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Ohio Cardiovascular and Diabetes Health Collaborative

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Cardi-OH ECHO

Innovations in Diabetes and Cardiovascular Health

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Obesity and Mental Health

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Learning Objectives

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1) In general terms, describe the relationship between anxiety, depression, and other mental health conditions and body weight.

2) Describe a minimum of three recent advances in our understanding of psychological causes of obesity.

3) List and describe a minimum of three strategies for weight management among patients with serious underlying psychological or psychiatric illness.

Obesity and Mental Health

Retrieved from: https://namimidohio.org/support-and-education/nami-hearts-minds/

- “People with depression have a **40% higher risk** of developing cardiovascular and metabolic diseases than the general population.
- People with serious mental illness have higher rates of obesity — 41% for men and 50% for women.
- People with serious mental illness have **twice the rate** of type 2 diabetes than the general population.
- People with cardiovascular disease and serious mental illness have a life span 10–20 years shorter than the general population.”

Obesity and Mental Health Conditions

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Obesity is linked to:

- Attention-Deficit/Hyperactivity Disorder
- Mood Disorders
- Anxiety
- Schizophrenia
- Binge Eating Disorder (not covered)
- Post-Traumatic Stress Disorder (not covered)
- Substance Use Disorders (not covered)

Why ADHD?

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Hypotheses

Dysfunction in the dopamine system

Those with disordered eating behaviors and ADHD may have difficulty with:

- Impulsivity and difficulty eating in an organized and thoughtful manner
- School-aged children are less likely to participate in physical activities and organized sports.

More than 50% of children continue to have symptoms in adulthood

Why ADHD?

- Reinforcing behaviors to compensate for low dopamine may include an increase in food consumption.
- Impulsive eating is a barrier to treatment
- Treating adults for ADHD can help patients to engage in behavior change to develop healthier lifestyles

Avila C, Holloway AC, Hahn MK, Morrison KM, Restivo M, Anglin R, Taylor VH. An overview of links between obesity and mental health. Curr Obes Rep 2015; 4: 303-310. DOI 10.1007/s13679-015-0164-9.

Why Mood Disorders? (Depression and Bipolar Disorders)

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- Symptoms of mood disorders include change in appetite, energy, sleep and motivation. There is also impulsivity for those diagnosed with bipolar disorder. NOTE: appetite could be reduced.
- Dysregulation in cortisol and chronic, low-grade inflammation have been found as mediating factors between obesity/weight regulation and depression.

Why Mood Disorders? (Depression and Bipolar Disorders)

- Dysregulation of cortisol in mood disorders is seen as similar, though not as severe, as Cushing syndrome.
- One of the characteristics of this endocrine dysfunction includes excessive visceral fat.
- There is growing evidence of inflammatory markers and weight gain.

(Question to the dietician experts about anti-inflammatory diets?)

Tuomisto K, Jousilahti P, Havulinna AS, Borodulin K, Mannisto S, Salomaa V. Role of inflammation markers in the prediction of weight gain and development of obesity in adults – A prospective study. Metabolism Open 2019.

Real World Experiences
from Peers Prescribing Psychiatric Medications

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Associated with weight gain

- The SSRI most associated with weight gain is Paxil/Paroxetine.
- Remeron/Mirtazapine is very strongly associated with weight gain, and it can be rapid. It is rare for someone to not gain lots of weight with it.
- Depakote/Valproic Acid is strongly associated with lots of weight gain, and it can be gradual.
- Seroquel/quetiapine is associated with weight gain at doses above 150mg – 300mg.
- Olanzapine (Zyprexa) and Clozapine (brand names Clozaril) are known for lots of weight gain, and it can be very rapid and its very common
    - Abilify is associated with gradual weight gain
    - Weight gain with Risperdal/risperidone but not common

Real World Experiences
from Peers Prescribing Psychiatric Medications

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NOT associated with weight gain

- Wellbutrin/antidepressant not associated with weight gain
- Of the mood stabilizers Lamictal/lamotrigine is not associated with weight gain
- Trileptal and lithium are also not generally associated with weight gain
- Latuda one of the antipsychotics least associated with weight gain
- Some of the older antipsychotics such as Trilafon/perphenazine or Haldol are not particularly associated with weight gain

Offsetting Weight Gain from Psychiatric Medications, Real World Experiences

Topamax and metformin can help.

