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Letter

A Unified Framework for Smoking Assessment: The PROMIS Smoking Initiative

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The theoretical constructs that are important to assess in smoking research and clinical practice are well articulated (e.g., nicotine dependence, craving, self-efficacy). However, deciding how to measure these constructs is complicated by the fact that several different scales have been developed to assess each one (see Shadel & Shiffman, 2005), and there is almost no guidance available as to which scale one should choose to assess a specific construct. Most reviews of the smoking assessment literature describe strengths and weaknesses of the scales available to assess a construct but typically stop short of recommending a specific scale (e.g., Shadel & Shiffman, 2005). Findings from the few studies that compare the predictive utility of different scales used to assess particular constructs (e.g., nicotine dependence) are mixed, which complicates efforts to choose scales on purely empirical grounds (e.g., Courvoisier & Etter, 2010; Etter, 2008). In any case, given that the results of assessment are not helpful in selecting more effective smoking cessation treatments (Kassel & Yates, 2002), any effort expended over deciding which scale one should choose, particularly for this purpose, may well be wasted.

Unless the field is going to abandon assessment (which is unrealistic), a fundamentally different approach to assessment is needed. Ideally, this approach would focus on core constructs, utilize a select set of reliable and validated items designed to assess those constructs, make the items widely available, and offer clear guidance as to which items one should select.

PROMIS (Patient-Reported Outcomes Measurement Information System, http://www.nihpromis.org/default.aspx), part of the National Institutes of Health's Roadmap initiative, emerged as a solution to the problem of measurement choice more generally (Cella et al., 2007). PROMIS has as goals to develop, validate, and standardize item banks to measure key constructs (e.g., pain, anxiety, alcohol use) relevant to a range of chronic medical conditions (e.g., cancer, depression, arthritis). PROMIS uses modern measurement theory (item response theory; see Edelen & Reeve, 2007) and advances in computer technology so that (a) all items in the item banks have parameters describing their measurement properties enabling the calculation of reliability for any subset of items within a given bafank, (b) all items within a bank are calibrated with respect to the same underlying scale allowing scores based on different sets of items within the bank to be compared, (c) the existence of item banks means that items can be added and deleted as the understanding of each bank's construct matures over time based on scientific findings, and (d) the comparability of scores within a bank allows for the use of tailored tests and combined with computer-based assessment enables minimization of respondent burden. Measurement advantages (e.g., reduced respondent burden, tailored assessments) coupled with easy accessibility (www.assessmentcenter.net) have resulted in broad uptake of the PROMIS item banks among the behavioral research community.

The *PROMIS Smoking Initiative*, funded through a 5-year grant by National Institute on Drug Abuse to the RAND Corporation (Principal Investigator: ME), has the goal of developing, evaluating, and making widely available a set of item banks that can form the basis for standardized assessment of smoking behavior and the biopsychosocial constructs that can be used to predict smoking outcomes. The PROMIS Smoking Initiative involves several detailed steps and procedures (see Cella et al., 2007 for details of the PROMIS approach) including (a) collecting all the existing scales and items that are used to assess key assessment domains (see Shadel & Shiffman, 2005), (b) reviewing items from all the scales to eliminate redundant and poorly worded items, (c) incorporating feedback from focus groups and cognitive interviews to further refine item wording and format, and (d) analyzing data from large representative samples to evaluate the psychometric properties of the items through factor analysis and item response theory calibration. The item banks that result from this initiative will be included in the larger PROMIS framework and be made widely available to the research community. Detailed descriptions of this work and results from the PROMIS Smoking Initiative will be available in future reports.

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Declaration of Interests

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References

Cella, D., Yount, S., Rothrock, N., Gershon, R., Cook, K., Reeve, B., et al. (2007). The Patient-Reported Outcomes Measurement Information System (PROMIS): Progress of an NIH Roadmap Cooperative Group during its first two years. *Medical Care*, *45*(Suppl. 1), S3–S11. Retrieved from www.journals.lww.com/lww-medicalcare/pages/default.aspx

Courvoisier, D. S., & Etter, J. F. (2010). Comparing the predictive validity of five cigarette dependence questionnaires. *Drug and Alcohol Dependence*, *107*, 128–133. doi:10.1016/j.drugalcdep.2009.09.011

Edelen, M. O., & Reeve, B. (2007). Applying item response theory (IRT) modeling to questionnaire development, evaluation, and refinement. *Quality of Life Research*, *16*, 5–18. doi:10.1007/s11136-007-9220-6

Etter, J. F. (2008). Comparing the validity of the Cigarette Dependence Scale and the Fagerstrom Test for Nicotine Dependence. *Drug and Alcohol Dependence*, *95*, 152–159. doi:10.1016/j.drugalcdep.2008.01.017

Kassel, J., & Yates, M. (2002). Is there a role for assessment in smoking cessation treatment? *Behaviour Research and Therapy*, *40*, 1457–1470. doi:10.1016/S0005-7967(02)00042-6

Shadel, W. G., & Shiffman, S. (2005). Assessment of smoking behavior. In D. M. Donovan & G. A. Marlatt (Eds.), *Assessment of addictive behaviors* (2nd ed., pp. 113–154). New York: Guilford.