

PS2.1.1: Do our patients make real cognitive changes in cognitive-behavioural therapy? Different ways of measuring clinical change

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Individual cognitive-behavioural therapy (CBT) is widely recommended for non-underweight eating disorders, on the grounds of yielding strong recovery rates compared to other therapies. A key indicator of recovery is a normalisation of eating attitudes. However, such normalisation can be defined in different ways. The most common of these (reduction in Eating Disorders Examination-Questionnaire (EDE-Q) scores to within one SD of the non-clinical mean) could be a weak index of change. This study considered that common method of measuring improvement in a large case series of non-underweight eating-disordered patients, comparing it to other, potentially more robust methods. 139 adult patients with non-underweight eating disorders were treated using ten-session CBT (CBT-T). Cognitive outcomes were tested using the EDE-Q at the end of therapy and at three-month follow-up. Using intention-to-treat analyses, four indicators of change were calculated: mean change in EDE-Q Global scores; number of patients whose EDE-Q score fell to below the common cut-off (population mean + 1SD); number of patients who met the more robust criterion of change measured by the Reliable Change Index (RCI); and number of patients who met the most robust criterion of Clinically Significant Change (CSC). The change in mean EDE-Q score was strong, replicating that found in other studies. The three methods of measuring categorical change had broadly comparable outcomes at both time points, though the levels of the most robust index (CSC) were understandably the lowest. In each case, the level of recovery was strong, at 57-74%. The most commonly used method of using the EDE-Q to indicate cognitive recovery from an eating disorder has proven relatively valid. However, it is suggested that future research should also report the more meaningful and recovery measure of Clinically Significant Change, whatever therapy and age group is being considered.

Learning Objectives:

- Describe different methods of defining cognitive recovery from eating disorders.
- Explain the value of cognitive behavioural therapy for eating disorders.
- Detail the most meaningful and robust way of indicating clinically meaningful change in eating attitudes.

PS2.1.2: Adapting selective eating disorder prevention for a universal audience: Results from a school-based cluster randomised controlled pilot study

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This study adapted two existing selective eating disorder prevention programmes (based on mindfulness and cognitive dissonance, respectively) for universal school-based delivery, and evaluated their acceptability and efficacy when delivered by class teachers to a mixed-sex adolescent sample. Three schools (N=288, aged 13-15, 50.7% male) were randomised to receive one of two 5-lesson interventions (mindfulness, n=97; dissonance, n=82) or classes as usual (control, n=109). Self-report measures of key risk factors for eating disorders were completed at baseline, post-intervention and 1-month follow-up. Linear mixed model analyses assessed effects of condition, time and gender (and their interactions) over

post-intervention and follow-up, controlling for baseline. Where gender moderation was significant, analyses were conducted separately for boys and girls. Main effects of condition indicated maintained effects from post-intervention to 1-month follow-up on global body esteem (dissonance > control, Cohen's $d = .30$), positive affect (mindfulness > control, $d = 0.27$), and negative affect among girls (mindfulness < control, $d=0.23$). Additionally for girls, condition x time interactions indicated differential effects of condition over time for body satisfaction (post-intervention: mindfulness > control, $d=0.38$; follow-up: mindfulness > control, $d=0.56$ & dissonance > control, $d=0.59$) and appearance-ideal internalisation (post-intervention: dissonance > control, $d=0.30$; follow-up: mindfulness > control, $d=0.42$ & dissonance > control, $d=0.44$). At post-intervention, moderate acceptability was reported by students in both conditions, with mindfulness students reporting less homework compliance and less likelihood of continued use than dissonance students. These findings indicate promise for delivering these programs universally, in a sustainable teacher-led format. Future research is required to further refine both interventions and evaluate using a larger sample.

Learning Objectives:

- Describe the advantages and disadvantages of universal versus selective eating disorder prevention.
- Assess the comparative effectiveness of two multi-session eating disorder prevention interventions (based on mindfulness and dissonance, respectively) adapted for classroom-based delivery by teachers in secondary schools.
- Describe gender differences with respect to classroom-based eating disorder prevention interventions in a universal sample.

