Neurodevelopmental Issues (ADHD and MBS)

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What is ADHD?

"My brain is like a bucket of frogs…jumping all over the place"

"There are 30 tabs open in my brain but I can't shut any of them down"

"Some days my brain feels like I've stuck my fingers in a power socket that I can't disconnect"

"It feels like there's a panel discussion in my brain, but no-one ever finishes their train of thought….until 3am maybe"

"I started a work project yesterday morning, then looked at the time and suddenly realised it was 5pm and I hadn't had lunch. I have no idea where that time went. So much for regular eating"

What is ADHD?

- A neurodevelopmental disorder *with an onset before age 12.*
- Cognitive differences are seen in executive functioning including in working memory, planning, sustained attention, inhibitory control and emotion regulation.

ADHD and MBS

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Common Symptoms

- There are 3 types of ADHD symptom presentations:
- **The Predominantly Inattentive type** presents with difficulties in paying attention, including:
  - Inability to focus or sustaining attention
  - Easily distracted by unrelated stimuli
  - Difficulty with organising and completing tasks
  - Avoidance of tedious tasks that require sustained attentional effort
  - BUT hyperfocus on tasks of interest
  - Disorganised
  - Often forgetting /losing things / careless mistakes
  - Daydreaming
  - “Time blind”
- **The Hyperactive/Impulsive** type presents with hyperactive and impulsive behaviour, including:
  - Inability to sit or stand still
  - Often fidgeting or squirming in their seat
  - Talking excessively or loudly
  - Interrupting others in conversation
  - Intruding on others (lack of boundaries)
  - Impatience
- The **Combined type** involves a combination of both inattentive and hyperactive/impulsive presentations of ADHD symptoms.

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Differences in male and female presentations of ADHD exist:

- Male presentation more likely predominantly hyperactive or combined types
- Female presentation more likely inattentive type

But stereotypical image of ADHD is still based on typical male presentation…..

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ADHD and Clinical Obesity

- People with ADHD are 1.5 to 4 times more likely to have obesity (Chen et al., 2018; Nigg et al., 2016; Cortese et al.; 2016)
- Three times more likely to have Type 2 Diabetes (Chen et al., 2018)
- Recent studies have found that childhood ADHD predicts a higher BMI in adulthood (Martins-Silva et al 2022).

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ADHD & Binge Eating Disorder (BED)

- ADHD associated with higher risk of “addictive like” ED behaviours, including binging and purging, LOC overeating, cravings, emotional eating and preoccupation with food (El Archi et al., 2020)
- Higher the BMI, greater relationship between BE & ADHD (El Archi et al., 2020)
- 20-30% of people with BED have ADHD (Nazar et al., 2016)
- *However,* the relationship between weight and ADHD exists outside of BED, i.e. no significant differences in symptoms between those with higher weight with and without BED (Davis et al., 2009)

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Underlying Mechanisms: Inhibitory Control and Impulsivity

- Unsurprisingly, impulsivity is key in eating behaviour for people with ADHD (Kaisari et al., 2018; Seymour et al., 2015)

- Considered as both a predisposing factor and a perpetuating factor. Such that it makes it more likely binge eating will occur, and more difficult to stop once reinforced (Grant & Chamberlain, 2020).

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Underlying Mechanisms: Inattention and interoceptive awareness

- In ADHD, inattention to internal cues such as hunger and satiety can lead to forgetting to eat. This is particularly true when hyperfocusing, and can result in sudden high hunger levels and therefore overeating (e.g., Kaisari et al., 2018).

- In people with ADHD, greater levels of distraction when eating may result in impaired memory and subsequent overeating (Kaisari et al., 2018).

Underlying Mechanisms: Executive Functioning

- Differences in executive functioning may impair planning, organising, goal-setting and goal-striving around diet, meal planning, exercise routine and adherence to appointments.

Underlying Mechanisms: Emotion regulation

- People with ADHD experience greater difficulties with emotion regulation. “Emotional eating” may be one way in which they attempt to manage their emotions (El Archi et al., 2020).

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Underlying Mechanisms: Reward Deficiency (or the Dopamine Hypothesis)

- This hypothesis emphasises the role of low levels of dopamine resulting in seeking out stimulation and reward through substances, risk taking and perhaps binge eating (Cortese et al., 2007).
- Lower dopamine levels have been found in people with ADHD (e.g., Volkow et al., 2011)
- Research shows increased dopamine levels concurrent with eating highly palatable food (e.g., Stice et al., 2008)
- Therefore, some evidence suggests that low dopamine levels can predispose people to eating to “get a dopamine hit” (Wang et al., 2011)

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ADHD & MBS

- Early research found that 27 % of a sample of participants seeking bariatric surgery had ADHD, and 42.6 percent of those with a BMI > 40 had ADHD (Altfas, 2002).

- Meta analysis of 24,455 adults seeking MBS found ADHD symptoms were three times as common than in general population (Caci et al, 2024).

Outcomes:

- Meta analysis of 492 patients: no difference in post-MBS BMI between ADHD and non-ADHD patients at 2 yr follow up BUT ADHD patients had lower rates of follow-up (Mocanu et al., 2019)

- The most recent matched cohort study indicated that for those with **pharmacologically treated ADHD**, weight loss outcomes and obesity related health outcomes were not different to those without ADHD with a 2 year follow up period (Stenberg, et al 2023).

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ADHD & MBS

- But untreated ADHD??
- And beyond 2 year period??

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Considerations

- Case conceptualisation – is ADHD is the primary presenting concern, and BED (as well as likely mood/anxiety disorders) the comorbidity??
- If so, how might it affect adherence to vitamins, ability to plan/prep meals, ability to self monitor eating?
- And if they do have undiagnosed, untreated ADHD, how might that impact their post-surgery weight regain?
- Screening…

Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist

Patient Name		Today's Date	

Please answer the questions below, rating yourself on each of the criteria shown using the scale on the right side of the page. As you answer each question, place an X in the box that best describes how you have felt and conducted yourself over the past 6 months. Please give this completed checklist to your healthcare professional to discuss during today's appointment.

	Never	Rarely	Sometimes	Often	Very Often
1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?					
2. How often do you have difficulty getting things in order when you have to do a task that requires organization?					
3. How often do you have problems remembering appointments or obligations?					
4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?					
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?					
6. How often do you feel overly active and compelled to do things, like you were driven by a motor?					

Part A

7. How often do you make careless mistakes when you have to work on a boring or difficult project?					
8. How often do you have difficulty keeping your attention when you are doing boring or repetitive work?					
9. How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly?					
10. How often do you misplace or have difficulty finding things at home or at work?					
11. How often are you distracted by activity or noise around you?					
12. How often do you leave your seat in meetings or other situations in which you are expected to remain seated?					
13. How often do you feel restless or fidgety?					
14. How often do you have difficulty unwinding and relaxing when you have time to yourself?					
15. How often do you find yourself talking too much when you are in social situations?					
16. When you're in a conversation, how often do you find yourself finishing the sentences of the people you are talking to, before they can finish them themselves?					
17. How often do you have difficulty waiting your turn in situations when turn taking is required?					
18. How often do you interrupt others when they are busy?					

Part B

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