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May 2015 MRC2.CORP.D.00028

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An Overview of the Brief Adherence Rating Scale (BARS)

May 2015 MRC2.CORP.D.00028

Poor Adherence Associated With Adverse Outcomes

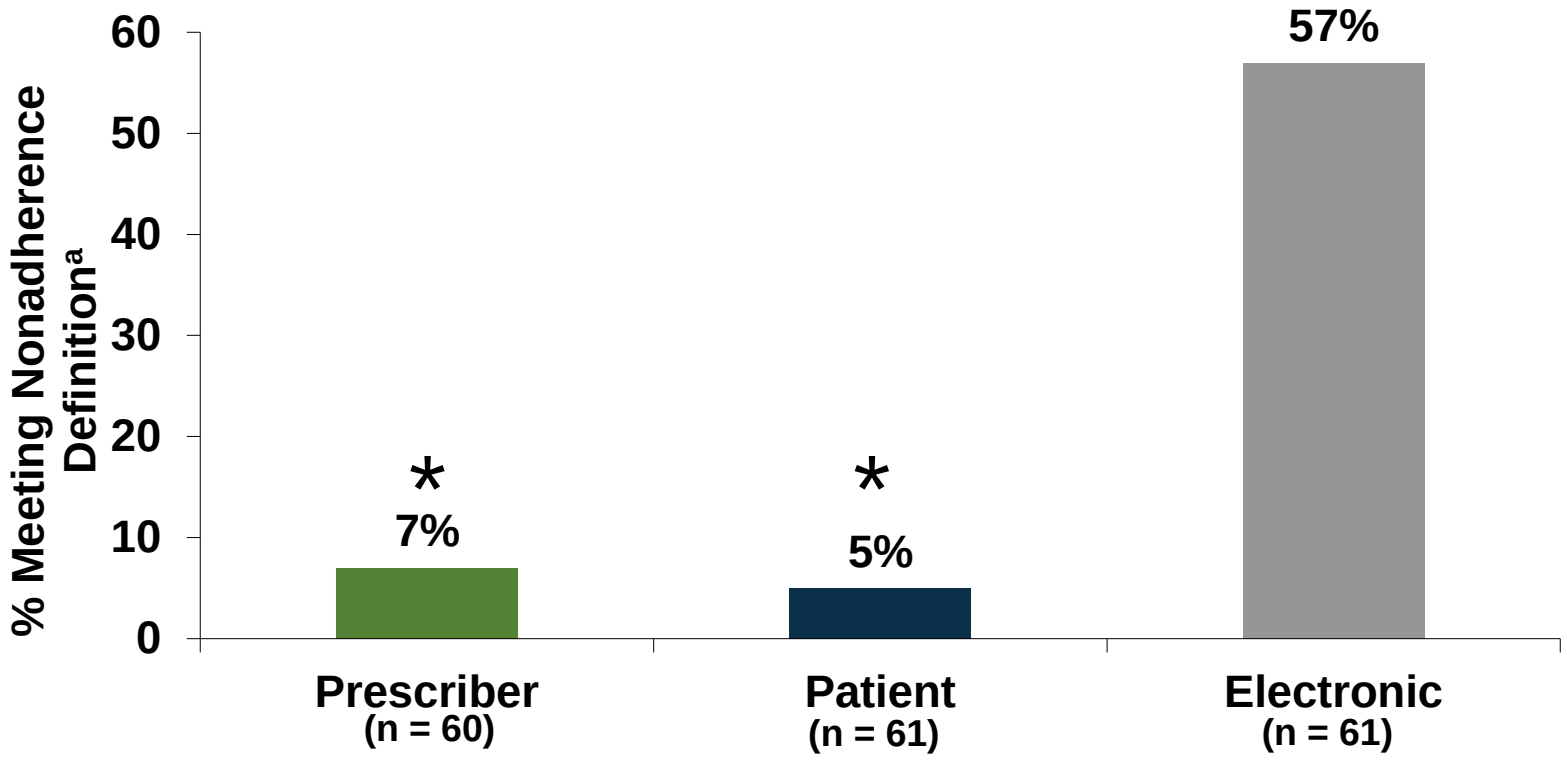
In Patients With Schizophrenia, Poor Adherence to Antipsychotic Medication Can Lead To:

- Partial / no response to treatment[1]
- Increased relapse rates[1]
- Increased hospitalization rates[1]
- Negative impact on functioning and course of illness[1]
- Reduced recovery rates[2]

1. Velligan DI et al. *J Clin Psychiatry*. 2009;70 (suppl 4):1-46; 2. Novick D et al. *Schizophr Res*. 2009;108:223-230.

Inability of Prescribers to Identify Nonadherence in Their Patients

Prescriber-, Patient-, and Electronically-Determined Nonadherence Rates in Outpatients With Schizophrenia and Schizoaffective Disorder



[a]Patients were classified as nonadherent if measured adherence was < 70% for ≥ 2 months during the 6-month study.
***P* < 0.001 vs electronic monitoring.**

Byerly MJ et al. *Psychiatr Serv.* 2007;58(6):844-847.

