

Longitudinal Dynamic Systems Analyses of Biometric Aspects of Adult Cognition

Abstract of talk

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Recent advances in longitudinal structural equation modeling can be used to clarify alternative patterns of growth and change. New innovations permit these analyses to be carried out even when the longitudinal data are partially or largely incomplete, and when the mathematical models are defined in terms of inter-dependent dynamic systems. The questions addressed here include “Are these new analyses any better than the classical approaches?” and “Do these new models have any immediate practical value?” These questions are explored and illustrated using data from three current studies on the biometric impacts of cognitive decline over the adult life-span: (1) A longitudinal analysis of brain structure (lateral ventricle size) and memory changes; (2) A longitudinal biometric-genetic twin analysis of age changes in broad cognitive factors (g_f and g_c); (3) A longitudinal analysis of impacts of the Apo ϵ -4 allele on the course of Alzheimer’s Disease. This presentation concludes with a discussion of future research challenges emerging from this dynamic-biometric perspective on studies of adult cognition.