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# [Commentary] Recognising and Responding to Physical and Mental Health Issues in Neurodivergent Females

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**Funding:** No specific funding was received for this work.

**Potential competing interests:** No potential competing interests to declare.

## Abstract

People experience life and interact with others in many ways. The term 'neurodivergence' refers to variations from what is considered typical or normal. Research and education into neurodivergent conditions in females is essential in informing a reassessment of clinicians' present approach to those who present with multiple unexplained symptoms. Neurodivergence may influence a person's style of communication, learning, attitudes, and behaviour, and they may experience inequity and rejection. A formal diagnosis improves access to support services and helps them and their family better understand themselves and the challenges they face. Neurodivergent females are especially prone to many physical and psychological health issues, and it is essential that clinicians learn to recognise and respond to these. This commentary highlights the relative lack of research into clinical aspects of neurodivergent conditions in females, suggesting how clinicians might increase their awareness to mutual benefit.

## *Explaining neurodiversity and neurodivergence*

The term 'neurodiversity' acknowledges that there are many different ways in which people experience life and interact with others. It was first proposed by Judy Singer, an Australian sociologist, in her PhD thesis to promote equality for and inclusion of "neurological minorities" [1]. The term 'neurodivergence' refers to variations in mental or neurological function from what is considered typical or normal and usually incorporates autism, ADHD and Tourette's syndrome, with increasing evidence of an overlap with dyslexia and dyspraxia [2]. Research and education into neurodivergent conditions is essential in shaping clinicians' approaches to people who may present with a wide range of symptoms.

Neurodivergence may influence a person's style of communication, learning, attitudes, and behaviour, and they may experience social isolation and inequity. As Stenning and Rosqvist highlighted, the focus should be on problems that neurodivergent people have, rather than the problems that they are [3]. A formal diagnosis improves access to social and medical support and helps them and their family understand their challenges and differences. Neurodivergent people in general, and females in particular, are more prone to a wide variety of physical and psychological health issues, and it is important that clinicians learn to recognise and respond to various clinical cues and clues for these.

## *Increasing recognition of the high prevalence of neurodivergence in females*

Traditionally neurodivergence has been diagnosed more commonly among males, but it has become increasingly recognised among females in the last decade [4]. The diagnosis is often made later in females because of their tendency to mask or ‘camouflage’ their differences to reduce the perceived risk of social exclusion [5]. Partially due to this, the pattern of symptoms that they may develop is often also different to that seen in males. Increased sensitivity to a wide variety of sensory and emotional stimuli underlies much of the widespread distress and discomfort perceived by neurodivergent women [6]. This may manifest from an early age as anxiety, hyperfocus and rigidity of thought [7], leading to the later development of distress expressed through both mental and physical signs and symptoms. Difficulty in making and maintaining friendships despite often developing special interests and abilities can lead to low self-image and self-harm [8]. Widespread discomfort and an imbalance in their autonomic regulation may associate with increasing fatigue, even among those with a tendency to hyperactivity [9]. Such presentations often occur in primary care but not infrequently lead to contact with neurology, rheumatology or pain services at a relatively young age, with circulatory, metabolic, and endocrine involvement over time. Adjustment disorders and secondary personality disorders are common features, while associations with eating disorders and gender incongruence are increasingly prevalent and relevant [10].

## *The healthcare needs of neurodivergent females*

A recent review of the literature demonstrated that autistic people were more likely to suffer from many disorders than their neurotypical peers [11]. Adverse childhood experiences can adversely affect health [12] and appear to occur more frequently among autistic females [13]. This may help explain why autistic females access healthcare more than neurotypical females [14][15] and are more likely to require hospital treatment as both outpatients and inpatients [15][16]. A systematic review suggested that hypersensitivity, impaired executive function and communication issues all contributed to autistic females experiencing difficulties with access to medical care [17]. Lack of awareness of these issues by health care professionals accentuated the neglect of their health care needs, leading to poorer outcomes as a result [18].

Whilst virtually every organ system is represented in the list of disorders experienced by neurodivergent people, very little published literature relates specifically to females. However, there is consensus within the limited available data that autistic females are at higher risk than their neurotypical female peers for many disorders and have a higher prevalence of circulatory disorders, asthma, symptomatic hypotension, and diabetes than neurotypical females, despite controlling for risk factors [11]. Data on mortality confirm that autistic females are higher risk of early death than autistic males [19][20][21]. Risks are greater for autistic females than autistic males for most disorders and their health status is generally reduced in comparison [22][23][24][25]. These findings apply across the age spectrum applying to both young autistic individuals [14][16][22][23][24][26], as well as older ones [27]. While some of these observations may be explained by genetic predisposition, especially to circulatory disorders, cancer, and diabetes [28], a further factor may relate to hormonal dysregulation which appears increased among autistic females both prior to birth and in later life [29][30][31][32][33]. This may promote obesity and predispose towards diabetes and circulatory disease [34][35][36].

## Physical health issues in neurodivergent females

These are summarised in Table 1 and discussed here. Neurodivergent people have an increased risk of certain neurological conditions, especially epilepsy and rhythmic movement disorders [37]. Around 20% of autistic children have epilepsy, with the prevalence increasing with age and associated with female gender and intellectual impairment [38]. They may also have an increased prevalence of neurological structural anomalies such as the Chiari malformation [39] which commonly presents with headaches and may cause syncope or collapse due to compression at the foramen magnum. Magnetic resonance imaging of the brain is diagnostic. Other causes of syncope in females may relate to dysfunction of the autonomic nervous system producing postural hypotension and tachycardia (POTS) [40] which is well recognised as being associated with hypermobile joints [41]. Indeed, a range of joint hypermobility syndromes including Ehlers-Danlos (EDS) are now known to be linked to the presence of neurodivergence [42]. Furthermore, most patients with fibromyalgia are female and many exhibit neurodivergent features [43] which may have a familial link [44]. Sleep disturbance and disorders are common and may contribute to fatigue [45]. Other chronic pain syndromes are also over-represented among neurodivergent females, and a disproportionate number of women attending chronic pain clinics carry a diagnosis of autism and / or ADHD [46]. Asztely et al reported chronic pain in 77% of females with a neurodivergent condition who had a mean age of just 27 years [46]. Migraine [47] and irritable bowel syndrome [48] are other common causes of chronic pain among neurodivergent females.

<b>Table 1.</b>
<b>To show the common physical health issues experienced by neurodivergent females</b>
<i>NEUROLOGICAL</i>
Movement disorders
Epilepsy
Headache
Sleep disorder
Cerebrovascular accident (older)
<i>CIRCULATORY</i>
Syncope due to POTS
Raynaud's phenomenon
Hypertension (older)
Hyperlipidaemia (older)
Ischaemic heart disease (older)
<i>MUSCULOSKELETAL</i>
Hypermobility syndromes
Fibromyalgia
Rheumatoid arthritis
Connective tissue disease
Osteoporosis

<i>GASTROINTESTINAL</i>
Inflammatory bowel disease
Gluten sensitive enteropathy
Irritable bowel syndrome
Nutritional deficiency
<i>ENDOCRINE</i>
Autoimmune thyroiditis
Hypercortisolaemia
Type 2 Diabetes (older)
<i>GYNAECOLOGICAL</i>
Polycystic ovary syndrome
Dysmenorrhoea / menorrhagia
Premature menopause
<i>RESPIRATORY</i>
Asthma
Chest infection
<i>DERMATOLOGICAL</i>
Eczema
Hives
<i>OTHERS</i>
Mast cell activation syndrome
Chronic pain syndromes

