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A Brief Self-Report Measure to Assess Antidepressant Adherence among Spanish-Speaking Latinos

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To the Editors:

It is important that researchers and clinicians have a practical tool for assessing antidepressant adherence among Latinos. Although low antidepressant adherence is a fairly common occurrence¹ across a range of racial/ethnic groups, it occurs more commonly among racial/ethnic minorities such as Latinos.² Low antidepressant adherence is concerning given that it complicates depression treatment and may be a source of racial/ethnic disparities in depression treatment outcome. Early discontinuation can increase likelihood of depressive relapse by 77%³ and lead to lower likelihood of achieving full remission, shorter symptom-free periods, and longer time to remission symptoms.⁴ Thus, depression treatment outcomes can be improved by efforts to enhance antidepressant adherence.

The capacity to research and clinically address antidepressant adherence is constricted by the complications of measuring adherence. The most robust adherence measure is perhaps the use of electronic medication container caps, which record the time and date of each bottle opening (e.g., Medication Event Monitoring System [MEMS®]). While providing the most precise data, systems such as MEMS® can increase study and clinical costs and may therefore not always be feasible. Other measures typically used include self-reported discontinuation of medication or dose-taking,² pharmacy refill data,¹ pills counts,⁵ and blood sample analysis.⁵ Each measure for adherence has a different profile of advantages and disadvantages. For example, blood sample analyses place demands on patients and also add to costs. Furthermore, examination of whether an antidepressant was discontinued or refilled provides a limited picture of adherence, as patients may continue their antidepressant but engage in irregular dose-taking.

Dimensional self-report measures of adherence have the advantage of providing more information than what can be obtained from a dichotomous indicator. In addition, they are cost-effective and practical to administer, increasing the likelihood that they will be more frequently included in research studies or clinical practice. Such increased measurement of antidepressant adherence would hold promise for better understanding and managing this common problem. However, self-report measures of adherence have the draw back of being influenced by bias. Given their potential benefits, it is therefore necessary to evaluate the validity of self-report measures of adherence against a well-established criterion, such as an

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electronic medication container. Accordingly, one study examined three methods of antidepressant adherence assessment (4-item self-report questionnaire, blood analysis, pill counts), comparing their performance with the MEMS®.⁵ They found that that blood analyses were impractical due to high rates of patient refusal (39%) and that tablet counts overestimated adherence. The authors reported that the 4-item self-report measure (Self-reported Medication Taking Scale [SMTS])⁶ was practical to administer and demonstrated a sensitivity/specificity of 72.2% and 74.1%, respectively, for detecting nonadherence.

However, in using the SMTS to study antidepressant adherence among Latinos, there may be concerns about the cultural and linguistic appropriateness of this measure, as the SMTS's psychometric properties have not been examined for antidepressant adherence with Spanish-speaking populations. Given that the SMTS is a practical measure that can be easily included in research studies or as part of standard clinical practice, this letter is to present data on the utility of SMTS^{5, 6} for measuring antidepressant adherence among Spanish-Speaking Latinos. Our study capitalizes on a design where the SMTS was administered while MEMS® data was concurrently collected. The MEMS® provides a very suitable criterion by which to examine the SMTS's criterion-related validity, especially in light of recall error and bias concerns. Participants (N = 47) were enrolled in a randomized trial examining an intervention to improve antidepressant adherence. Specifically, participants were receiving outpatient services at a community mental health center (CMHC) and were randomized to receive a motivational adherence intervention or usual care. Given that participants were receiving CMHC usual care, their psychopharmacological treatment was naturalistic and prescriptions therefore varied across individuals. All antidepressants prescribed were: Serotonin-Norepinephrine Reuptake Inhibitors (51.1%), Selective Serotonin Reuptake Inhibitors (44.7%), or Norepinephrine-Dopamine Reuptake Inhibitors (4.3%). Participants were enrolled if they met criteria for major depression or Dysthymia within the prior month to baseline (assessed with the Structured Clinical Interview for DSM-IV [SCID]⁷), were being treated with an antidepressant, self-identified as Latino(a), and were of ages 18 – 65. Exclusions were made if criteria were met for mania or substance-related disorder within the last year (assessed with SCID), were medically unstable, or were pregnant/nursing at the time of the study. Nearly all of the participants were predominantly Spanish-speaking (89.4%). All research procedures were approved by the UMDNJ—Robert Wood Johnson Medical School Institutional Review Board and all participants signed an approved consent form.

This letter presents data generated from the 4-item SMTS and MEMS®. The MEMS® was provided to participants at baseline. The SMTS was made specific to antidepressants by replacing the wording in each item from “medicine/medication” to “antidepressant medicine/medication.” We then generated a Spanish translation of the measure using a forward/backward translation procedure. The Appendix displays the translated SMTS in its entirety, along with endorsement rates for each item (available in the online supplement). Respondents indicated “yes/no” to each dose-taking problem represented by the four SMTS items, yielding a score of 0-4 (higher scores indicate poorer adherence). Our analysis utilized data from the end-point research evaluation, which occurred 5 weeks after baseline. This allowed a comparison of the endpoint (5 week) SMTS with the daily adherence data for that 5-week period (MEMS®). The MEMS® adherence was calculated as the number of days the medication was taken, divided by the total number of days (% of days medication taken).

The percentages of respondents producing different SMTS scores (0-4) were as follows: a) 0=27.7%; b) 1=19.1%; 2=21.3%; 3=21.3%; 4=10.6%. The SMTS was internally consistent ($\alpha = .70$) and demonstrated a moderate negative correlation with MEMS® adherence ($r = -.43$), indicating that more self-reported dose-taking problems were associated with lower

adherence. For each score on the SMTS, the mean MEMS® adherence rate was as follows: a) 0=74.1% (SD=12); b) 1=70.9% (SD=36.59); c) 2=60.2% (SD=30.16); d) 3=44.1% (SD=44.06); and e) 23.4% (SD=39.27). An omnibus test indicated that these means were significantly different ($F=2.80$; $p < .05$).

