



Childhood diagnoses of people diagnosed with autism

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People with autism are statistically more likely to have other neuropsychiatric diagnoses than the general population. Presence of comorbidities may contribute to the large variation in the presentation of autism, and in how autism is experienced and how individuals may be best supported in their environment.

A collaborative research project between University of Montréal and University of Copenhagen aimed to investigate patterns of autism comorbidity in the Danish population. Denmark has a publicly financed and administered universal healthcare system and maintains centralized registries of in-patient and out-patient hospital visits, including records of which diagnoses were given at each visit. According to national guidelines, assessment following the suspicion of autism should be performed by teams of specialists that are part of the hospital system and thus record autism diagnoses in the registries. The project utilized these registries to identify individuals diagnosed with autism in childhood or adulthood and investigate which other diagnoses they had been given in childhood.

Among **children diagnosed with autism before the age of 16**, the comorbidity rates of psychosis, affective disorders, anxiety disorders, conduct disorder, eating disorders, obsessive-compulsive disorder, attention-deficit hyperactivity disorder, epilepsy, tic disorders, sleep disorders and intellectual disability were calculated. As expected, comorbidity rates were higher than the prevalence of the same conditions in the general population. Furthermore, there were significant sex differences in

comorbidity rates for most of the investigated conditions. Generally, the sex differences were similar to what is observed in the general population. For example, anxiety and depression were more common in autistic girls than in autistic boys, while ADHD was more common in autistic boys than in autistic girls. However, across all conditions there was a tendency that the sex ratio among those with autism was shifted towards females when compared to the sex ratios in the non-autistic population. In other words, autistic girls had a disproportionately higher risk of comorbidity than what would be expected based on the sex ratios of the non-autistic population. Further research is needed to confirm this finding, and the present results cannot point to the reasons of this potential comorbidity disparity. One possible explanation is that girls are less likely to be referred to assessment for autism, but that the emergence of other conditions increases the likelihood of a psychiatric evaluation whereby autism may also be diagnosed. Alternatively, it could reflect that autism diagnoses are sometimes erroneously given to girls who present with symptoms of other psychiatric conditions. A similar trend has previously been observed among individuals with ADHD, so it is possible that it is a general trend in several developmental conditions.

Although autism is expected to manifest in childhood, there are also individuals who are diagnosed for the first time in adulthood, after presumably having been missed throughout childhood. In a parallel study, **individuals first diagnosed with autism in adulthood**

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Original articles:


Rødgaard, E. M., Jensen, K., Miskowiak, K. W., & Mottron, L. (2021). Autism comorbidities show elevated female-to-male odds ratios and are associated with the age of first autism diagnosis. *Acta Psychiatrica Scandinavica*, 144(5), 475-486.

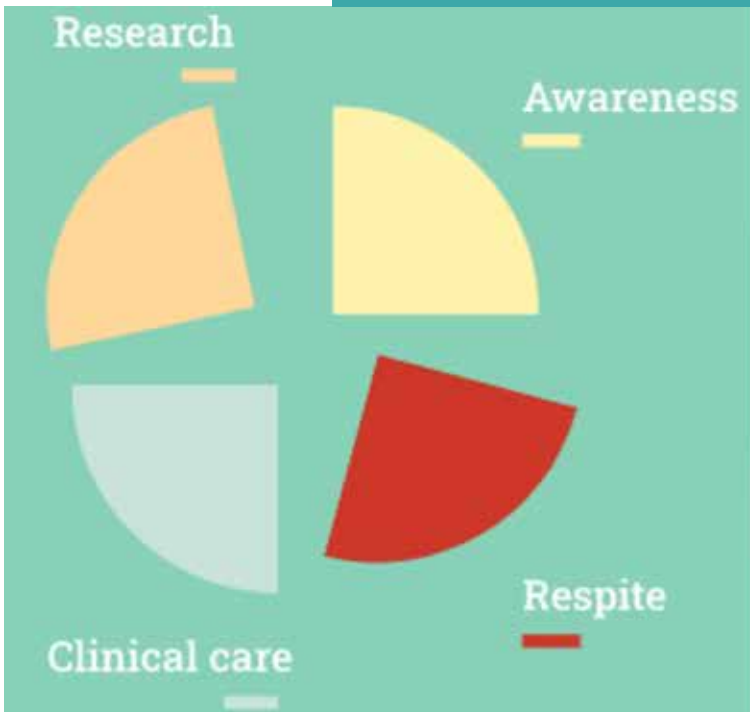
Rødgaard, E. M., Jensen, K., Miskowiak, K. W., & Mottron, L. (2021). Childhood diagnoses in individuals identified as autistics in adulthood. *Molecular Autism*, 12(1), 1-7.

Individuals being diagnosed with autism in adulthood were more often diagnosed with the investigated conditions in childhood, compared to individuals who had no records of any autism diagnoses.

were identified (those who had autism diagnoses registered after the age of 18, but no autism diagnoses registered before the age of 18). The aim was to investigate which problems may have been present in childhood and whether their condition might have been mistaken for another condition with some similar features. It was examined whether they had received any of a set of preselected diagnoses before the age of 18. The diagnoses being investigated were selected because they either often co-occur with autism or share some similar symptoms. Individuals being diagnosed with autism in adulthood were more often diagnosed with the investigated conditions in childhood, compared to individuals who had no records of any autism diagnoses. However, a large fraction of those diagnosed with autism in adulthood (61% of females, 69% of males), were not registered as having received any of the investigated diagnoses in childhood, which is consistent with what has been reported in previous smaller clinic-based studies investigating the medical histories of adults being diagnosed with autism. This could indicate that, for many of those being diagnosed with autism in

adulthood, misdiagnosis in childhood is unlikely to have contributed to delaying the autism diagnosis.

Studies based on population-wide health registries such as those available in Denmark have certain strengths. Data from large numbers of individuals can be analyzed, and no efforts are required for study participants, meaning that biases pertaining to who may or may not choose to participate are eliminated. However, as with all methods there are limitations, and results should be interpreted in the context of other studies using complementary methods. While the Danish health registry contains diagnoses given in the hospital sector, there is no information on diagnoses given by primary physicians or privately practicing psychiatrists. This means that it is not possible to get a full picture of a person's healthcare history, as would be possible with for example an interview or full access to all previous medical records. Comorbidities included in this study are thus likely limited to those with a severity that triggered a referral to a hospital-associated psychiatric department, while milder problems may not have been immediately referred for further psychiatric evaluation. 



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