Intestinal dysbiosis, characterised by profound gut microbiota alterations, is frequent in neurodivergent individuals<sup>[49]</sup>, and offers both potential explanations for the increased prevalence of gastrointestinal symptoms and the possibility of novel therapeutic intervention<sup>[50]</sup>. Gut symptoms may however have more specific causes, especially in neurodivergent females. There is an increase in the prevalence of inflammatory bowel disease<sup>[51]</sup>, especially ulcerative colitis in autistic females<sup>[52]</sup>. Another systematic review showed an association with coeliac disease for both autism and ADHD with a female preponderance<sup>[53][54]</sup>. There is an increased risk of eating disorders, especially of the restrictive intake type, and this is most prevalent among neurodivergent females<sup>[55]</sup>. This can lead to nutritional deficiencies especially of iron and of vitamins B and D. Autistic children have reduced bone mineral density at all skeletal sites compared to controls<sup>[56]</sup>. Low bone density in has also been shown in young people with ADHD and may relate to medication<sup>[57]</sup>. Osteoporosis contributes to a greatly increased risk of fractures at the hip, spine and forearm in both autistic children and adults, again especially in females. The odds ratio for hip fractures in females rises from 8.1 in autistic girls to 24.8 in adult neurodivergent females<sup>[58]</sup>. Multiple potential contributing factors to this greatly increased fracture risk include vitamin D deficiency and restrictive eating disorders<sup>[59]</sup>.

Endocrine disorders are also over-represented among younger neurodivergent females, where there appears to be an increase in auto-immune thyroid disorders<sup>[60]</sup>. Maternal hypothyroidism is believed to contribute to an increased risk of autism in their offspring<sup>[61]</sup>. Other auto-immune disorders are also over-represented in mothers of neurodivergent

females, especially connective tissue disorders such as rheumatoid arthritis (RA) [62] and systemic lupus erythematosus [63][64]. Raynaud's phenomenon can potentially be an early manifestation of a similar tendency in their female offspring, and may be exacerbated by stimulants prescribed for ADHD [65]. Neurodivergent females also report an increased tendency to develop allergies and skin rashes including eczema and hives [66]. They may have an increased prevalence of mast cell activation syndrome, a condition that is attracting greater interest through its links with hypermobility and autism [67]. Perhaps related to this observation is the finding that the prevalence of airways disease, and especially of asthma, is much increased among neurodivergent females [11][68]. A relationship between intestinal dysbiosis and the occurrence of asthma and eczema in children with ADHD has now also been established [69][70]. With increasing age, obesity and diabetes become increasingly evident among autistic females, and females with ADHD [11][71], while hypertension and hyperlipidaemia contribute to the higher levels of cerebrovascular and cardiovascular disease observed in older neurodivergent females [11][71]. The significant reduction in the lifespan of neurodivergent females is likely to be due to a combination of accelerated vascular disease in older autistic females, along with suicide and epilepsy in younger females with autism or ADHD [72].

The challenges of navigating a world where neurodivergent people are the exception rather than the norm poses particular problems for females, who often adopt camouflaging behaviour in an attempt to disguise their difficulties [73]. De Vaan et al. argue that neurodivergent people 'are more susceptible to stress', due to missing 'auditory and visual information [which makes] situations more unpredictable, uncertain, and stressful' [74]. This additional stress may precipitate an enhanced cortisol response in autistic females [75] which may contribute to some of the physical comorbidities of neurodivergent females. Polycystic Ovarian Syndrome (PCOS) is associated with both autism and ADHD [76] and produces hirsutism, elevated adrenal androgens, hypercortisolaemia and insulin resistance, with resulting hyperglycaemia [77]. A clinical trial of pioglitazone and metformin is being undertaken to assess the potential for reversibility in this setting [78]. Cortisol is also associated with inflammatory responses, particularly in the musculoskeletal system, and chronic hypercortisolaemia is associated with increased inflammation [79]. This may help explain the increased rates of EDS and RA among neurodivergent females and might contribute towards the mood disorders and emotional dysregulation often observed in autism and ADHD [80].

Hormonal events are believed to have a large impact on autistic females throughout their lives [81][82][83]. Clinically young autistic females report experiencing higher levels of dysmenorrhoea, menorrhagia, and more intrusive effects of menstruation than their neurotypical peers [84]. The sensory implications of menstruation care can also impact on the mental health and presentation of autistic females [82][83]. Parents report witnessing increased anxiety and emotional difficulties during menstruation, impacting socially and educationally [84]. Research indicates that autistic females and females with ADHD may experience the physical symptoms of menopause over a longer period [81], while also experiencing greater impact from psychological and emotional symptoms such as poor sleep, increased anxiety, impaired recall and concentration [83]. The menopause is known to impact on the mental health of neurotypical females, with greater impact on neurodivergent females who have experienced anxiety and/or depression from a young age [81][83]. Autistic females may also experience more difficulties in reporting their experiences or accessing appropriate support [82]. The effect of hormones from menarche to menopause in neurodivergent females merits further research.

## Mental health issues in neurodivergent females

These are summarised in Table 2 and discussed here. Neurodivergent conditions are highly inheritable<sup>[85]</sup> while brain structure and function appear significantly different in neurodivergent females<sup>[86]</sup>, along with both the peripheral and autonomic nervous systems<sup>[87]</sup>. Therefore, it may not be surprising that mental health problems occur frequently in neurodivergent people and are a particularly common feature in younger females. Environmental factors, especially adverse childhood experiences, may interact with structural changes to produce a wide range of clinical manifestations of disordered mental health in females. Emotional impulsivity is especially common among girls with ADHD<sup>[88]</sup> and may be associated with a variety of undesirable outcomes<sup>[89]</sup>, including self-harm and suicidality<sup>[90][91]</sup>.

<b>Table 2.</b>
<b>To show the common mental health issues experienced by neurodivergent females</b>
Anxiety disorders
Panic attacks
Meltdowns
Depression
Self-harm and suicidality
Addiction and substance abuse
Eating disorders
Body dysmorphia
Gender incongruence
Cluster B and C personality disorders
Bipolar disease
Schizophrenia

Suicide represents a leading cause of early death among neurodivergent females with two-thirds reporting considering suicide at some stage<sup>[92]</sup>, and over half of these planning or attempting it<sup>[19]</sup>. Although completed suicide is more common in men across society generally<sup>[93]</sup>, autistic females without learning difficulty are at higher risk of suicide than autistic males<sup>[19]</sup>, with suicidal ideation often occurring in the absence of clinical depression<sup>[94]</sup>. Neurodivergent females are more likely to succeed in their suicide bid<sup>[95]</sup>, and over 40% of completed female suicides have had a diagnosis of autism or exhibited strong neurodivergent traits<sup>[96]</sup>. Another study reported that over half of females who committed suicide had scored above the diagnostic threshold on the ASQ test<sup>[97]</sup>. Multiple risk factors for completed suicide have been implicated for neurodivergent females, including adverse life events<sup>[98]</sup>, social isolation, impulsivity<sup>[88][99]</sup>, cognitive inflexibility, camouflaging<sup>[100]</sup> and delayed diagnosis<sup>[92]</sup>.

Anxiety disorders are an almost invariable accompaniment of neurodivergence in females, and ADHD is thought to be more strongly associated with anxiety than is autism alone<sup>[101]</sup>. Both autism and ADHD may associate with meltdowns and panic attacks. Depression is also found in 38% of neurodivergent people, although it is as common in adolescent

males as in young females [102]. Dysfunctional coping mechanisms can trigger self-harm [90], substance abuse [103] or eating disorders [104]. Some females with neurodivergence experience body dysmorphia, while gender incongruence is well-recognised among young autistic females [105], both often being associated with higher levels of chronic pain [106]. Working memory is frequently impaired and when combined with alexithymia, this can cause inter-personal conflict and misrepresentation of other people's actions and intentions [89].