- “What’s worked best is healthy diet… mostly plants, low carbs and sticking to complex carbohydrates – whole grains, vegetables. And staying active physically.”

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Other Factors Related to Obesity and Mental Health

Obesity and Mental Health

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Women

As appearance satisfaction ↓ depressive symptoms significantly ↑ for women compared to men.

Men and Women

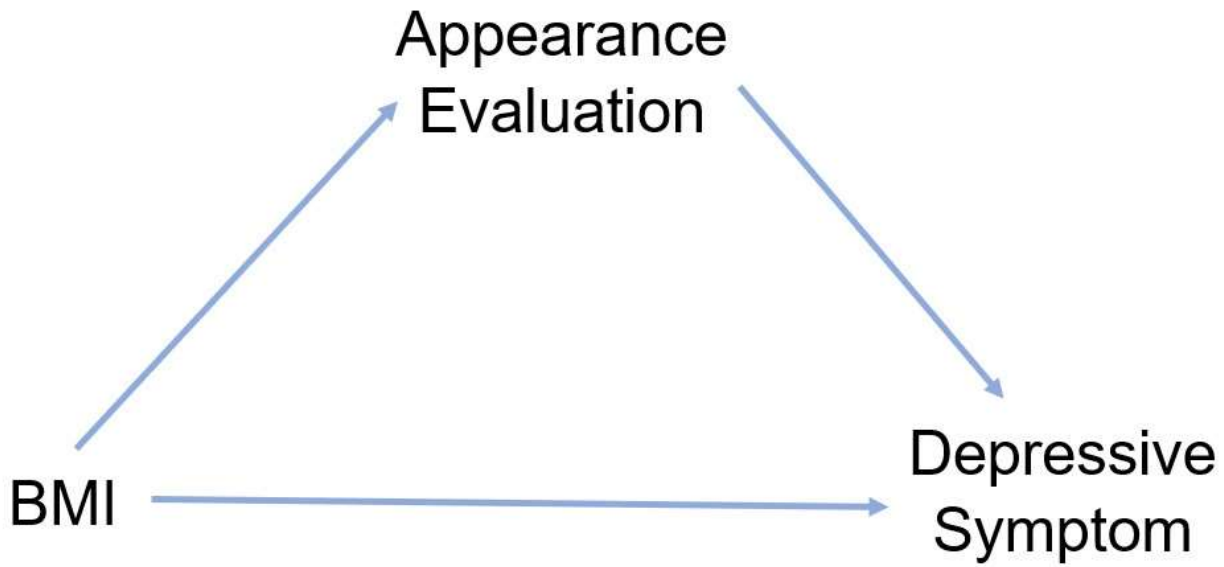
↓ positive body image is related to ↑ depressive symptoms

↑ BMI related to ↓ lower satisfaction with appearance

One study showed that men reported fewer depressive symptoms than women and higher satisfaction with appearance compared to women.

Weinberger NA, Kersting A, Riedel-Heller SG, Luck-Sikorski C. The relationship between weight status and depressive symptoms in a population sample with obesity: The mediating role of appearance evaluation. Obes Facts 2018; 11:514-523.

Mediation Found for Men but Not for Women



Depression and Excess Weight

- Weight Perception and Depression

  Results from a study by Paulitsch, Demenech and Dumith showed that obesity and the perception of being fat significantly increases the likelihood of depression ….

  and ….

- The association between obesity and depression is mediated by weight perception.

Depression and Obesity

- Mediation occurred in participants with partners, non-smokers, non-alcohol abusers, and participants who did not engage in physical activity.

- There is evidence that the higher the BMI, the greater the probability of experiencing depression.

Paulitsch RG, Demenech LM, Dumith SC. Association of depression and obesity is mediated by weight perception. Journal of Health Psychology. 2021. 26(11) 2020-2030.

Obesity and Appearance-Based Social Anxiety

- Appearance-based social anxiety: "The tension and anxiety one experiences when others evaluate him/her in terms of physical appearance."
- The association between BMI and appearance-based social anxiety is mediated by body dissatisfaction.
- Recommended to provide interventions to improve body image perceptions in weight loss management programs.

