M20. TRAIT-SPECIFIC PATTERNS OF COMMON GENETIC FACTORS INFLUENCE SOCIAL-COMMUNICATION DIFFICULTIES AND ADHD SYMPTOMS DURING CHILD AND ADOLESCENT DEVELOPMENT

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Background Attention-Deficit/Hyperactivity Disorder (ADHD)-related symptoms and social-communication difficulties are heritable population-based traits, which are aetiologically interlinked but differ in their genetic continuity with psychiatric illness. The dynamic nature of common genetic factors underlying these behaviours is, however, little understood and genetic overlap with disorder may depend on the age of the assessed phenotype. We therefore investigated for each trait the developmental profile of common genetic influences during a 10-year period spanning childhood and adolescence.

Methods Longitudinally assessed quantitative social-communication difficulties (N≤5,551, Social Communication Disorders Checklist) and ADHD symptoms (N≤5,678, Hyperactive-impulsive/inattentive scale, Strength and Difficulties Questionnaire) were studied in children and adolescents from a UK birth cohort (ALSPAC, 7 to 17 years). Genetic architectures were interrogated with novel multivariate genetic-relationship-matrix structural equation models (GSEM).

Results Using the best fitting GSEM for each trait, common genetic variance throughout development was modelled as a combination of genetic influences arising in childhood and/or early adolescence. Childhood genetic factors for ADHD symptoms were far-reaching into later adolescence (spanning ~7 years). Childhood genetic influences for social-communication difficulties, in contrast, affected behaviour across narrower age gaps (spanning ~3 years), resulting in little overlap between genetic factors acting during early childhood versus later life. These patterns are consistent with previously reported trait-disorder links.

Discussion We identified trait-specific patterns of common genetic factors influencing social-communication difficulties and ADHD symptoms during child and adolescent development. Our findings have relevance for the study of common genetic overlap between these behaviours and psychiatric illness.

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