

Future methodological possibilities using a genetically sensitive multi-group design

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Findings from many behavioural genetic studies utilizing the classical twin design (CTD) suggest that particularly genetic and nonshared environmental effects play a significant role in the development of human personality traits, such as neuroticism and extraversion. This study focused on the benefit and methodological advantage derived from an extension of the classical design by further genetically informative samples on different generational levels. We investigated the sensitivity of behavioural genetic results to variations in modelling assumptions aiming at a greater validity and generalizability of such findings combining data from the German Socioeconomic Panel (SOEP; 2005), including sibling pairs (SIB), mother-child pairs (MoCh) and grandparent-grandchild pairs (GpaGch) with additional twin samples (JeTSSA, BiLSAT, TwinPaw, Infratest; 2009). The resulting dataset of 1.308 pairs contained 202 monozygotic (MZ) and 147 dizygotic twin pairs (DZ), for multi-group analyses along with 419 SIB, 438 MoCh, and 102 GpaGch dyads. This extended design allowed the simultaneous testing of additive and non-additive genetic effects, common and specific environmental effects, as well as the experimental investigation of cultural transmission or specific twin environmental influences on a latent level to control for measurement error.

Our initial analyses for the personality trait neuroticism support the advantage of such an approach. Based on these findings we will compare the results of the CTD with those of the genetically sensitive multi-group design and discuss implications for future research.