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TITLE: Associations between ADHD and medical disorders in adulthood: a large-scale genetically informed Swedish register study

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ABSTRACT:
Background: Only a limited number of medical disorders have been thoroughly studied in relation to ADHD, and knowledge is especially lacking for disorders that develop in older ages. This study aimed to map out the phenotypic and aetiologic associations between ADHD and a wide range of medical disorders across adulthood.
Methods: Full- and maternal half-siblings (N=4,288,451 pairs), aged 18-81 years, were identified from Swedish Population Registers and linked to ICD-diagnoses from National Patient Registers. Logistic regression was used to estimate associations between ADHD

and 35 medical disorders (8 disease groups) within-individuals, and across full- and half-siblings. Quantitative genetic modelling was performed to estimate genetic and environmental contributions to the associations with ADHD.

Results: Adults with ADHD had increased risk for most medical disorders (34/35), showing the strongest associations with nervous system (OR=3.27) and respiratory (OR=2.49) disease groups. Significantly (p<0.001) stronger associations were found between full-siblings than half-siblings for nervous system, respiratory, musculoskeletal and metabolic disease groups. Subsequent quantitative genetic modelling showed that these associations with ADHD were largely explained by shared genetic factors, with the exception for nervous system disorders.

Conclusion: Individuals with ADHD are at increased risk for a range of medical disorders, with long-term aspects into adult life. While numerous associations between ADHD and medical disorders were largely driven by genetic factors, others, such as nervous system and ageing disorders were mainly driven by individual-specific environmental factors. This mapping of aetiological sources of covariance can guide future research aiming to identify specific mechanisms that contribute to risk for medical disorders in ADHD.