Sanlier N, Pehlivan M, Sabuncular G, Bakan S, Isguzar Y. Determining the relationship between body mass index, healthy lifestyle behaviors and social appearance anxiety. Ecology of Food and Nutrition. 2018; 57:2, 124-139.

Obesity and Mental Health

- Generally, irregular eating habits are associated with:
  - Depression and anxiety
  - Body dissatisfaction
  - Distorted body image perception
  - Unhealthy weight loss methods and diet history
- Anxiety disorders are often comorbid with eating disorders
- Persons in the obese category overall have higher rates of social anxiety compared to the general population

Sanlier N, Pehlivan M, Sabuncular G, Bakan S, Isguzar Y. Determining the relationship between body mass index, healthy lifestyle behaviors and social appearance anxiety. Ecology of Food and Nutrition. 2018; 57:2, 124-139.

Brief Overview: Schizophrenia and Obesity

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- Some evidence that antipsychotics, such as Olanzapine can cause increased appetite and lead to binge eating.
- Other evidence to show that some antipsychotics have sedative properties, reducing physical activity.

Bradshaw T, Mairs H. Obesity and serious mental health: A critical review of the literature. Healthcare 2014; 2: 166-182. DOI: 10.3390?healthcare2020166.

Chouinard VA, Pingali SM, Chouinard G, et al. Psychiatry Research 2016; 2(37), 304-310.

Schizophrenia and Obesity

In addition, a literature review found that increased weight gain for those diagnosed with schizophrenia is caused by:

- Medications (literature agrees with peer's experience about Olanzapine and Clozapine causing rapid weight gain)
- Increased appetite
- Poor food choices
- Loss of self-confidence caused by the illness
- Sedentary behavior
- Higher prevalence of metabolic syndrome compared to the general population, though metabolic abnormalities predate modern medicine

Overview of 3 Strategies for Weight Management for the SMI Population

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- STEPWISE (England)
- ACHIEVE (USA)
- STRIDE (USA)

Holt RIG et. al. Structured lifestyle education for people with schizophrenia, schizoaffective disorder and first-episode psychosis (STEPWISE): randomized controlled trial. The British Journal of Psychiatry (2019). 214, 63-73.

Daumit GL., et. al. A behavioral weight-loss intervention in persons with serious mental illness. N Engl J Med. 2013; 368 917): 1594-1602.

Green CA. et. al. The STRIDE weight loss and lifestyle intervention for individuals taking antipsychotic medications: a randomized clinical trial. Am J Psychiatry. 2015. 175(1): 71-81.

STEPWISE

- 12-month, theory-based program (behavior change theory) focused on:
  - Food and physical activity
  - Psychological processes underlying weight management
  - Challenges of living with psychosis and its impact on eating and weight
- Four 2.5-hour, weekly group sessions followed by maintenance sessions at months 4, 7, and 10
- 1:1 support contact for 10 minutes, every 2 weeks after the intervention period

STEPWISE

Intervention group

- n = 145 schizophrenia
- n = 30 schizoaffective
- n = 32 first-episode psychosis

Intervention group Ethnicity

- n = 179 White
- n=9 Asian
- n=12 Black
- n= 4 Mixed
- n= 3 Other

Control group

- n = 138 schizophrenia
- n = 36 schizoaffective
- n = 31 first-episode psychosis

Control group Ethnicity

- n = 170 White
- n=7 Asian
- n=19 Black
- n= 7 Mixed
- n= 2 Other

STEPWISE Session Content

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- Session 1: Healthier drinks
- Session 2: Healthier snacks and physical activity
- Session 3: Calories and portions, sedentary behaviors
- Session 4: Eating out: challenges, solutions, and making choices
- Sessions 5-7: Booster sessions (4, 7, and 10 months) to help with sticking to the program

STEPWISE Results

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INTEND TO TREAT ANALYSES

- Average weight loss between study and TAU was ~.05 pounds.
- The schizoaffective group achieved the largest weight reduction of 2.7 lbs.