Prescriber Rating Versus Pharmacy Fill

- Prescriber-reported patient adherence to oral second-generation antipsychotics was compared to adherence rates derived from patients' pharmacy claims in patients with schizophrenia.
- Prescribers rated presumed percent adherence, in deciles (eg, 0% to 10%, 11% to 20%, etc), for the prior 12 months of treatment.
- Adherence, using pharmacy claims, was defined as the medication possession ratio, and it was calculated by dividing the number of days that a patient had medicine available by 365.
- In patients with schizophrenia, 16 of 17 (94%) with low-to-moderate (≤ 70%) adherence were rated as having high (≥ 71%) adherence by prescribers.

Stephenson JJ et al. *Int J Clin Pract*. 2012;66:565-573.

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Approaches to Identifying Nonadherence in Routine Care Settings

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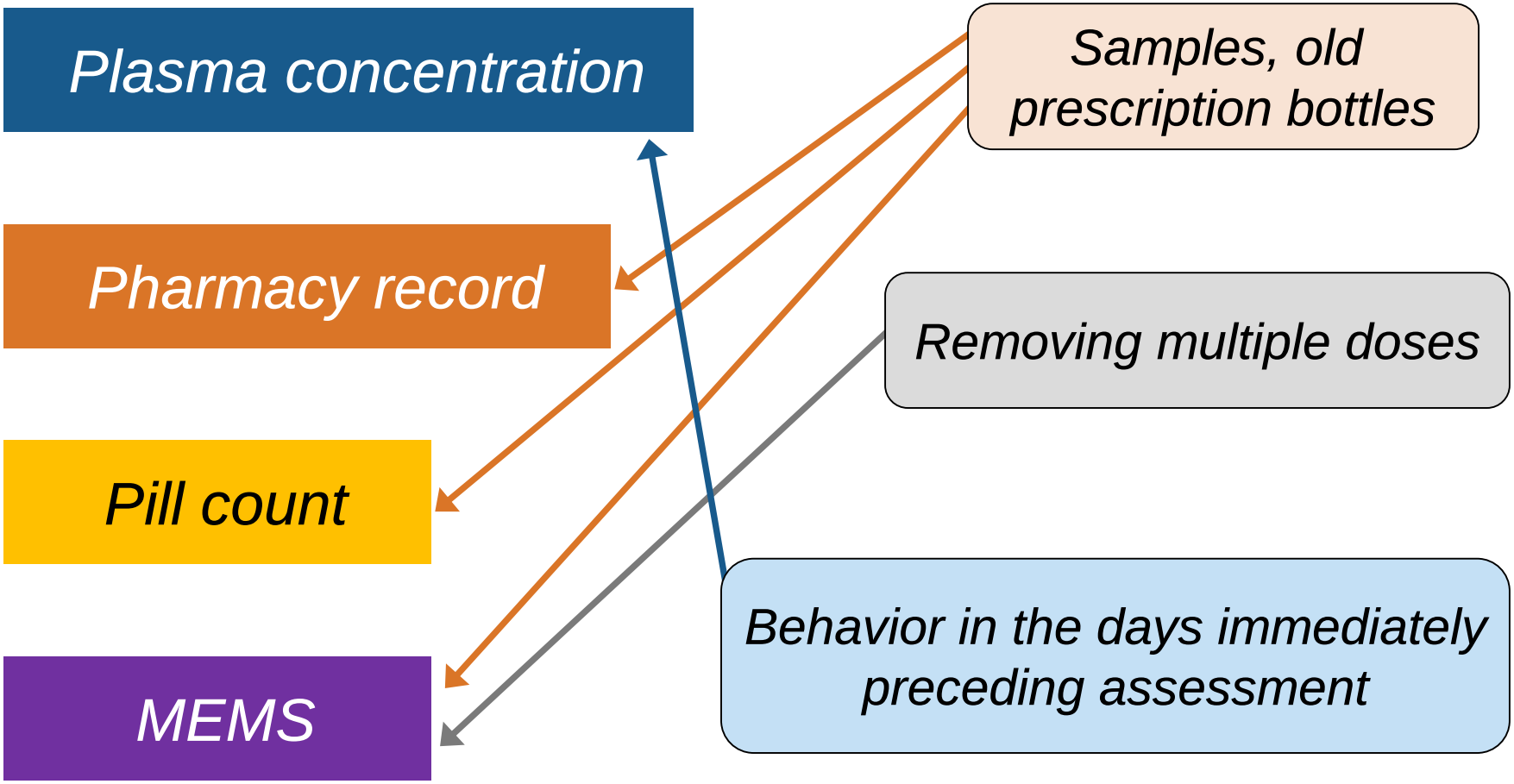
Sources of Error With Adherence Measures