Alexithymia is the failure to understand and respond appropriately to emotions [107]. It is associated with neurodivergent conditions [108] and is often misinterpreted as demonstrating a lack of empathy on the part of the sufferer. As females with ADHD especially experience strong emotional impulses [109], alexithymia can be very disabling and may be a major factor in the challenges many neurodivergent females experience with establishing and maintaining social contact with allistics [110]. Ultimately, attempts to camouflage these difficulties in achieving emotional insight can be so exhausting that social isolation often results. Another factor contributing to the loss of inter-personal contact may be rejection sensitive dysphoria (RSD), which has been described as "immense emotional pain from real or perceived failure to meet others' expectations" [111]. This is common to many neurodivergent conditions and may manifest as internal strife, producing low self-esteem, or externally triggering anger or argument. Females with autism and / or ADHD suffer more bullying at school [112] and experience more rejection from a variety of sources [113]. Rejection and the fear of abandonment can become a dominant feature and may ultimately destroy social encounters and relationships [114].

Personality disorders may develop because of disordered resilience and are more common in neurodivergent females [115]. The prevalence of bipolar disorder [116] and schizophrenia [117] are also each significantly increased, although it is important to appreciate that what is sometimes initially thought to be psychotic behaviour may simply reflect the rich inner life of certain autistic women whose imagination can be extremely vivid, and whose state of social withdrawal represents their construction of a self-absorbed inner world of fantasy based on special interests. Other aspects of the mental health of neurodivergent females and their consequences are addressed elsewhere [118].

### *Challenges for the clinician*

The medical profession has generally been slow to appreciate the wide range of differing symptoms that neurodivergent females can develop. This has been compounded by the trend towards increasing medical specialisation, meaning that such patients may have already been referred to multiple different departments. The difficulty many neurodivergent people experience with accurately communicating their feelings and bodily experiences can compound these challenges, as does the frequent lack of any objective signs on physical examination. Previously, this often led to autistic females being described as having psychosomatic illness or those with ADHD as being hard to help. Such terminology is insensitive and outdated.

There are often subtle clues in the way that neurodivergent people present. They are more likely to bring a spokesperson and to avoid eye contact at consultation. They may appear unduly agitated or sometimes disengaged with the process. The frequent overlap in presentations between different specialities emphasises the need for all trainees to have 'common

stem' experience in general medicine. Within a general practice setting, a wider appreciation of the range of common disorders experienced by neurodivergent females is important to acquire. The art of 'learning to listen' remains an essential tool in diagnosis. Neurodivergent people can feel uncomfortable if they are not given enough time to share their concerns, and an open unhurried dialog is more likely to facilitate a diagnosis. However, given the service pressures and time constraints clinicians face, this can be difficult to guarantee. However, if patients are encouraged to share their lived experience, it becomes easier for the clinician to 'join the dots', which may allow the diagnosis of a neurodivergent condition to surface from what may have previously appeared to be a random collection of unrelated symptoms.

However, neurodivergent females may exhibit anxiety or anger in medical consultations, especially if they feel that they are invalidated or not taken seriously. Avoiding conflict with patients who may have fixed ideas and expectations of what they are entitled to receive is as much an art as a science and requires experience and patience. Consistency within clinical contact to ensure continuity of care can help develop trust which neurodivergent people often take time to achieve. Once a diagnosis of a neurodevelopmental condition is made or suspected, it is important to offer access to appropriate multidisciplinary support whilst avoiding unnecessary multiple cross-referral. It is relevant to recognise that the increasing delays to accessing such services at present may trigger a meltdown, panic attack, dissociative episode, or the threat of self-harm.

### *Future priorities*

If we can help society increase insight and understanding into neurodivergence by developing a concept of '*neuroconvergence*', with the aid of non-judgemental language and acceptance of inter-personal differences, the mental and physical health burdens carried by many females with autism, ADHD or related conditions may be diminished. It is essential that all clinicians are aware of the broad range of conditions experienced by neurodivergent females and the wide range of symptoms described by their patients. If we are to become more effective at managing these conditions, breaking down barriers between services for physical and mental health would be a great help. Improving access to eating disorder services and gender identity clinics are important examples, as neurodivergent females are greatly over-represented among those seeking such support. Increasing the evidence base around treatment for people in these situations would facilitate this aim.

Neurodivergent females also account for a high percentage of patients presenting with chronic pain syndromes to pain clinics and rheumatologists. A more comprehensive understanding of what pain means to those with neurodivergence is essential, as this seems to differ from the experience of many neurotypical people. Broadening our concept of pain to include the role of the autonomic nervous system is important as dysautonomia is both common and under-recognised in neurodivergent females and accounts for a significant component of their lived experience of discomfort and dysfunction.

The multiple conditions experienced by many neurodivergent females are influenced by both genetic and environmental factors. A better understanding of the relationship between these influences is essential, although it is important that we appreciate the reasons behind the heightened suspicion and sensitivity expressed by many autistic people over the use of



gene studies in autism<sup>[119]</sup>. However, we suggest that the complexity of polygenic influences on the clinical expression of diseases in autistic females justifies such an approach<sup>[120]</sup>. Further exploration of the reasons behind the physical and psychological hypersensitivity that many neurodivergent females exhibit would be invaluable to improving our insight into this phenomenon. This may allow the relationship between the limbic, endocrine, and immune systems in neurodivergent individuals to be more fully understood. Ultimately, the sense of isolation and alienation experienced by so many neurodivergent females could, and should be addressed, as this plays a significant part in their health-seeking behaviour and support needs.

### *How patients and the public contributed to this article*

Three authors of this paper have direct lived experience of female neurodivergent conditions, and two authors work directly in the provision of health care delivery to females with neurodivergent conditions.

### References

- <sup>^</sup> Singer, J. (1998). *Odd People In: The Birth of Community Amongst People on the “Autistic Spectrum”*: a personal exploration of a New Social Movement based on Neurological Diversity. A thesis presented to the faculty of Humanities and Social Sciences in partial fulfilment of the requirements for the degree of Bachelor of Arts Social Science (Honours), Faculty of Humanities and Social Science, University of Technology, Sydney, 1998.
- <sup>^</sup> Koi, P. (2021) ‘Genetics on the neurodiversity spectrum: Genetic, phenotypic and endophenotypic continua in autism and ADHD’, *Studies in history and philosophy of science. Part A*, 89pp. 52-62. 73
- <sup>^</sup> Anna Stenning & Hanna Bertilsdotter Rosqvist (2021) *Neurodiversity studies: mapping out possibilities of a new critical paradigm*, *Disability & Society*, 36:9, 1532-1537, DOI: 10.1080/09687599.2021.1919503
- <sup>^</sup> Young, S., Adamo, N., Ásgeirsdóttir, B.B. et al. *Females with ADHD: An expert consensus statement taking a lifespan approach providing guidance for the identification and treatment of attention-deficit/ hyperactivity disorder in girls and women*. *BMC Psychiatry* 20, 404 (2020). <https://doi.org/10.1186/s12888-020-02707-9>
- <sup>^</sup> Rynkiewicz A, Schuller B, Marchi E, Piana S, Camurri A, Lassalle A, Baron-Cohen S. An investigation of the ‘female camouflage effect’ in autism using a computerized ADOS-2 and a test of sex/gender differences. *Mol Autism*. 2016 Jan 21;7:10. doi: 10.1186/s13229-016-0073-0. PMID: 26798446; PMCID: PMC4721191.
- <sup>^</sup> Rynkiewicz A, Janas-Kozik M, Słopień A. Girls and women with autism. *Psychiatr Pol*. 2019 Aug 31;53(4):737-752. doi: 10.12740/PP/OnlineFirst/95098. Epub 2019 Aug 31. PMID: 31760407.
- <sup>^</sup> Babinski DE, Kujawa A, Kessel EM, Arfer KB, Klein DN. Sensitivity to peer feedback in young adolescents with symptoms of ADHD: examination of neurophysiological and self-report measures. *J Abnorm Child Psychol*. 2019;47(4):605-617. doi:10.1007/s10802-018-0470-2
- <sup>^</sup> Swanson EN, Owens EB, Hinshaw SP. Pathways to self-harmful behaviors in young women with and without ADHD: A longitudinal examination of mediating factors. *J Child Psychol Psychiatry Allied Discip*. 2014; 55:505-15.
- <sup>^</sup> Edvinsson D, Lindström E, Bingefors K, Lewander T, Ekselius L. Gender differences of axis I and II comorbidity in