PS2.1.3: Suicide Attempts and Correlates in Persons with DSM-5 Eating Disorders in a Nationally Representative Sample of U.S. Adults

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This study examined prevalence of suicide attempts and correlates in DSM-5 eating disorders (EDs) - anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED) – in U.S. adults. 36,171 adult respondents in the National Epidemiologic Survey on Alcohol and Related Conditions III (NESARC-III) who completed structured diagnostic interviews (AUDADIS-5) and answered questions regarding history of suicide attempts, including age first attempt and number of attempts, as well as psychosocial impairment associated with EDs. Prevalence of suicide attempts were calculated across Lifetime AN, BN, and BED groups and a fourth group without ED. 24.9% of respondents with AN, 31.4% with BN, and 22.9% with BED reported a history of at least one suicide attempt. Relative to respondents without EDs, respondents with EDs were significantly more likely to report suicide attempts (adjusted odds ratios [AORs] = 5.40 [AN], 6.33 [BN], and 4.83 [BED]), but mean age at first suicide attempt or number of attempts was not significantly different. Onset of BED was significantly more likely to precede suicide attempt (72.5%) but onsets of AN (50.4%) and BN (47.6%) were not. In all EDs, those with history of suicide attempts reported earlier age of ED onset, longer ED duration, and higher rates of impairment. Respondents with suicide attempts, across EDs, were significantly more likely to have psychiatric disorders. Our findings, based on a large nationally representative sample of US adults, indicate that individuals with EDs has significantly elevated risk of suicide attempts. Even after adjusting for sociodemographic factors, individuals with EDs had a roughly 5-to-6-fold risk of suicide attempts relative to those without ED. EDs with and without histories of suicide attempts differ on a number of clinical

and psychiatric correlates which could inform improved identification for suicide risk. These findings highlight the importance of improving screening and treatment of EDs.

Learning Objectives:

- Recognize the prevalence of suicide attempts in persons with eating disorders.
- Describe differences in suicide attempt histories across persons with anorexia nervosa, bulimia nervosa, and binge eating disorder.
- Describe psychiatric and psychosocial functioning correlates of histories of suicide attempts among persons with eating disorders.

PS2.1.4: The Use of Genetic Variants to Assess Causal Associations between Anxiety and Anorexia Nervosa: A Mendelian Randomization Approach

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The current study assesses bidirectional effects between anxiety and anorexia nervosa (AN) using Mendelian randomization (MR), an epidemiological method that is novel in eating disorders research. MR uses genetic variants as instrumental variables, to test the causal effect of an exposure on an outcome, minimising risks of confounding and reverse causality that affect observational studies. A bidirectional two-sample MR analysis was completed. Single nucleotide polymorphisms (SNPs) associated with trait anxiety, and anxiety disorder (AD) pathology, at the genome-wide significance level ($p < 5 \times 10^{-8}$), were identified from Genome-Wide Association Study (GWAS) summary statistics. Estimates corresponding to effects of these SNPs on AN were taken from AN GWAS summary statistics. The causal effect of anxiety on AN was estimated by calculating the ratio of SNP effects in AN, and SNP effects in anxiety. Where there was more than one SNP in the analysis, estimates were combined across SNPs. The same method was used to assess the reverse association: SNPs associated with AN were used as instruments, to probe the influence of AN on anxiety outcomes. 57 SNPs were independently associated with the trait anxiety phenotype. Anxiety disorder and AN exposures were each associated with one independent SNP. Outcomes of the MR analysis indicated a causal effect of trait anxiety on AN (OR = 2.14, 95% CI [1.18, 3.90], $p < .05$), with little support for the reverse association. There was no evidence of a causal effect of ADs on AN, or vice versa. Assessments of the causal effects of ADs and AN are likely to be under-powered due to the use of a single genetic instrument (SNP) in these analyses. The finding that trait anxiety causally influences AN is consistent with inferences of observational studies. Investigation of the mechanisms underlying this relationship is encouraged.

Learning Objectives:

- Describe the evidence for bidirectional associations between anxiety and anorexia nervosa across studies of different designs.
- Evaluate the strength of the evidence for the role of anxiety in anorexia nervosa, and subsequently the validity of different aetiological models.
- Understand Mendelian Randomization analysis and describe the benefits of the approach in terms of minimising risk of bias.