MEMS, electronic monitoring.

Velligan DI, et al. *Schizophr Bull*. 2006;32:724-742.

Best Practices for Monitoring Patient Adherence, Given the Realities of Psychiatric Practice

- Pill counting may be acceptable, but is prone to patient manipulation.
- Conduct formal assessments with a short (requiring just a few minutes) assessment tool that requires limited clinical expertise and rater training, such as the BARS.
- Develop mechanism to notify clinicians when pharmacy claims indicate medication nonadherence or partial adherence to medication in individual patients.
- Clinicians should be reimbursed for their time performing adherence management:
  - This front-end investment could potentially reduce costlier hospitalizations.

Glazer WM and MJ Byerly. *Curr Psychiatry Rep*. 2008;10:359-369.

Expert Consensus Guidelines and Reviews Describe Feasibility and Utility of the BARS

- "…the BARS appears to be a promising candidate for use as a brief adherence assessment in community-based settings."[1]
- "The Brief Adherence Rating Scale (BARS) is a validated and clinically useful tool that is…fast and simple enough to use clinically. It can identify people with significant nonadherence and thus most likely to benefit from available interventions."[2]

1. Velligan DI et al. *J Clin Psychiatry*. 2009;70 (suppl 4):1-46; 2. Stroup TS et al. *World Psychiatry*. 2013;12:236-237.

Pencil-paper Measures of Antipsychotic Medication Adherence in Schizophrenia That Have Demonstrated Agreement With Objective Reference Standards

Measure (author)	Self vs Clinician Rating	Number of items/Time to complete assessment	Validity established in general population of persons with psychotic disorders	Validity established with rigorous adherence reference	Unidimensional structure	Concurrent validity established for symptoms	Sensitivity and specificity established for identifying nonadherence (using objective reference standard)
DAI 10-item (Thompson, 2000)[1]	Self[1]	10 items[1,4]	No (55% with schizophrenia or SAFD; remainder with mood and other psychiatric disorders)[1] Yes (100% with schizophrenia or a schizophrenia-related psychosis)[4]	? (Established with blood level of concurrent mood stabilizers)[1] No (Not correlated with Rx fill records)[2]	No[1]	Yes (PANSS)[4]	Not reported
MARS (Thompson, 2000)[1]	Self[1]	10 items[1]	No (55% with schizophrenia or SAFD; remainder with mood and other psychiatric disorders)[1] Yes (85% schizophrenia, 14% SAFD, 1% delusional disorder)[5]	? (Established with blood level of concurrent mood stabilizers)[1]	No[1] No[5]	Yes (PANSS and BPRS)[5,6]	Not reported
BEMIB (Dolder, 2004)[2]	Self[2]	8 items / < 5 minutes[2]	No [Older patients (mean age = 57); 89% with schizophrenia or SAFD][2]	Yes? Rx fill records[2]	No[2]	Not reported	YES[2]
BARS (Byerly 2008)[3]	Clinician[3]	4 items / < 5 minutes[3]	Yes (100% with schizophrenia or SAFD; mean age = 44)[3]	YES Electronic Monitoring[3]	YES[3]	YES (PANSS)[3]	YES[3]

BARS, Brief Adherence Rating Scale; BEMIB, Brief Evaluation of Medication Influences and Beliefs; BPRS, Brief Psychiatry Rating Scale; DAI, Drug Attitude Inventory; MARS, Medication Adherence Rating Scale; PANSS, Positive and Negative Syndrome Scale.

