

New Computer Based Tool for the Longitudinal Study of Bipolar Disorder

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Abstract

Bipolar disorder is episodic and recurrent with a high degree of inter-individual variation and heterogeneity between patients. Longitudinal studies are an optimal approach to investigating the highly variable course of bipolar disorder, but are expensive and often have a significant amount of missing data. The tools used for daily self-assessment in longitudinal studies of mood disorders are traditionally paper based. This article describes our experience with the development, validation and use of an automated instrument to incorporate technology for long term mood charting. ChronoRecord is software that patients install on a home computer to report mood, medications, sleep, life events, weight and menstrual data. Patients with bipolar disorder showed high acceptance of this computerized approach with 80 of 96 (83%) entering 8662 days of data for a 3-month period during the validation study (mean of 114.7 ± 32.3 SD days). The mean percent of days missing for mood data was $6.1\% \pm 9.3$ SD, equivalent to missing 7.3 day out of the 114.7 days. The widespread acceptance of computer technology by the general public can be leveraged to improve the design of longitudinal studies. Automation of long-term data collection can reduce missing data, eliminate errors associated with data entry, provide ongoing feedback for patients and clinicians and allow the use of interim data for clinical decision support.

Key Words: *Longitudinal studies, methodology, self-reporting, technology*