PS2.1.5: A Randomized Case-Series Trial Testing the Feasibility and Acceptability of The Parent-Based Prevention Program for Parents with Eating Disorder Histories

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A parental history of an eating disorder is linked with greater risk of eating and socio-emotional problems in the offspring, and more stressful parent-child interactions. Therefore, a preventive intervention to address the impact of the parental eating disorder is warranted. This study tested the feasibility, acceptability, and preliminary outcomes of the Parent-Based Prevention (PBP) program for these parents and their partners. Parents with any lifetime eating disorder diagnosis were randomized to receive PBP immediately or following a 16-week waitlist period. Study main outcomes included: retention rates in assessment and treatment and treatment acceptance, using the The Treatment Suitability and Patient Expectations (TSPE). Secondary outcomes were: Child Feeding Questionnaire Restriction, Monitoring, and Concern subscales. 31 parents were screened for the study, of which 23 mothers (71%) consented to participate. Lifetime diagnoses included anorexia nervosa (N=9, i.e. 39%), bulimia nervosa (N=7, 30%), binge-eating disorder (N=6, 26%), and unspecified feeding or eating disorder (N=1, 4%). Two (9%) mothers were single, one (4%) family was non-intact. Eight families (35%) had one child, fourteen (61%) had two children, and one (4%) had three children. Children's ages ranged between 1-5 years old. Three families (13%) dropped out of treatment. At end of treatment (EOT), TPSE scores indicated that PBP was perceived as suitable (M=8.52, SD=1.43) and helpful (M=8.67, SD=1.32). Change scores (CS) and effect sizes (Cohen's d) from baseline to EOT in the treatment versus the waitlist group were: Restriction (CS=1.25, d=1.48) versus (CS=0.2, d=0.23); Monitoring (CS=0.31, d=1.22) versus (CS=0.09, d=0.12); Concern (CS=0.98, d=1.2) versus (CS=0.06, d=0.07). Findings suggest that PBP is feasible and acceptable by mothers with eating disorder histories and is associated with improved feeding practices.

Learning Objectives:

- Understand the research design of a randomized controlled trial testing the feasibility of the Parent-Based Prevention program.
- Identify the key mechanisms addressed in a focused program for parents with eating disorders.
- Develop strategies for integrating feeding and parenting measures into research and treatment protocols evaluating interventions for parents with eating disorder histories.

PS2.1.6: Characteristics of Avoidant/Restrictive Food Intake Disorder in Mexico

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Avoidant/restrictive food intake disorder (ARFID) was added to the psychiatric nomenclature in 2013. To date, case reports and empirical studies have been limited to the United States, Canada, Europe, Australia—with a handful of studies in Japan—raising the question of whether ARFID is a culture-bound

syndrome. Method: To confirm the existence and characteristics of ARFID in Latin America, we evaluated the clinical features of patients consecutively referred to inpatient, residential, or outpatient treatment at the largest eating-disorder treatment center in Mexico. The program draws referrals from Latin American countries across North, Central, and South America. Results: During a 14-month period, 22 (9.7%) of 227 total patients with an eating-disorder diagnosis were classified as ARFID according to DSM-5. Individuals with ARFID ranged in age from 4 to 67 years ($M=19.2$, $SD=15.86$), with slightly more females ($n=13$, 59%) than males ($n=9$, 41%). Of those with ARFID, 12 (54.5%) presented with low weight. The most common ARFID presentation was sensory sensitivity ($n=16$, 72%), followed by lack of interest in food or eating ($n=15$, 68%), and fear of aversive consequences ($n=13$, 59%), with 15 patients exhibiting a combination of these. Of patients with sensory sensitivity, 37.5% ($n=6$) limited their diets to traditional Mexican foods, such as tortillas, beans, and rice. Discussion: To our knowledge, this is the first study to confirm the existence of a cohort of patients with ARFID in Latin America, suggesting that ARFID is not a culture-bound syndrome. Indeed, the central features of ARFID in this sample were similar to those reported in prior studies. However, our data suggest that the clinical presentation of ARFID may be in part culturally mediated, with preferred foods reflecting those commonly consumed in the local area.

Learning Objectives:

- Assess clinical features of patients with ARFID in a treatment center in Mexico.
- Learn about preferred foods of patients with ARFID from the local culture and evaluate this is not a culturally bounded syndrome.
- Confirm the existence of patients with ARFID in Latin America with equal or similar clinical features than in Western societies.