Rationale for Unsuccessful Outcomes

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STEPWISE WAS UNSUCCESSFUL BECAUSE

- Not enough attention on mental health challenges and medication management
- For those who lost weight, findings suggest that monitoring and regular feedback from the facilitators helped them to succeed
- Participants wanted the intervention to be longer than 10 months
- However, monitoring was not an explicit part of the STEPWISE intervention

ACHIEVE

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18-Month Intervention

- Social cognitive and behavioral self-management theories, congruent with psychiatric rehabilitation principles of skill building and environmental supports
- Interventions included:
  - Lifestyle interventions shown to be effective in the general population
  - Addressed deficits in memory and executive function (divided information into small components and repeatedly targeted skills)

ACHIEVE

Intervention included three types of intervention sessions

1. Group weight-management
2. Individual weight-management
3. Group exercises

ACHIEVE

Intervention group

- n = 44 schizophrenia
- n= 41 schizoaffective
- n =28 bipolar
- n =18 MDD
- n=13 Other

Intervention group Ethnicity

- n = 82 White
- n=56 Black
- n=5 Hispanic
- n=10 Other

Control group

- n = 41 schizophrenia
- n= 43 schizoaffective
- n =36 bipolar
- n =17 MDD
- n=10 Other

Control group Ethnicity

- n =81 White
- n=59 Black
- n=8 Hispanic
- n=7 Other

Groups Offered Vs Attended

- Median **group weight management sessions offered**
  - 1st 6 months (16)
  - 7-18 months (13)
- Median **individual sessions offered**
  - 1st 6 months (5)
  - 7-18 months (12)
- Median **group exercise sessions offered**
  - 1st 6 months (61)
  - 7-18 months (141)

- Median **group weight management sessions attended**
  - 1st 6 months (10)
  - 7-18 months (7)
- Median **individual sessions attended**
  - 1st 6 months (4)
  - 7-18 months (4)
- Median **group exercise sessions attended**
  - 1st 6 months (30)
  - 7-18 months (24)

RESULTS

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- Analyses were conducted according to the intention-to-treat principle. Primary outcomes were changes in weight from randomization to 6 months and 18 months
- The mean net weight change (change in weight in the intervention group minus change in weight in the control group) at 6 months was −3.3 lbs. At 18 months, the net change was −7.5 lbs.
- At 18 months for the intervention group, 63.9% of participants were at or lower than their baseline weight compared with 49.2% of those in the control group.
- 37.8% of participants in the intervention group lost at least 5% of their baseline weight compared with 22.7% in the control group.

STRIDE

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12-month intervention

- Weekly 2-hour group sessions, including 20 minutes of physical activity, delivered over 6 months
- Followed by 6 monthly maintenance sessions

Interventions included:

- Education about records of food, beverages, and calories consumed
- Education about recommended servings of fruits, vegetables, and low-fat dairy products
- Education about recommended fiber and fat intake
- Recorded minutes of daily exercise
- Recorded sleep

STRIDE Interventions Continued

- Participants were encouraged to do ≥25 minutes of moderate daily physical activity
- Other monitoring records were used to assess progress and identify barriers to lifestyle change
- Participants and interventionists reviewed records and evaluated and modified goals and plans
- Calorie King book was given to participants along with a resistance band to encourage strength training

STRIDE

Intervention group

- n=31 schizophrenia spectrum
- n =71 bipolar or affective psychosis
- n=2 PTSD

Intervention group Ethnicity

- n =90 White
- n=12 non-White
- n=3 Hispanic

Control group

- n=27 schizophrenia spectrum
- n=67 bipolar or affective psychosis
- n=2 PTSD

Control group Ethnicity

- n =81 White
- n=12 non-White
- n=1 Hispanic

Results

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Intent-to-treat analyses

- Intervention group lost 9.7lbs more than control participants from baseline to 6 months
- Intervention group lost 5.7lbs more than controls from baseline to 12 months

Fasting Glucose at 12 months

- Intervention group decreased from 106.3 mg/dL to 100.4 mg/dL
- Control group increased from 106.0 mg/dL to 109.5 mg/dL

VALUABLE RESOURCES

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- National Alliance on Mental Illness (NAMI)

  https://nami.org/About-Mental-Illness/Treatments/Complementary-Health-Approaches

- Mental Health Club Houses (Magnolia Clubhouse Clinic in Cleveland, Ohio)

  https://www.magnoliaclubhouse.org/what-we-do/health-wellness

Both organizations provide complimentary health approaches, including exercise and healthy eating.

Thank you!

Questions/Discussion