of 30-day hospital readmissions. *Patient Prefer Adherence.* 2017; 11: 801-810.
2. Centers for Disease Control and Prevention. Calculating proportion of days covered (PDC) for antihypertensive and antidiabetic medications: an evaluation guide for grantees. Atlanta, GA: Centers for Disease Control and Prevention, U.S. Department of Health and Human Services; 2015.
3. Norris H, Roberts E, Sterling L, et al. Assessing the impact of pharmacist-led medication group on patient perceived medication understanding on an adult inpatient psychiatric unit. Poster presented at: American Society of Health-System Pharmacists Midyear Annual Meeting; December 2019; Las Vegas, NV.
4. Norris H, Sterling, L. Assessing the impact of pharmacist-led medication group on healthcare utilization outcomes in psychiatric inpatients. Presentation presented at: Midwest Pharmacy Residents Conference; May 2020; Omaha, NE.

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