PS2.2.1: A Randomized Controlled Trial of Cognitive Remediation Therapy for Anorexia Nervosa: Effects on a Cognitive Restructuring Task

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Cognitive remediation therapy (CRT) has been applied as a supplemental treatment for anorexia nervosa (AN). This study aimed to evaluate CRT for AN and its effect on set-shifting, assessed by (1) traditional neuropsychological measures and (2) experimental cognitive-behavioral thought records, a practical measure of set-shifting impacting evidence-based treatment. 280 AN participants (aged 12-87) were randomized to either a control (CN) or experimental condition upon inpatient hospitalization. The experimental condition received 5 sessions of biweekly CRT group during a time when the CN condition was receiving group treatment as usual. 199 participants completed the Wisconsin Card Sorting Test (WCST) and the Comprehensive Trail Making Test (CTMT) on admission, and following the CRT groups or after 2.5 weeks (CN condition). Participants also completed an experimental thought record at the second-time point. Results suggest no significant differences between conditions on WCST or CTMT pre- and post-testing. Statistically significant ($p<.05$) condition effects by age were found on the experimental thought records. These results showed that adults in the CRT condition rated a greater believability of a newly generated thought compared to the CN condition. Specifically, 58% of CRT adults rated the more rational thought at a high believability level versus 35% in the CN condition. Additionally, adults in the CRT condition generated more alternative thoughts (63% identified four or more thoughts compared to 54% in the CN condition). These findings suggest that with larger samples using short-course, group protocols, CRT was not shown to impact neuropsychological testing as

hypothesized. There is some evidence to suggest a differential response to CRT based on age; however, the magnitude of this difference may not be clinically meaningful.

Learning Objectives:

- Describe the impact of cognitive remediation therapy on set shifting, measured both through neuropsychological measures and experimental thought records.
- Explain the application of group cognitive remediation therapy as a supplemental treatment for AN.
- Identify continued research questions related to cognitive remediation therapy and AN.

PS2.2.2: HOW DO PHYSICAL EXERCISE AND DIETARY THERAPY COMPARE TO COGNITIVE BEHAVIOR THERAPY IN OUTPATIENT TREATMENT OF WOMEN WITH BN OR BED?

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There is a need to explore evidence based therapies for EDs, due to long waitlists for therapy and current inadequate treatment outcome in terms of remission rates. Physical exercise (PE) is effective in prevention and treatment of several mental illnesses, but controlled studies on ED patients are limited, mainly out of fear of exacerbating the compulsive and excessive nature of exercise in patients. In this RCT, a new therapy combining PE and dietary therapy (PED-t) was compared to CBT and waitlist controls (CG). A total of 187 women (18-40 yrs; BMI 17.5-35) took part in a 16 weeks outpatient group treatment. Pre-post measures (T1-T2), and measures at 6 (T3) and 12 months (T4), were EDE-q, remission rates, clinical impairment assessment (CIA), satisfaction with life scale (SWLS), Beck Depression Inventory (BDI), compulsive exercise test (CET) and objective measure of PE. At T2 EDE-q improved more in PED-t than in CBT ($g=0.52$, $p<0.003$) and CG ($g=1.00$, $p<0.001$). Improvements remained at T3-T4, with no further between-group differences. Numbers in full- or partial remission were higher in PED-t (29% and 20%) and CBT (12% and 17%) than in CG (0.1% and 6%; $p<0.004$). Both therapies provided long-term improvements in CET, CIA and SWLS ($g>0.4$, $p<0.004$). PED-t improved temporarily BDI (T2-T3) ($g>0.6$, $p<0.001$). Level of PE was unchanged in all groups. Findings from this trial expand evidence based therapy options. High availability of professionals in exercise medicine and dietetics may attract new segments of ED patients that may have poor access to mental health services.

Learning Objectives:

- Understand that supervised and progressive exercise during treatment of bulimia nervosa and binge eating disorder, do not provoke any dysfunctional exercise behavior or motives. The reluctance in introducing regular physical exercise in treatment of these EDs needs to be reconsidered.
- Understand that compulsive exercise (CE) can be approached with different therapy modalities, and that symptoms of CE concurrently improves with treatment of the ED. Compulsive exercise (CE) relates to worse ED-treatment outcome and higher risk of relapse, and there is little evidence on how best to approach CE in treatment. Our findings suggest that both indirect (CBT) and direct (PED-t) approaches may be viable in reducing CE with sustained long-term effect.

- Understand why behavioural therapy serves equally well to psychotherapy in treatment of BN and BED, and that new professionals may serve as therapists, circumventing the challenges with waitlists in special care. Combining physical exercise and dietary therapy (PED-t) may be an alternative pathway to recovery from BN or BED to the currently preferred evidence based therapy (CBT). The focus on physical exercise and nutrition in PED-t is quite different from the common understanding of “psychotherapy”, and may thus be relevant to new segments from the pool of ED patients in the general population, as well as ED patients who do not respond to CBT or other psychological treatments. Such an appeal can be accommodated by the higher availability of more professionals with expertise in exercise medicine and nutrition.