Next, to maximize comparability between studies, we chose a MEMS® adherence criterion that is commonly used in studies to identify the adherent participants ($\geq 80\%$) and examined different SMTS cutoffs (Table 1).^{5, 8} Using the cutoff proposed by George et al.,⁵ an SMTS score of one or more yielded a sensitivity and specificity of 45% and 85.2%, respectively, for identifying adherent participants. However, improved classification was demonstrated with an SMTS cutoff of two or more. Specifically, endorsing two or more items on the SMTS demonstrated a sensitivity and specificity of 70% and 70.4%, respectively, which amounted to a total classification accuracy of 70.2%. Given that the respondents were in different adherence conditions (i.e., usual care versus motivational intervention) and were receiving different antidepressant prescriptions, a logistic regression examined whether the relationship between the SMTS cutoff of ≥ 2 and MEMS® ($\geq 80\%$) was confounded by receiving the intervention or antidepressant class. Participants with an SMTS score of 2 or more remained 83% less likely to have MEMS® adherence of 80% or more, after adjusting for intervention condition and antidepressant class ($OR=.17$, 95% CI [.04-.77], $p < .05$). The covariates were not significant ($p > .05$).

DISCUSSION

These results provide describe the performance of a brief self-report measure to assess antidepressant adherence among Spanish-speaking Latinos. The SMTS demonstrated acceptable reliability and was statistically and meaningfully related to a robust adherence criterion (MEMS®). With each increase in SMTS score, a corresponding decrease in mean MEMS® adherence was observed. Our sensitivity/specificity analysis showed that an SMTS cutoff of 2 or more was the most appropriate. This finding diverged from that of a previous study and the reason for this is not clear.¹² One explanation would pertain to cultural differences. As a possible example, there may be culturally-influenced differences in a dutious style of reporting adherence problems. The divergent finding may also be related to language differences. However, given that very few English-speaking Latinos participants, our data cannot differentiate whether the divergent findings were more related to language or culture. The diverging findings regarding cutoff could also be related to generalizability problems related to the relatively small samples. For this reason, the current results should be studied further to determine the best SMTS cutoff for case finding.

The SMTS's performance in the current study is noteworthy given how practical and feasible this measure is to administer clinically or in a research protocol. Other more involved methods (pharmacy data, pill counts, and use of the MEMS®) may indeed yield more robust data. However, for the studies that require less involved or less costly assessment of adherence among Spanish-speaking Latinos, the current results show that the SMTS moderately corresponded with MEMS® adherence. In addition, the total classification accuracy of 70.2% appears very similar to the SMTS estimate (73%)⁵ generated for antidepressant adherence with a mostly English-speaking, non-Latino White population in the United Kingdom (personal communication [email-] March 12, 2010).

Given the limited sample size, generalizability is likely limited and future studies should seek to replicate these results. In addition, the current study was limited by the lack of a comparison group (either English speaking Latinos or other racial/ethnic groups) for determining if there are between-group differences with regard to the SMTS's psychometrics.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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REFERENCES

1. Akincigil A, Bowblis JR, Levin C, et al. Adherence to antidepressant treatment among privately insured patients diagnosed with depression. *Med Care*. 2007; 45:363–9. [PubMed: 17496721]
2. Olfson M, Marcus SC, Tedeschi M, et al. Continuity of antidepressant treatment for adults with depression in the United States. *Am J Psychiatry*. 2006; 163:101–8. [PubMed: 16390896]
3. Melfi CA, Chawla AJ, Croghan TW, et al. The effects of adherence to antidepressant treatment guidelines on relapse and recurrence of depression. *Arch Gen Psychiatry*. 1998; 55:1128–32. [PubMed: 9862557]
4. Melartin TK, Rytsala HJ, Leskela US, et al. Continuity is the main challenge in treating major depressive disorder in psychiatric care. *J Clin Psychiatry*. 2005; 66:220–7. [PubMed: 15705008]
5. George CF, Peveler RC, Heiliger S, et al. Compliance with tricyclic antidepressants: the value of four different methods of assessment. *Br J Clin Pharmacol*. 2000; 50:166–71. [PubMed: 10930969]
6. Morisky DE, Green LW, Levine DM. Concurrent and predictive validity of a self-reported measure of medication adherence. *Med Care*. 1986; 24:67–74. [PubMed: 3945130]
7. First, MB.; Spitzer, RL.; Gibbon, M., et al. Structured Clinical Interview for DSM-IV Axis I Disorders. Biometric Research Department, New York State Psychiatric Institute; New York: 1998.
8. Hansen R, Kim MM, Song L, et al. Comparison of methods to assess medication adherence and classify nonadherence. *The Annals of Pharmacotherapy*. 2009; 43:413–22. [PubMed: 19261962]

TABLE 1Sensitivity/specificity of SMTS cutoffs for identifying $\geq 80\%$ MEMS® adherence

	Non-Adherent (MEMS® < 80%)	Adherent (MEMS® $\geq 80\%$)
SMTS 1+ Cutoff		
SMTS=1-4	23 (85.2%)	11 (55%)
SMTS=0	4 (14.8%)	9 (45%)
SMTS 2+ Cutoff		
SMTS=2-4	19 (70.4%)	6 (30%)
SMTS=0-1	8 (29.6%)	14 (70%)

Figures represent frequencies. Percentages reflect the proportion within column.