A moderator variable approach to control for cohort differences in accelerated longitudinal designs

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Purpose. Accelerated longitudinal designs (ALD) allow studying developmental processes usually spanning many years in a much shorter time frame. The key assumption of ALDs is that individuals from different cohorts (i.e., born in different years) belong to the same population, and thus the populational trajectory can be described by a shared set of parameters. However, participants born in different years may have been exposed to different contextual factors, leading to differences in their developmental patterns. According to previous research, failing to account for such differences will result in unreliable estimates. As a solution to this problem, we propose an extension of the latent change score model in continuous time that captures cohort effects in the context of ALDs. In particular, we focus on cohort differences in the self-feedback parameter.

Method. Through a Monte Carlo study, we examined the performance of the proposed model under different conditions of sample size, sampling schedule, and size of cohort differences.

Results. The proposed model adequately detects and controls for cohort differences in ALDs, regardless of the size of such differences. When the appropriate sampling schedule is selected, the performance of the model is excellent even with sample sizes of 125 individuals.

Discussion. We discuss the most relevant findings, elaborate on the strengths and limitations of our approach, and provide recommendations about the design of longitudinal studies. We encourage researchers to use the proposed model when they expect differences across cohorts in their patterns of change.