- subjects diagnosed with attention-deficit hyperactivity disorder as adults. *Acta Neuropsychiatr.* 2013; 25:165-74.
10. <sup>^</sup>Stepp SD, Burke JD, Hipwell AE, Loeber R. Trajectories of attention deficit hyperactivity disorder and oppositional defiant disorder symptoms as precursors of borderline personality disorder symptoms in adolescent girls. *J Abnorm Child Psychol.* 2012; 40:7-20.
  11. <sup>a, b, c, d, e</sup>Weir, E., Allison, C., Warrier, V., & Baron-Cohen, S. (2021). Increased prevalence of non-communicable physical health conditions among autistic adults. *Autism*, 25(3), 681–694. <https://doi.org/10.1177/1362361320953652>
  12. <sup>^</sup>Rigles B. (2017). The relationship between adverse childhood events, resiliency and health among children with autism. *Journal of Autism and Developmental Disorders*, 47(1), 187–202. <https://doi.org/10.1007/s10803-016-2905-3>
  13. <sup>^</sup>Griffiths S., Allison C., Kenny R., Holt R., Smith P., Baron-Cohen S. (2019). The vulnerability experiences quotient (VEQ): A study of vulnerability, mental health and life satisfaction in autistic adults. *Autism Research: Official Journal of the International Society for Autism Research*, 12, 1516–1528. <https://doi.org/10.17863/CAM.40985>
  14. <sup>a, b</sup>Vohra R., Madhavan S., Sambamoorthi U. (2017). Comorbidity prevalence, healthcare utilization, and expenditures of Medicaid enrolled adults with autism spectrum disorders. *Autism*, 21(8), 995–1009. <https://doi.org/10.1177/1362361316665222>
  15. <sup>a, b</sup>Zerbo O., Qian Y., Ray T., Sidney S., Rich S., Massolo M., Croen L. A. (2018). Health care service utilization and cost among adults with autism spectrum disorders in a U.S. integrated health care system. *Autism in Adulthood*, 1(1), 27–36. <https://doi.org/10.1089/aut.2018.0004>
  16. <sup>a, b</sup>Weiss J. A., Isaacs B., Diepstra H., Wilton A. S., Brown H. K., McGarry C., Lunskey Y. (2018). Health concerns and health service utilization in a population cohort of young adults with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 48(1), 36–44. <https://doi.org/10.1007/s10803-017-3292-0>
  17. <sup>^</sup>Mason D., Ingham B., Urbanowicz A., Michael C., Birtles H., Woodbury-Smith M., et al. (2019). A systematic review of what barriers and facilitators prevent and enable physical healthcare services access for autistic adults. *Journal of Autism and Developmental Disorders*, 49(8), 3387–3400. <https://doi.org/10.1007/s10803-019-04049-2>
  18. <sup>^</sup>Nicolaidis C., Raymaker D., McDonald K., Dern S., Boisclair W. C., Ashkenazy E., Baggs A. (2013). Comparison of healthcare experiences in autistic and non-autistic adults: A cross-sectional online survey facilitated by an academic-community partnership. *Journal of General Internal Medicine*, 28(6), 761–769. <https://doi.org/10.1007/s11606-012-2262-7>
  19. <sup>a, b, c</sup>Hirvikoski T., Mittendorfer-Rutz E., Boman M., Larsson H., Lichtenstein P., Bölte S. (2016). Premature mortality in autism spectrum disorder. *The British Journal of Psychiatry: The Journal of Mental Science*, 208(3 Special Issue: Physical Health Across the Lifespan), 232–238. <https://doi.org/10.1192/bjp.bp.114.160192>
  20. <sup>^</sup>Hwang Y. I., Srasuebkul P., Foley K.-R., Arnold S., Trollor J. N. (2019). Mortality and cause of death of Australians on the autism spectrum. *Autism Research*, 12(5), 806–815. <https://doi.org/10.1002/aur.2086>
  21. <sup>^</sup>Woolfenden S., Sarkozy V., Ridley G., Coory M., Williams K. (2012). A systematic review of two outcomes in autism spectrum disorder—Epilepsy and mortality. *Developmental Medicine & Child Neurology*, 54(4), 306–312. <https://doi.org/10.1111/j.1469-8749.2012.04223.x>
  22. <sup>a, b</sup>Croen L. A., Zerbo O., Qian Y., Massolo M. L., Rich S., Sidney S., Kripke C. (2015). The health status of adults on the autism spectrum. *Autism*, 19(7), 814–823. <https://doi.org/10.1177/1362361315577517>