PS2.2.3: HUNGRY FOR REWARD? A STUDY OF DEEP-BRAIN STIMULATION AND NEUROETHICS IN SEVERE ENDURING ANOREXIA NERVOSA : CLINICAL OUTCOMES OF DBS TO THE ANTERIOR LIMB OF THE INTERNAL CAPSULE AT THE NUCLEUS ACCUMBENS: THE FIRST DATA ON DOUBLE BLIND DBS ON-OFF AND PATIENT EXPERIENCE

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We investigate Deep Brain Stimulation(DBS) to the Nucleus accumbens as an empirically derived experimental treatment for Severe Enduring Anorexia Nervosa (SE-AN). Research suggests self-starvation in Anorexia Nervosa is a consequence of aberrant reward circuitry, leading to compulsivity -a transdiagnostic factor. Neural mechanisms underpinning reward and compulsivity involve cortico-striatal circuits, central to which is the Nucleus Accumbens. DBS to Nucleus Accumbens improves SE-OCD and addictions, and in rats increases food intake. We thus predict DBS to the Nucleus Accumbens may benefit SE-AN. The study protocol & ethics gold standard are published and registered with clinicaltrials.gov. NCT01924598, with HRA approval (Project ID 128658). DBS is applied to the anterior limb of the internal capsule at the Nucleus Accumbens. Neural processes are tracked using MEG, with parallel neuropsychological, psychiatric and behavioural measures monthly over 15 months, including a double-blind crossover phase of DBS on/off. We present a case series of the first 4 patients completing protocol. In two patients, DBS was associated with marked (50-75%) reductions in YBOCS, Anxiety, Depression and EDE pathology and increased BMI, with temporary marked relapse in the double blind DBS 'off' phase. These patients reported DBS as 'life changing' and liberating'. The other patients improved but less markedly. There were no serious adverse events or side effects. All patients stated they found the DBS experience positive and chose to continue DBS after the protocol period. All are engaged in annual follow-ups. Qualitative reports of their experience suggest mechanisms of change. We conclude that DBS to the Nucleus Accumbens is feasible in SE-AN and appears effective in half of appropriately selected patients. Larger numbers are needed to clarify predictors of benefit. A neuro-ethical gold standard is crucial to guide such studies.

Learning Objectives:

- Assess the evidence that Deep Brain Stimulation may be of benefit in Severe enduring Anorexia Nervosa.
- Describe the rationale for choosing a neural target key to reward circuits (Nucleus Accumbens) for Deep Brain Stimulation in Severe Enduring AN.
- Understand the importance of integrating an ethical gold standard into DBS research.

PS2.2.4: Personalized Networks of Eating Disorder Symptoms in High School Students: Targets for Individualized Treatments

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Poor treatment response in individuals with eating disorders (EDs) may be due to high heterogeneity in symptom presentations: Two individuals with the same diagnosis may have a very different clinical picture. Evidence-based individualized treatments, which have shown success in treating anxiety and depression, could be the solution. Network analysis is an emerging statistical technique that allows us to identify core symptoms within one individual using measures of centrality, which could be potential targets for individualized interventions. We created 21 individual networks of ED cognitions and behaviors using 48 assessment points each one month apart. Participants were high school and college students participating in an eating disorder prevention program. We created two types of networks for each participant, temporal, (shows how symptoms predict each other over time) and contemporaneous (shows how symptoms relate to each other at the same time point). For temporal networks, we identified symptoms that most strongly predict other symptoms and those that receive most strong feedback from other symptoms. We found that central symptoms varied by individual, but there were some overall commonalities. ED cognitions, judge weight/shape, fear of weight gain, and feeling fat, were overall most central across all individual networks. ED behaviors were most likely to send feedback to other symptoms and ED cognitions were more likely to receive it. These results are consistent with previous findings that shape and weight concerns are at the core of EDs and implicate ED behaviors in maintaining the disorder. Overall, our findings support the need for ED prevention programs focusing on body dissatisfaction and highlight the need for a personalized approach to ED interventions. Network analysis is a data-driven approach to identifying core maintaining symptoms for an individual that can supplement clinician's judgment on which symptoms to address first in treatment.