1. Thompson K et al. *Schiz Res*. 2000;42:241-247; 2. Dolder CR et al. *J Clin Psychopharmacol*. 2004;24:404-409; 3. Byerly MJ, et al. *Schiz Res*. 2008;100:60-69; 4. Nielsen NE et al. *Eur Neuropsychopharm*. 2012;22:747-750; 5. Fialko L et al. *Schiz Res*. 2008;100:53-59; 6. Barbui C et al. *Psychopathology*. 2009;42:311-317.

The Brief Adherence Rating Scale (BARS)

The Brief Adherence Rating Scale (BARS)

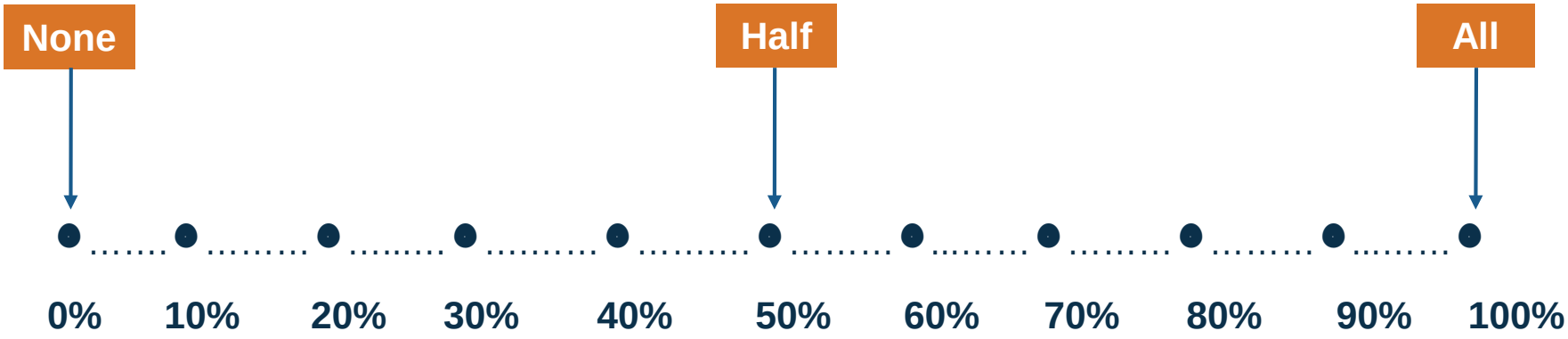
The following information is obtained by the clinician:

1. HOW MANY PILLS OF _____ (name of antipsychotic) DID THE DOCTOR TELL YOU TO TAKE EACH DAY?	
2. OVER THE MONTH SINCE YOUR LAST VISIT WITH ME, ON HOW MANY DAYS DID YOU NOT TAKE YOUR _____ (name of antipsychotic)?	FEW, IF ANY (< 7) 7−13 14−20 MOST (> 20)
3. OVER THE MONTH SINCE YOUR LAST VISIT WITH ME, HOW MANY DAYS DID YOU TAKE LESS THAN THE PRESCRIBED NUMBER OF PILLS OF YOUR _____ (name of antipsychotic)? NOTE: 1 = POOR ADHERENCE 4 = GOOD ADHERENCE	ALWAYS/ALMOST ALWAYS (76−100% OF THE TIME) = 1 USUALLY (51−75% OF THE TIME) = 2 SOMETIMES (26−50% OF THE TIME) = 3 NEVER/ALMOST NEVER (0−25% OF THE TIME) = 4

Velligan DI et al. *J Clin Psychiatry*. 2009;70(Suppl 4):1-46.

The Brief Adherence Rating Scale (BARS)
Continued

Please place a single vertical line on the dotted line below that you believe best describes, out of the prescribed study medication doses, the proportion of doses taken by the patient in the past month.