23. <sup>a, b</sup>Davignon M. N., Qian Y., Massolo M., Croen L. A. (2018). *Psychiatric and medical conditions in transition-aged individuals with ASD*. *Pediatrics*, 141(Suppl. 4), S335–S345. <https://doi.org/10.1542/peds.2016-4300K>
24. <sup>a, b</sup>Fortuna R. J., Robinson L., Smith T. H., Meccarello J., Bullen B., Nobis K., Davidson P. W. (2016). *Health conditions and functional status in adults with autism: A cross-sectional evaluation*. *Journal of General Internal Medicine*, 31(1), 77–84. <https://doi.org/10.1007/s11606-015-3509-x>
25. <sup>^</sup>Rydzewska E., Hughes-McCormack L. A., Gillberg C., Henderson A., MacIntyre C., Rintoul J., Cooper S.-A. (2018). *Prevalence of long-term health conditions in adults with autism: Observational study of a whole country population*. *BMJ Open*, 8(8), e023945. <https://doi.org/10.1136/bmjopen-2018-023945>
26. <sup>^</sup>Kohane I. S., McMurry A., Weber G., MacFadden D., Rappaport L., Kunkel L., Churchill S. (2012). *The co-morbidity burden of children and young adults with autism spectrum disorders*. *PLOS ONE*, 7(4), Article e33224. <https://doi.org/10.1371/journal.pone.0033224>
27. <sup>^</sup>Hand B. N., Angell A. M., Harris L., Carpenter L. A. (2020). *Prevalence of physical and mental health conditions in Medicare-enrolled, autistic older adults*. *Autism*, 24, 755–764. <https://doi.org/10.1177/1362361319890793>
28. <sup>^</sup>Wen Y., Alshikho M. J., Herbert M. R. (2016). *Pathway network analyses for autism reveal multisystem involvement, major overlaps with other diseases and convergence upon MAPK and calcium signaling*. *PLOS ONE*, 11(4), Article e0153329. <https://doi.org/10.1371/journal.pone.0153329>
29. <sup>^</sup>Baron-Cohen S., Tsompanidis A., Auyeung B., Nørgaard-Pedersen B., Hougaard D. M., Abdallah M., Pohl A. (2019). *Foetal oestrogens and autism*. *Molecular Psychiatry*. Advance online publication. <https://doi.org/10.1038/s41380-019-0454-9>
30. <sup>^</sup>Cherskov A., Pohl A., Allison C., Zhang H., Payne R. A., Baron-Cohen S. (2018). *Polycystic ovary syndrome and autism: A test of the prenatal sex steroid theory*. *Translational Psychiatry*, 8(1), 1–10. <https://doi.org/10.1038/s41398-018-0186-7>
31. <sup>^</sup>Pohl A., Cassidy S., Auyeung B., Baron-Cohen S. (2014). *Uncovering steroidopathy in women with autism: A latent class analysis*. *Molecular Autism*, 5(1), 27. <https://doi.org/10.1186/2040-2392-5-27>
32. <sup>^</sup>Ruta L., Ingudomnukul E., Taylor K., Chakrabarti B., Baron-Cohen S. (2011). *Increased serum androstenedione in adults with autism spectrum conditions*. *Psychoneuroendocrinology*, 36(8), 1154–1163. <https://doi.org/10.1016/j.psyneuen.2011.02.007>
33. <sup>^</sup>Schwarz E., Guest P. C., Rahmoune H., Wang L., Levin Y., Ingudomnukul E, Bahn S. (2011). *Sex-specific serum biomarker patterns in adults with Asperger's syndrome*. *Molecular Psychiatry*, 16(12), 1213–1220. <https://doi.org/10.1038/mp.2010.102>
34. <sup>^</sup>Bhupathy P., Haines C. D., Leinwand L. A. (2010). *Influence of sex hormones and phytoestrogens on heart disease in men and women*. *Women's Health (London, England)*, 6(1), 77–95. <https://doi.org/10.2217/whe.09.80>
35. <sup>^</sup>Brand J. S., van der Tweel I., Grobbee D. E., Emmelot-Vonk M. H., van der Schouw Y. T. (2011). *Testosterone, sex hormone-binding globulin and the metabolic syndrome: A systematic review and meta-analysis of observational studies*. *International Journal of Epidemiology*, 40(1), 189–207. <https://doi.org/10.1093/ije/dyq158>
36. <sup>^</sup>Mantovani A., Fucic A. (2014). *Puberty dysregulation and increased risk of disease in adult life: Possible modes of action*. *Reproductive Toxicology*, 44, 15–22. <https://doi.org/10.1016/j.reprotox.2013.06.002>

37. <sup>^</sup> Besag FM. *Epilepsy in patients with autism: links, risks and treatment challenges*. *Neuropsychiatr Dis Treat*. 2017 Dec 18;14:1-10. doi: 10.2147/NDT.S120509. PMID: 29296085; PMCID: PMC5739118
38. <sup>^</sup> Besag FMC, Vasey MJ. *Seizures and Epilepsy in Autism Spectrum Disorder*. *Child Adolesc Psychiatr Clin N Am*. 2020 Jul;29(3):483-500. doi: 10.1016/j.chc.2020.02.002. Epub 2020 Apr 3. PMID: 32471597
39. <sup>^</sup> Jayarao M, Sohl K, Tanaka T. *Chiari malformation I and autism spectrum disorder: an underrecognized coexistence*. *J Neurosurg Pediatr*. 2015 Jan;15(1):96-100. doi: 10.3171/2014.10.PEDS13562. PMID: 25396704.
40. <sup>^</sup> Owens A, Mathias C and Iodice V. *Autonomic Dysfunction in Autism Spectrum Disorder*. *Front. Integr. Neurosci.*, 30 December 2021. Volume 15 - 2021 | <https://doi.org/10.3389/fnint.2021.787037>
41. <sup>^</sup> Eccles, J., Iodice, V., Dowell, N., and Owens, A. (2014). *Joint hypermobility and autonomic hyperactivity: relevance to neurodevelopmental disorders*. *J. Neurol. Neurosurg. Psychiatry* 85:8883. doi: 10.1136/jnnp-2014-308883.9
42. <sup>^</sup> Casanova EL, Baeza-Velasco C, Buchanan CB, Casanova MF. *The relationship between autism and Ehlers-Danlos syndromes/hypermobility spectrum disorders*. *J Pers Med*. 2020; 10:260.
43. <sup>^</sup> Reyero F, Ponce G, Rodriguez-Jimenez R, Fernandez-Dapica P, Taboada D, Martin V, et al. *High frequency of childhood ADHD history in women with fibromyalgia*. *Eur Psychiatry*. 2011;26: 482-3
44. <sup>^</sup> Kelly C, Martin R and Saravanan V. *The links between fibromyalgia, hypermobility and neurodivergence*. *Touch Reviews March 15th 2022* <https://www.touchimmunology.com/fibromyalgia/journal-articles/the-links-between-fibromyalgia-hypermobility-and-neurodivergence/>
45. <sup>^</sup> Philipsen A, Hornyak M, Riemann D. *Sleep and sleep disorders in adults with attention deficit / hyperactivity disorder*. *Sleep Med Rev*. 2006; 10:399-405.
46. <sup>a, b</sup> Asztély K, Kopp S, Gillberg C, Waern M, Bergman S. *Chronic Pain And Health-Related Quality Of Life In Women With Autism And/Or ADHD: A Prospective Longitudinal Study*. *J Pain Res*. 2019;12:2925-2932 <https://doi.org/10.2147/JPR.S212422>
47. <sup>^</sup> Hansen T, Hoeffding L, Kogelman L, et al. *Comorbidity of migraine with ADHD in adults*. *BMC Neurology*. <https://doi.org/10.1186/s12883-018-1149-6>.
48. <sup>^</sup> Drossman D.A. *Functional Gastrointestinal Disorders: History, Pathophysiology, Clinical Features and Rome IV*. *Gastroenterology*. 2016; 150:1262–1279. doi: 10.1053/j.gastro.2016.02.032.
49. <sup>^</sup> Xu M, Xu X, Li J, Li F. *Association Between Gut Microbiota and Autism Spectrum Disorder: A Systematic Review and Meta-Analysis*. *Front Psychiatry*. 2019 Jul 17;10:473. doi: 10.3389/fpsy.2019.00473. PMID: 31404299; PMCID: PMC6673757.
50. <sup>^</sup> Taniya MA, Chung HJ, Al Mamun A, et al. *Role of Gut Microbiome in Autism Spectrum Disorder and Its Therapeutic Regulation*. *Front Cell Infect Microbiol*. 2022 Jul 22;12:915701. doi: 10.3389/fcimb.2022.915701.
51. <sup>^</sup> Lee M, Krishnamurthy J, Susi A, Sullivan C, Gorman GH, Hisle-Gorman E, Erdie-Lalena CR, Nylund CM. *Association of Autism Spectrum Disorders and Inflammatory Bowel Disease*. *J Autism Dev Disord*. 2018 May;48(5):1523-1529. doi: 10.1007/s10803-017-3409-5. PMID: 29170940.
52. <sup>^</sup> Kim JY, Choi MJ, Ha S, et al. *Association between autism spectrum disorder and inflammatory bowel disease: A systematic review and meta-analysis*. *Autism Res*. 2022 Feb;15(2):340-352. doi: 10.1002/aur.2656.
53. <sup>^</sup> Clappison E, Hadjivassiliou M, Zis P. *Psychiatric Manifestations of Coeliac Disease, a Systematic Review and Meta-*