Learning Objectives:

- At the end of the session, participants will be able to interpret personalized networks and understand measures of centrality.
- At the end of the session, participants will understand how personalized networks can aid in developing individualized treatments for Eds.
- Participants will learn which symptoms are most central across personalized networks of 21 adolescents.

PS2.2.5: Integration of physical and psychological treatment using CBT-E in inpatient setting: can we reduce costs and improve outcomes?

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Inpatient treatment of eating disorders (ED) is costly and often ineffective. NHS England introduced a standard contract for specialized ED services in 2013 based on an eclectic approach in an attempt to reduce costs and improve outcomes. However, admissions have almost doubled since, so new care models are urgently needed. In Oxford, we have been working on transformation of inpatient care from

eclectic approach to inpatient CBTE since 2016, following Dalle Grave's model. This program consists of a time limited, 13 weeks inpatient treatment, followed by 7 weeks day patient and outpatient treatment using an integrated, whole-system, evidence-based psychological approach. We analyzed the outcome of all inpatients admitted to Oxford NHS service between 2014-15, before starting CBTE implementation and in 2016-17, after the program started to be introduced. Demographic and clinical characteristics included: age, gender, marital status, employment, diagnosis, main comorbidity, legal status, age of onset. Main outcome measures: BMI, length of stay, EDE-Q, CIA, self-discharge and readmission rates within 12 months of discharge. Forty inpatients were admitted in 2014-15 and 67 in 2016-17. There was no difference in baseline characteristics. Mean age was 30 ± 12.3 years and the mean age of onset was 17 ± 6.9 years. 93% were white British females. 30% were students, 87% had anorexia nervosa. 87% were informal. The mean number of previous admissions was 4.1 (0-30). Mean BMI on admission was 14.1 ± 2.2 . After the introduction of CBTE, length of stay was reduced from 17 ± 4 weeks to 13 ± 6 ($p=0.04$), whilst discharge BMI improved from 16.8 ± 2.4 to 18.4 ± 2.1 ($p=0.001$). Furthermore, there was a reduction in self-discharge ($p=0.05$) and readmission rates ($p=0.001$). Improvements on EDE-Q and CIA were similar. Our initial results suggest that inpatient CBTE can be replicated in the NHS, and has the potential to offer cost saving and improved patient outcomes.

Learning Objectives:

- To compare inpatient treatment programs based on traditional eclectic model or inpatient CBTE.
- To consider benefits and challenges of service transformation based on research in different health care systems.
- To describe the benefits of integrated psychological treatment for patients needing inpatient admission.

PS2.2.6: DBT skills training and the change of eating patterns among Russian women with eating disorders

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Eating disorders come with high level of emotional dysregulation expressed in distorted eating behaviour such as restrictive food intake, binge and purge, and compulsive overeating. Our research aims to assess the changes in distorted eating behaviour patterns among Russian women after participating in DBT skills training. We examined 46 female patients with binge eating disorder, bulimia nervosa, and OSFED before and after taking part in DBT skills training (Linehan 2015). Our methods include NVM (Dutch version of MMPI), DEBQ (Dutch Eating Behaviour Questionnaire), EDI (Eating Disorder Inventory), TAS-26 (Toronto Alexithymia Scale), EAT-26 (Eating Attitudes Test), and IES-2 (Intuitive Eating Scale-2). Statistical analysis (Mann-Whitney test) shows that participation in the DBT group decreases excessive concern with dieting, weight preoccupation, and fear of weight gain ($U=156.5$; $p=0.017$). It reduces episodes of binge eating and purging ($U=118.5$; $p=0.001$), anxiety level and emotions somatisation ($U=176.5$; $p=0.05$), and food preoccupation ($U=147.5$; $p=0.09$). It increases the effectiveness level and control in participants' lives ($U=166$; $p=0.03$) and the individual ability to distinguish sensations vs feelings and hunger vs satiety ($U=142.5$; $p=0.006$). It raises the level of unconditional permission to eat ($U=162.5$; $p=0.095$), the reliance on hunger and satiety cues ($U=149.5$; $p=0.04$), and eating for physical vs emotional reasons ($U=95$; $p=0.001$). External eating tends to decrease ($U=165.5$; $p=0.07$). Total IES-2 score goes up ($U=109$; $p=0.003$) reflecting an improvement of capability to

eat according to body cues. Our study shows that participation in the DBT skills training positively changes dysregulated emotional patterns and distorted eating behaviour among Russian woman with a history of eating disorders. Group participants could effectively extend DBT skills to their eating behaviour.