Response struck on above line (%) = _____

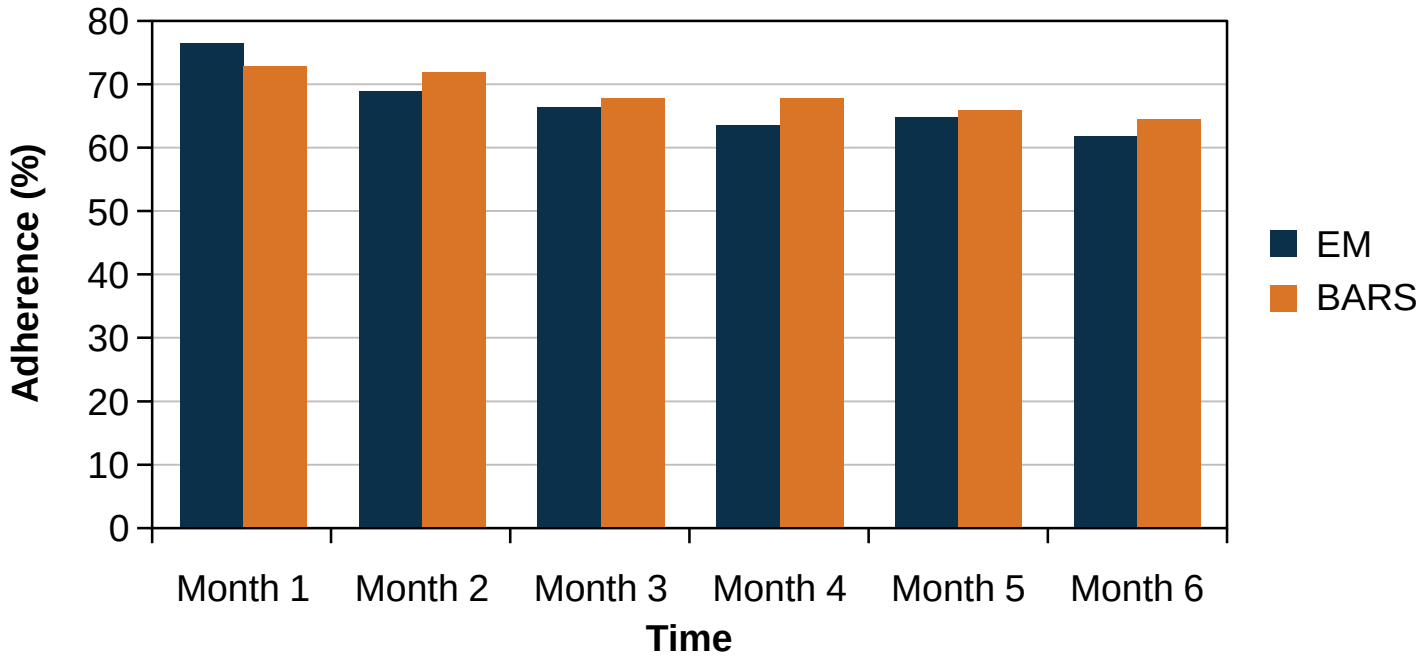
Velligan DI et al. *J Clin Psychiatry*. 2009;70(Suppl 4):1-46.

Validation of the BARS

- Electronic monitoring (EM), BARS adherence, and symptom severity ratings were gathered at baseline and prospectively at 6 monthly visits (n = 61; 35 with schizophrenia and 26 with schizoaffective disorder).
- A significant positive relationship was found between mean BARS and EM adherence ($r_s = 0.59$, $P < 0.0001$)
- Cronbach's coefficient alpha revealed very high internal reliability for the BARS ($\alpha = 0.92$).
- A moderate-to-strong degree of test-retest reliability was also found for the BARS (r_s ranged from 0.46 to 0.86).
- Regarding concurrent validity, greater mean BARS adherence was significantly related to lower mean PANSS total scores ($r_s = -0.39$, $p = 0.002$) and Positive Subscale scores ($r_s = -0.28$, $P = 0.02$).
- An initial 3-month monitoring period with the BARS also demonstrated good sensitivity (73%) and specificity (74%) in identifying nonadherent outpatients (defined as < 70% mean EM adherence).

Byerly MJ et al. *Schiz Res*. 2008;100:60–69.