- Analysis. Nutrients. 2020 Jan 4;12(1):142. doi: 10.3390/nu12010142. PMID: 31947912;*
54. <sup>^</sup>Quan J, Panaccione N, Jeong J, Underwood FE, Coward S, Windsor JW, Ronksley PE, Gidrewicz D, deBruyn J, Turner JM, Lebwohl B, Kaplan GG, King JA. Association Between Celiac Disease and Autism Spectrum Disorder: A Systematic Review. *J Pediatr Gastroenterol Nutr.* 2021 May 1;72(5):704-711. doi: 10.1097/MPG.0000000000003051. PMID: 33847288.
  55. <sup>^</sup>Nickel K, Maier S, Endres D, Joos A, Maier V, Tebartz van Elst L, Zeeck A. Systematic Review: Overlap Between Eating, Autism Spectrum, and Attention-Deficit/Hyperactivity Disorder. *Front Psychiatry.* 2019 Oct 10; 10:708. doi: 10.3389/fpsy.2019.00708. PMID: 31649563; PMCID: PMC6796791.
  56. <sup>^</sup>Rostami Haji Abadi, M., Neumeyer, A., Misra, M. et al. Bone health in children and youth with ASD: a systematic review and meta-analysis. *Osteoporos Int* 32, 1679–1691 (2021). <https://doi.org/10.1007/s00198-021-05931-5>
  57. <sup>^</sup>Howard J, Walick K, Rivera J. Evidence of an Association between ADHD Medication and Diminished Bone Health in Children and Adolescents. Abstract 641 presented at 2016 Annual Meeting of the American Academy of Orthopaedic Surgeons, Orlando, Florida.
  58. <sup>^</sup>Neumeyer AM, O'Rourke JA, Massa A, Lee H, Lawson EA, McDougale CJ, Misra M. Brief report: bone fractures in children and adults with autism spectrum disorders. *J Autism Dev Disord.* 2015 Mar;45(3):881-7. doi: 10.1007/s10803-014-2228-1. PMID: 25193141; PMCID: PMC4590779.
  59. <sup>^</sup>Farag F, Sims A, Strudwick K, Carrasco J, Waters A, Ford V, Hopkins J, Whitlingum G, Absoud M, Kelly VB. Avoidant/restrictive food intake disorder and autism spectrum disorder: clinical implications for assessment and management. *Dev Med Child Neurol.* 2022 Feb;64(2):176-182. doi: 10.1111/dmcn.14977. Epub 2021 Aug 17. PMID: 34405406.
  60. <sup>^</sup>Frye RE, Wynne R, Rose S, Slattery J, Delhey L, Tippett M, Kahler SG, Bennuri SC, Melnyk S, Sequeira JM, Quadros EV. Thyroid dysfunction in children with autism spectrum disorder is associated with folate receptor  $\alpha$  autoimmune disorder. *J Neuroendocrinol.* 2017 Mar;29(3). doi: 10.1111/jne.12461. PMID: 28199771.
  61. <sup>^</sup>Rotem RS, Chodick G, Shalev V, et al. Maternal Thyroid Disorders and Risk of Autism Spectrum Disorder in Progeny. *Epidemiology.* 2020 May;31(3):409-417. doi: 10.1097/EDE.0000000000001174.
  62. <sup>^</sup>Sun CK, Cheng YS, Chen IW, Chiu HJ, Chung W, Tzang RF, Fan HY, Lee CW, Hung KC. Impact of parental rheumatoid arthritis on risk of autism spectrum disorders in offspring: A systematic review and meta-analysis. *Front Med (Lausanne).* 2022 Nov 10;9:1052806. doi: 10.3389/fmed.2022.1052806. PMID: 36438039; PMCID: PMC9687371.
  63. <sup>^</sup>Dalsgaard S. More Evidence Linking Autoimmune Diseases to Attention-Deficit/Hyperactivity Disorder. *JAMA Pediatr.* 2021;175(3):e205502. doi:10.1001/jamapediatrics.2020.5502
  64. <sup>^</sup>Li DJ, Tsai CS, Hsiao RC, Chen YL, Yen CF. Associations between Allergic and Autoimmune Diseases with Autism Spectrum Disorder and Attention-Deficit/Hyperactivity Disorder within Families: A Population-Based Cohort Study. *Int J Environ Res Public Health.* 2022 Apr 8;19(8):4503. doi: 10.3390/ijerph19084503. PMID: 35457368; PMCID: PMC9025211.
  65. <sup>^</sup>Umair HM, Sandler RD, Alunno A, Matucci-Cerinic M, Hughes M. Association between central nervous system stimulants used to treat attention deficit hyperactivity disorder (ADHD) and Raynaud's phenomenon: A scoping review. *Semin Arthritis Rheum.* 2021 Dec;51(6):1200-1204. doi: 10.1016/j.semarthrit.2021.09.002. Epub 2021 Sep 16. PMID:

34655948.

66. <sup>^</sup>Chua R, Tay M, Ooi D et al., *Understanding the Link Between Allergy and Neurodevelopmental Disorders: A Current Review of Factors and Mechanisms*. *Front. Neurol.*, 15 February 2021 *Sec. Pediatric Neurology Volume 11 - 2020* | <https://doi.org/10.3389/fneur.2020.603571>
67. <sup>^</sup>Song Y, Lu M, Yuan H, Chen T, Han X. *Mast cell-mediated neuroinflammation may have a role in attention deficit hyperactivity disorder (Review)*. *Exp Ther Med*. 2020 Aug;*20(2):714-726*. doi: 10.3892/etm.2020.8789.
68. <sup>^</sup>Cortese S Sun S Zhang J et al. *Association between attention deficit hyperactivity disorder and asthma: a systematic review and meta-analysis and a Swedish population-based study*. *Lancet Psychiatry*. 2018; (published online July 24.) [http://dx.doi.org/10.1016/S2215-0366\(18\)30224-4](http://dx.doi.org/10.1016/S2215-0366(18)30224-4).
69. <sup>^</sup>Salameh M, Burney Z, Mhaimed N, Laswi I, Yousri N, Bendriss G et al. *The role of gut microbiota in atopic asthma and allergy, implications in the understanding of disease pathogenesis*. *Scand J Immunol*. 2020 Mar; *91(3):e12855*.
70. <sup>^</sup>Loo EXL, Ooi DSQ, Ong M, Ta LDH, Lau HX, Tay MJY, et al. *Associations Between Eczema and Attention Deficit Hyperactivity Disorder Symptoms in Children*. *Front Pediatr*. 2022 Mar *30;10:837741*. doi: 10.3389/fped.2022.837741. PMID: 35433544; PMCID: PMC9007142.
71. <sup>a, b</sup>Gilmore, D.G., Longo, A. & Hand, B.N. *The Association Between Obesity and Key Health or Psychosocial Outcomes Among Autistic Adults: A Systematic Review*. *J Autism Dev Disord* *52*, 4035–4043 (2022). <https://doi.org/10.1007/s10803-021-05275-3>.
72. <sup>^</sup>Catalá-López F, Hutton B, Page MJ, et al. (2022). *Mortality in Persons with Autism Spectrum Disorder or Attention-Deficit/Hyperactivity Disorder: A Systematic Review and Meta-analysis*. *JAMA Pediatr*. <https://doi.org/10.1001/jamapediatrics.2021.6401>
73. <sup>^</sup>Hull, L., Petrides, K.V. & Mandy, W. *The Female Autism Phenotype and Camouflaging: a Narrative Review*. *Rev J Autism Dev Disord* *7*, 306–317 (2020). <https://doi.org/10.1007/s40489-020-00197-9>
74. <sup>^</sup>De Vaan G, Beijers R, Vervloed M, Knoors H, Bloeming-Wolbrink K, de Weerth C, Verhoeven L. *Associations Between Cortisol Stress Levels and Autism Symptoms in People With Sensory and Intellectual Disabilities' Frontiers in Education, Vol.5, 2020*. <https://doi.org/10.3389/feduc.2020.540387>>
75. <sup>^</sup>Spratt, J. Nicholas, J., Brady, K., et al. (2011). *Enhanced cortisol response to stress in children in autism*. *Journal of Autism and Developmental Disorders*. DOI 10.1007/s108033-011—1214-0 75-81.
76. <sup>^</sup>Berni T, Morgan C, Berni E, Rees A. *Polycystic ovary syndrome is associated with adverse mental health and neurodevelopmental outcomes: a retrospective, observational study*. *Endocrine Abstracts* (2017) *50 P353*
77. <sup>^</sup>Sanchez-Garrido MA, Tena-Sempere M. *Metabolic dysfunction in polycystic ovary syndrome: Pathogenic role of androgen excess and potential therapeutic strategies*. *Mol Metab*. 2020 May;*35:100937*. doi: 10.1016/j.molmet.2020.01.001.
78. <sup>^</sup>Bethany Klopfenstein. *Cortisol Regulation in Polycystic Ovary Syndrome*, National Library of Medicine (2019). <https://beta.clinicaltrials.gov/study/NCT00694759?tab=table>>
79. <sup>^</sup>Liu Y-Z, Wang Y-X, Jiang C-L. *Inflammation: The Common Pathway of Stress-Related Diseases'*, *Frontiers in Human Neuroscience*, June 20, 2017. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5476783/>>
80. <sup>^</sup>Oakley B, Loth E, Murphy DG. *Autism and mood disorders*. *Int Rev Psychiatry*. 2021 May;*33(3):280-299*. doi:

- 10.1080/09540261.2021.1872506. Epub 2021 Mar 1. PMID: 33648430.
81. <sup>a, b, c</sup>Duffy O. K., Iversen L., Aucott L., Hannaford P. C. (2013). Factors associated with resilience or vulnerability to hot flushes and night sweats during the menopausal transition. *Menopause*, 20(4), 383–392. <https://doi.org/10.1097/gme.0b013e31827655cf>
82. <sup>a, b, c</sup>Groenman, A. P., Torenvliet, C., Radhoe, T. A., Agelink van Rentergem, J. A., & Geurts, H. M. (2022). Menstruation and menopause in autistic adults: Periods of importance? *Autism*, 26(6), 1563–1572. <https://doi.org/10.1177/13623613211059721>
83. <sup>a, b, c, d</sup>Moseley RL, Druce T, Turner-Cobb JM. 'When my autism broke': A qualitative study spotlighting autistic voices on menopause. *Autism*. 2020 Aug;24(6):1423-1437. doi: 10.1177/1362361319901184. Epub 2020 Jan 31. PMID: 32003226; PMCID: PMC7376624
84. <sup>a, b</sup>Steward, R., Crane, L., Roy, E., Remington, A., Pellicano, E. (2018). "Life is Much More Difficult to Manage During Periods": Autistic Experiences of Menstruation. *Journal of Autism and Developmental Disorders*, 48(12), 4287-4292.
85. <sup>^</sup>Demontis, D., Walters, R.K., Martin, J. et al. Discovery of the first genome-wide significant risk loci for attention deficit/hyperactivity disorder. *Nat Genet* 51, 63–75 (2019). <https://doi.org/10.1038/s41588-018-0269-7>
86. <sup>^</sup>Hoogman M, Bralten J, Hibar DP, Mennes M, Zwiers MP, Schweren LSJ et al. (2017) Subcortical brain volume differences in participants with attention deficit hyperactivity disorder in children and adults: a cross-sectional mega-analysis. *Lancet Psychiatry* 4:310-319. [https://doi.org/10.1016/S2215-0366\(17\)30049-4](https://doi.org/10.1016/S2215-0366(17)30049-4)
87. <sup>^</sup>Bellato A, Arora I, Hollis C, Groom MJ. Is autonomic nervous system function atypical in attention deficit hyperactivity disorder (ADHD)? A systematic review of the evidence. *Neurosci Biobehav Rev*. 2020 Jan; 108:182-206. doi: 10.1016/j.neubiorev.2019.11.001. Epub 2019 Nov 10. PMID: 31722229.
88. <sup>a, b</sup>Barkley RA, Fischer M. The unique contribution of emotional impulsiveness to impairment in major life activities in hyperactive children as adults. *J Am Acad Child Adolesc Psychiatry*. 2010; 49:503-13 <https://doi.org/10.1016/j.jaac.2010.01.019>.
89. <sup>a, b</sup>Young S, Heptinstall E, Sonuga-Barke EJS, Chadwick O, Taylor E. The adolescent outcome of hyperactive girls: Self-report of psychosocial status. *J Child Psychol Psychiatry Allied Discip*. 2005; 46:255-62.
90. <sup>a, b</sup>Swanson EN, Owens EB, Hinshaw SP. Pathways to self-harmful behaviors in young women with and without ADHD: A longitudinal examination of mediating factors. *J Child Psychol Psychiatry Allied Discip*. 2014; 55:505-15.
91. <sup>^</sup>Veenstra-VanderWeele J. Recognizing the Problem of Suicidality in Autism Spectrum Disorder. *J American Acad of Child and Adolescent Psychiatry EDITORIAL| VOLUME 57, ISSUE 5, P302-303, MAY 2018*.
92. <sup>a, b</sup>Cassidy, S, Bradley, P, Robinson, J, Allison, C, McHugh, M, Baron-Cohen, S. Suicidal ideation and suicide plans or attempts in adults with Asperger's syndrome attending a specialist diagnostic clinic: a clinical cohort study. *Lancet Psychiatry* 2014; 1: 142–7. [CrossRefGoogle ScholarPubMed](https://doi.org/10.1016/S2053-2554(14)00019-4)
93. <sup>^</sup>Coope, C, Gunnell, D, Hollingworth, W et al. Suicide and the 2008 economic recession: who is most at risk? *Trends in suicide rates in England and Wales 2001–2011*. *Soc Sci Med*. 2014; 117: 76-85
94. <sup>^</sup>Cassidy, S, Bradley, P, Robinson, J, Allison, C, McHugh, M, Baron-Cohen, S. Suicidal ideation and suicide plans or attempts in adults with Asperger's syndrome attending a specialist diagnostic clinic: a clinical cohort study. *Lancet Psychiatry*. 2014; 1: 142-147

