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Eating problems in childhood and the overlap with the autism spectrum disorders

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A decorative graphic consisting of a grey arc and a red line crossing it, positioned at the bottom of the slide.

The autism spectrum disorders

- The autism spectrum disorders encompass developmental problems in two areas, social communication and interaction, and behavioural flexibility.
- Eating disturbances were included among the early descriptions of autism.
- Asperger 1944; Ritvo, Freeman 1978



Abnormal eating behaviours in autism spectrum disorders

- Even though they are not included in the diagnostic DSM-criteria, eating problems are clinically important associated features in many cases of autism spectrum disorder
- Abnormal eating behaviours are overrepresented in autism at all ages and at all cognitive levels.
- Almost all (90%) children with autism had problems (parent reported) at mealtime

DeMeyer 1979

A controlled study of eating habits in autism spectrum disorders

- Children (N=138) with autism spectrum disorders had significantly more parent-reported eating problems than typically developing children
- refused food
- required specific utensils or particular food presentations
- ate only pureed or low textured foods
- accepted only a narrow variety of foods

Schreck et al 2004

Infants with autism

- Difficulties in breast feeding but also in bottle feeding
 - Poor suck
 - Stiff posture
 - Refusal to take the breast
 - Low drive to eat, a baby who seems to be sleeping more than other infants

Rumination

- Rumination, the repetitive regurgitation and re-swallowing of gastric contents
- Reported in all ages and at all levels of cognitive functioning
- Childhood rumination predate the development of bulimia nervosa in women
- Complications: gastric acids erodes the teeth, weight loss or stunted weight gain in children
- Treatments include change of diet, sensory-based intervention, socially-based intervention
- Luiselli et al 1994; Parry-Jones 1994; Eckern et al 1999, Grewal, Fitzgerald 2002; Lang et al 2011

PICA

- In pica, or eating inedible non-food things, the individual may have a preference for mouthing or chewing e.g. earth, paper, bottle caps, or parts of plants
- It seems to be rare in children with autism living in community settings
- Potentially dangerous and not easy to treat
- Pica may result in gastrointestinal problems or poisoning with heavy metals
- Kinnell 1985; O'Brian, Whitehouse 1990 Raiten, Massaro 1986; Shannon, Graef 1996; Geier, Geier 2006; Soden et al 2007

PICA

- Non-food items might be mouthed for oral stimulation
- The individual with pica might be bored, anxious, or even depressed
- Medication can reduce pica behaviours, but should be used together with stress alleviation, and positive reinforcement; snacks, increased activation, and praise and attention

Smith 1987; Piazza et al. 1996, 1998

Selective eating in typically developing children

- Selective eating or picky or faddy eating is a transient problem in over 10% of all toddlers.
- 34 % of German school children had parent-reported selective eating without weight loss (age 5 to 7; response rate 84% (N=1090)).

Nicholls et al 2011; Equit et al 2013



Selective eating

- Range of 10 foods or fewer
 - Type - food of a special colour or brand or consistence - texture
- A normal range of foods for age has never been eaten
- Persists after the age of 7
- No pre-occupations regarding shape/weight
- No physical illness sufficient to account for food avoidance
- Most boys

Nicholls et al 2001

Selective eating in autism

- Selective eating in over 50% of children with autism.
- In children with autism spectrum disorder combined with a normal intellectual level selective eating is the most common eating problem.
- Selective eating in autism is very persistent, is resistant to treatment, and can have detrimental effects on nutrition and general wellbeing.

Ahearn et al 2001; Bandini et al 2010; Williams et al 2010

Food neophobia

- In the general population:
- High levels of general neophobia have been linked to low levels of sensation seeking

Galloway et al 2003

- Food neophobia - a highly heritable trait in a large twin study in the United Kingdom [Cooke et al 2007](#)
- In accordance with a general fear of anything new, avoidance of all new foods, a trait termed food neophobia, is common in autism

Gluten- and casein-free diets in autism spectrum disorders

- In children with autism spectrum disorders a high rate of gastrointestinal symptoms are reported (compared to peers), in most cases with no known medical causes Levy et al 2007

- Gluten- and casein-free diets for ASD

- Wide-spread use

- Lack of evidence

Millward, Ferriter, Calver, Connell-Jones Cochrane Database Syst Rev. 2008 Apr 16;(2):CD003498.
Review

Overweight

- In a prospective study in the UK, despite abnormal feeding habits and a narrow food repertoire in the autism spectrum disorders group (N=79), BMI did not differ from that of 12,901 controls at ages 18 months and 7 years.
- A study of BMI from 46,707 subjects aged 10-17 years collected by the National Survey of Children's Health (NSCH-2003), found the prevalence of obesity to be 12.2% compared to 23.4% in autism.
- [Emond et al 2010; Chen et al 2010](#)

Overweight

- In adolescents with autism spectrum disorders in a tertiary care clinic in Boston, US, overweight was significantly more common compared to a group with attention problems and to an age-matched reference population

Curtin et al 2005

- Overweight and obesity are common in autism spectrum disorders, seemingly not in small children, but increasingly prevalent from school age

Restrictive eating and low weight in children

- Restrictive eating disorders in children 5 to 12 yrs of age:
- In UK - incidence of 3.01/100 000 person-years
- 20% restrictive eating and underweight without weight/shape concerns.
- Nicholls et al 2011
- In Canada - 2.6 cases per 100 000 person-years.
- 9.4 cases per 100 000 person-years found in girls aged 10 to 12 years (1.3 for boys).
- Pinhas et al 2011