BARS Versus Electronic Monitoring

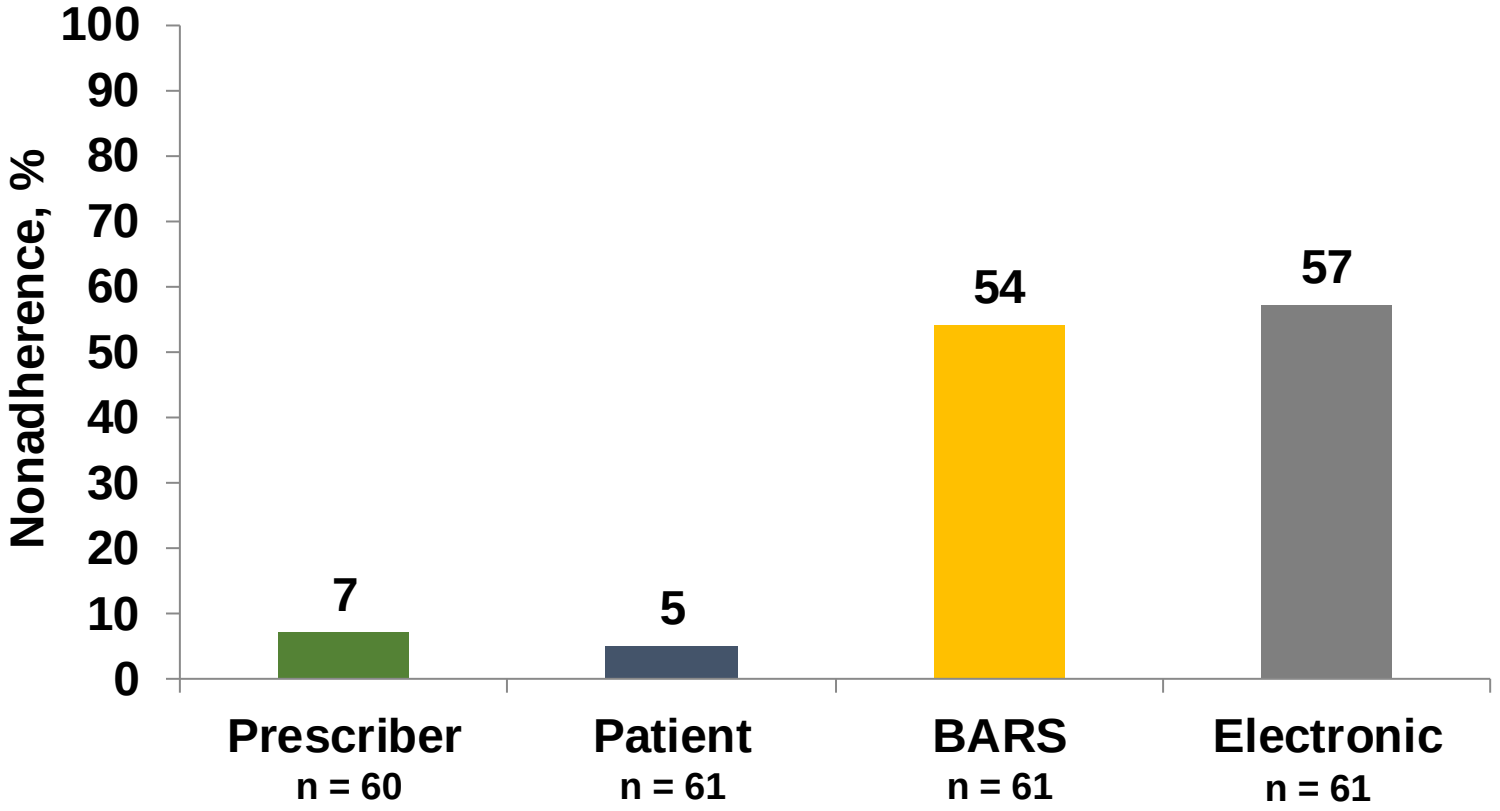


Instrument X Period simple effects for mean level of EM and BARS adherence. The mixed-model repeated-measures analysis revealed no significant instrument effect across the 6 test periods (*P* = 0.61)

Note: Monitoring of oral antipsychotic adherence in outpatients with schizophrenia (n = 35) or schizoaffective disorder (n = 26).

Byerly MJ et al. *Schiz Res*. 2008;100:60-69.

BARS Versus Prescriber, Patient, and Electronic Ratings in Detecting Nonadherence



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Byerly MJ et al. *Psychiatr Serv.* 2007;58:844-847.

Summary

- Nonadherence to antipsychotic medication is associated with serious consequences.[1,2]
- Prescribers greatly underestimate the level of nonadherence in their patients with schizophrenia.[3,4]
- In patients with schizophrenia, the BARS:
  - Is a simple pencil-paper tool that is feasible for use in routine clinical care[3]
  - Could potentially address prescribers' challenge in identifying nonadherence[3]
  - Performs well in assessing adherence compared to the gold standard of electronic monitoring[3]
  - Can identify patients with significant nonadherence who are likely to benefit from adherence interventions[5]

1. Velligan DI et al. *J Clin Psychiatry*. 2009;70 (suppl 4):1-46; 2. Novick D et al. *Schizophr Res*. 2009;108:223-230; 3. Byerly MJ, et al. *Schiz Res.* 2008;100:60-69; 4. Byerly MJ et al. *Psychiatr Serv.* 2007;58(6):844-847; 5. Stroup TS and LB Dixon. *World Psychiatry*. 2013;12:236-237.