95. <sup>^</sup> Cassidy, S. *Suicidality and self-harm in autism spectrum conditions*. In *Oxford Handbook of Autism and Co-Occurring Psychiatric Conditions* (eds White, S, Maddox, B, Mazefsky, C): 349–68. Oxford University Press, 2020. [Google Scholar](#)
96. <sup>^</sup> Cassidy, S, Au-Yeung, S, Robertson, A et. Al. (2022) *Autism and autistic traits in those who died by suicide in England*. *The British Journal of Psychiatry*, 221 (5) 683-691
97. <sup>^</sup> Richards, G, Kenny, R, Griffiths, S, Allison, C, Mosse, D, Holt, R, et al. *Autistic traits in adults who have attempted suicide*. *Mol Autism* 2019; 10: 26. [CrossRef](#) [Google Scholar](#) [PubMed](#)
98. <sup>^</sup> Griffiths, S, Allison, C, Kenny, R, Holt, R, Smith, P, Baron-Cohen, S. *The vulnerability experiences quotient (VEQ): a study of vulnerability, mental health and life satisfaction in autistic adults*. *Autism Res* 2019; 12: 1516–28. [CrossRef](#) [Google Scholar](#) [PubMed](#)
99. <sup>^</sup> Cassidy, SA, Bradley, L, Cogger-Ward, H, Shaw, R, Bowen, E, Glod, M, et al. *Measurement properties of the suicidal behaviour questionnaire-revised in autistic adults*. *J Autism Dev Disord* 2020; 50: 3477–88. [CrossRef](#) [Google Scholar](#) [PubMed](#)
100. <sup>^</sup> Cassidy, SA, Gould, K, Townsend, E, Pelton, M, Robertson, AE, Rodgers J. *Is Camouflaging Autistic Traits Associated with Suicidal Thoughts and Behaviours? Expanding the Interpersonal Psychological Theory of Suicide in an Undergraduate Student Sample*. *J Autism Dev Disord*. 2020 Oct;50(10):3638-3648. doi: 10.1007/s10803-019-04323-3. PMID: 31820344; PMCID: PMC7502035.
101. <sup>^</sup> Hargitai, L.D., Livingston, L.A., Waldren, L.H. et al. *Attention-deficit hyperactivity disorder traits are a more important predictor of internalising problems than autistic traits*. *Sci Rep* 13, 31 (2023). <https://doi.org/10.1038/s41598-022-26350-4>
102. <sup>^</sup> Accardo, A.L., Pontes, N.M.H. & Pontes, M.C.F. *Heightened Anxiety and Depression Among Autistic Adolescents with ADHD: Findings From the National Survey of Children’s Health 2016–2019*. *J Autism Dev Disord* (2022). <https://doi.org/10.1007/s10803-022-05803-9>
103. <sup>^</sup> Quinn PO, Madhoo M. *A review of attention-deficit/hyperactivity disorder in women and girls: uncovering this hidden diagnosis*. *Prim Care Companion CNS Disord*. 2014;16 <https://doi.org/10.4088/PCC.13r01596>.
104. <sup>^</sup> Kaisari P, Dourish CT, Higgs S. *Attention deficit hyperactivity disorder (ADHD) and disordered eating behaviour: a systematic review and a framework for future research*. *Clin Psychol Rev* (2017) 53:109-21. doi:10.1016/j.cpr.2017.03.002
105. <sup>^</sup> Warriar V, Greenberg DM, Weir E, Buckingham C, Smith P, Lai MC, Allison C, Baron-Cohen S. *Elevated rates of autism, other neurodevelopmental and psychiatric diagnoses, and autistic traits in transgender and gender-diverse individuals*. *Nat Commun*. 2020 Aug 7;11(1):3959. doi: 10.1038/s41467-020-17794-1. PMID: 32770077; PMCID: PMC7415151.
106. <sup>^</sup> Ryan L, Thomson E, Beer H, Philcox E, Kelly C. *Autistic traits correlate with chronic musculoskeletal pain: a self-selected population survey*. *OBM Neurobiology* 2023, Volume 7, Issue 1, doi:10.21926/obm.neurobiol.2301155 16 February 2023;
107. <sup>^</sup> Shah P, Hall R, Catmur C, Bird G. *Alexithymia, not autism, is associated with impaired interoception*. *Cortex*, Volume 81, 2016, Pages 215-220, ISSN 0010-9452. <https://doi.org/10.1016/j.cortex.2016.03.021>.



108. <sup>^</sup>Blader JC. *Attention-Deficit Hyperactivity Disorder and the Dysregulation of Emotion Generation and Emotional Expression. Child and Adolescent Psychiatric Clinics of North America. 2021 Vol 30, issue 2: pages 349-360.*
109. <sup>^</sup>Skirrow C, Asherson P. *Emotional lability, comorbidity and impairment in adults with attention-deficit hyperactivity disorder. Journal of Affective Disorders, (2013);147 (1-3):80-6 <https://pubmed.ncbi.nlm.nih.gov/23218897/>*
110. <sup>^</sup>Surman CB, Biederman J, Spencer T, Miller CA, McDermott KM, Faraone SV. *Understanding deficient emotional self-regulation in adults with attention deficit hyperactivity disorder: a controlled study. Attention Deficit Hyperactivity Disorders 2013;5(3):273–81. <https://pubmed.ncbi.nlm.nih.gov/23413201/>*
111. <sup>^</sup>Bedrossian, L. (2021), *Understand and address complexities of rejection sensitive dysphoria in students with ADHD. Disability Compliance for Higher Education, 26: 4-4. <https://doi.org/10.1002/dhe.31047>*
112. <sup>^</sup>Wiener, J. and Mak, M. (2009), *Peer victimization in children with Attention-Deficit/Hyperactivity Disorder. Psychol. Schs., 46: 116-131. <https://doi.org/10.1002/pits.20358>*
113. <sup>^</sup>Plantin Ewe, L (2019) *ADHD symptoms and the teacher–student relationship: a systematic literature review, Emotional and Behavioural Difficulties, 24:2, 136-155, DOI: 10.1080/13632752.2019.1597562*
114. <sup>^</sup>Faraone SV, Rostain A, Blader J, et al. *Practitioner Review: Emotional dysregulation in attention deficit hyperactivity disorder – implications for clinical recognition and interventions. Journal of Child Psychology and Psychiatry (2019) 60(2): 133-150.*
115. <sup>^</sup>Matthies S, Philipsen A. *Comorbidity of Personality Disorders and Adult Attention Deficit Hyperactivity Disorder (ADHD): Review of Recent Findings. Curr Psychiatry Rep. 2016;18:1-7.*
116. <sup>^</sup>Dunalska A, Rzesutek M, Dębowska Z, Bryńska A. *Comorbidity of bipolar disorder and autism spectrum disorder - review paper. Psychiatr Pol. 2021 Dec 31;55(6):1421-1431. English, Polish. doi: 10.12740/PP/OnlineFirst/122350. Epub 2021 Dec 31. PMID: 35472236.*
117. <sup>^</sup>Pina-Camacho, L., Parellada, M., & Kyriakopoulos, M. (2016). *Autism spectrum disorder and schizophrenia: Boundaries and uncertainties. BJPsych Advances, 22(5), 316-324. doi:10.1192/apt.bp.115.014720*
118. <sup>^</sup>Kelly CA, Kelly CM, Gullon-Scott F, Taylor R. *The neuropsychiatric and social consequences of female ADHD. Preprint: Neuropsychiatric and Social Consequences of Attention Deficit Hyperactivity Disorder in Females - Article (Preprint v8) by Clive Kelly et al. | Qeios*
119. <sup>^</sup>Heini Natri. *Spectrum 10K and The Questionable Past, Present, and Future of Genetic Autism Research. November 2021. ResearchGate preprint DOI: 10.13140/RG.2.2.14973.28642*
120. <sup>^</sup>Warrier, V., Zhang, X., Reed, P. et al. *Genetic correlates of phenotypic heterogeneity in autism. Nat Genet 54, 1293–1304 (2022). <https://doi.org/10.1038/s41588-022-01072-5>*