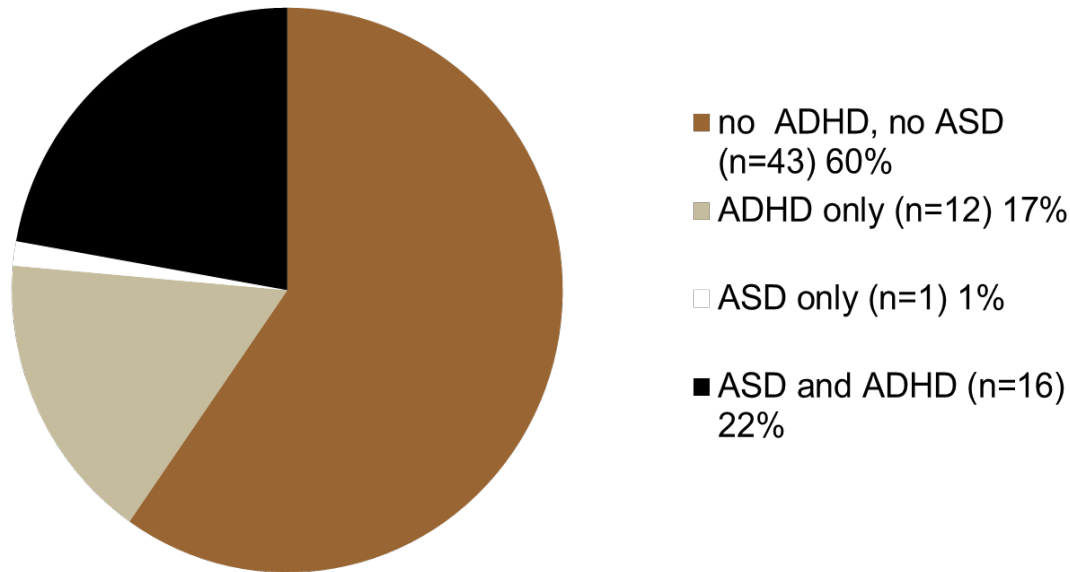
Eating problems and overlap with autism spectrum disorders in a nationwide Swedish twin study

- Data from parent interviews on 9- and 12-year olds born 1993-1998
 - Screening diagnoses for autism spectrum disorders and ADHD
 - Eating problems were defined as parent-reported weight stop or loss combined with a fear of gaining weight
- Response rate 80%, n= 12,304

Råstam et al 2013

Prevalence of autism spectrum disorders (ASD) and/or ADHD in the 72/12,304 children with eating problems

Eating problems (n =72; 0.6%)



40% of all children with restrictive eating (10% of those without) were screen-positive for ASD and/or ADHD

Prevalence of restrictive eating in the 1280/12,304 children with autism spectrum disorders (ASD) and/or ADHD

- In the group of children with ASD and/or ADHD (n=1280) there were 29 children with restrictive eating (2%).
- In the group of children with no ASD or ADHD (n=11,024) there were 43 children with restrictive eating (0.004%).
- Social interaction problems were strongly associated with restrictive eating in girls, and impulsivity and activity problems with restrictive eating in boys.

Underweight in autism spectrum disorders

- An overrepresentation of low body weight has been shown in male adolescents with Asperger's disorder associated with abnormal eating behaviours.

[Hebebrand et al 1997](#); [Sobanski et al 1999](#)

- A Danish study found BMI percentile of boys (but not girls) with ASD to be significantly reduced compared with matched BMI growth charts from the general population.

[Mouridsen et al 2008](#)

Eating problems in mild autism spectrum with normal intellectual level

- Prefer to eat the same food day after day
- Orthorexia nervosa is a fixation on healthy food to a degree when the individual gives up his/her normal life style

Donini et al 2004; Bagci Bosi et al 2007

- The term seems to apply to some cases with Asperger's disorder with an encompassing interest in food, where some foods are thought to be dangerous or artificial, as opposed to healthy or natural.

Eating problems in autism

Background factors

- Sensory abnormalities with hyper- or hyposensitivity to auditory, visual, tactile stimuli and to smell/taste
- Oral-motor dysfunction
- Clumsiness
- Restricted and stereotyped eating habits
- Poor social skills
- Gastrointestinal problems
- Råstam *Clinical Neuropsychiatry*. 2008, 5, 1, 31-42

SWEAA – Swedish Eating Assessment for Autism Spectrum Disorders (Karlsson et al 2013)

Subscales	
A. Perception	I am oversensitive to certain flavours.
B. Motor control	I have trouble chewing.
C. Purchase of food	My food has to be of a particular make.
D. Eating behaviour	I only eat a small number of food items, maximum 10.
E. Mealtime surroundings	I have certain routines at mealtime.
F. Social situation at mealtime	I look down at my plate during most of the meal.
G. Other behaviour associated with disturbed eating	I induce purging after mealtime.
H. Hunger/Satiety	I can feel when I'm hungry.
Single items	
I. Simultaneous capacity	I have trouble doing two things at the same time during mealtime; e.g., chew and cut the food.
J. Pica	I eat things that others consider inedible; e.g., soil or dust.

Concluding remarks

- Eating problems should be considered in neuropsychiatric disorders, and vice versa.
- The eating problems are often resistant to treatment, especially if underlying neurodevelopmental problems are neglected.
- Early eating problems in childhood may be a risk factor for the development of the clinically significant eating disorders, especially anorexia nervosa and bulimia nervosa, in adolescence and young adulthood.



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