

Public Abstract

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Title:Analysis of Affective Instability on Ecological Momentary Assessments Data: Successive Difference, Variance Decomposition, and Mean Comparison via Multilevel Modeling

Temporal instability of affect is a defining characteristic of some psychological disorders such as Borderline Personality Disorder and mood cycling disorders. Use of Ecological Momentary Assessments (EMA) enables researchers to directly assess such frequent and extreme fluctuations over time. Two specific operationalizations of such temporal instability are proposed: Mean squared successive differences (MSSD) and probability of acute change (PAC). Additionally, residualizing scores by controlling time effects, such as long-term trend or diurnal effect, at the individual level is useful for identifying artifactual sources of temporal variability due to those time factors. Given that MSSD and PAC are individual differences measures, it is proposed that these measures be analyzed within generalized multilevel models. An illustrative example using EMA data on negative mood for borderline personality disorder (BPD) and major depressive disorder (MDD) groups is presented which shows that MSSD and PAC capture affective instability better than within-person variance, and that negative affect reports of the BPD group demonstrate more temporal instability than the MDD group. Versions of MSSD and PAC which adjust for the differently elapsed time between assessments are also discussed.