Learning Objectives:

- Describe the connection between emotional dysregulation and distorted eating behaviour.
- Assess the role of DBT skills training in changing the eating behaviour.
- Describe the factors improved in eating behaviour after DBT skills training.

PS2.3.1: Inflammatory markers in anorexia nervosa: an exploratory study

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Certain pro-inflammatory cytokines, such as interleukin (IL)-6 and tumour necrosis factor (TNF)-alpha; have been found to be elevated in people with anorexia nervosa (AN), compared to healthy individuals. Recent meta-analyses have highlighted the need to measure a broader range of cytokines in these patients to gain a greater understanding of the role of inflammatory markers in the underlying pathophysiology of AN. The current study quantified serum concentrations of 42 inflammatory markers (including pro- and anti-inflammatory cytokines, chemokines, adhesion molecules) from 27 people with AN and 13 healthy controls (HCs). Participants completed questionnaires to assess eating disorder (ED) symptoms and related psychopathology. BMI and fat mass was obtained. The pro-inflammatory cytokines IL-6 and IL-15 were found to be significantly elevated in AN participants compared to HCs and also negatively correlated with BMI ($p < .05$). Concentrations of TNF-beta; were significantly lower in the AN group, in comparison to HCs and significantly correlated with BMI ($r = 0.55$), fat mass ($r = 0.51$), and ED ($r = -0.37$) and general psychopathology ($r = -0.43$) symptom severity. The angiogenic cytokine, vascular endothelial growth factor (VEGF)-A was also lower in AN than in HC groups. All other inflammatory markers did not significantly differ between groups. Change in BMI (between a baseline and 24-week follow-up assessment) was significantly associated with changes in IL-17A and the chemokine macrophage inflammatory protein (MIP)-1beta. The current study measured multiple cytokines that had not been previously assessed in AN. IL-15 and TNF-beta; for the first time have been shown to be altered in people with AN in comparison to HCs. Previous findings regarding IL-6 were replicated. Future studies should aim to assess a broad range of cytokines and consider their relationship to key clinical characteristics.

Learning Objectives:

- Describe how inflammatory markers can affect brain functioning.
- Recognise that inflammation may play a role in the underlying pathophysiology of anorexia nervosa.
- Describe the differences in inflammatory markers observed between healthy controls participants and people with anorexia nervosa.

PS2.3.2: Neurobiology of Food Choice Across the Spectrum of Restrictive Eating

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Growing identification of the neural mechanism of choice among healthy individuals provides an opportunity to improve understanding of the neural underpinnings of maladaptive behavior in anorexia nervosa (AN). We administered a food choice task with fMRI to individuals across a spectrum of dietary restriction, with a laboratory lunch meal the next day. We hypothesized that 1) proportion of high fat choices and neural activation in the dorsal striatum during choice would differ between AN and healthy controls (HC); 2) these measures would begin to normalize with weight restoration; and 3) choice related activation in the dorsal striatum would increase per diagnostic group in proportion to the degree of dietary restriction. Study enrollment will be completed in Fall, 2018. Participants, to date, include individuals with AN (n=33), subthreshold AN (defined as clinically significant restrictive intake with BMI \leq 18.5 kg/m² for 3 months, sAN, n=17), dieting HC (HC-D, n=21) and HC (n=36). Repeated measures ANOVA of AN vs HC shows persistent disturbance and no significant change with weight restoration in task-based food choices (Group: $F_{1,40}=7.6$, $p=0.009$; Time: $F_{1,40}=2.9$, $p=0.096$) or in the laboratory meal (Group: $F_{1,44}=6.6$, $p=0.01$; Time: $F_{1,44}=0.2$, $p=0.67$). Preliminary fMRI analyses indicate that AN engage dorsal striatum during food choice, while HC do not, and this pattern persists after weight restoration. One-way ANOVA of the task shows a group difference ($F_{3,145}=11.2$, $p<0.001$), where patient groups (AN and sAN) differ significantly from HC and HC-D but not from each other. Regarding caloric intake at the lunch meal ($F_{3,138}=7.5$, $p<0.001$), HC did not differ from HC-D but did differ from sAN and AN; AN did not differ from sAN nor HC-D. These data highlight that dietary restriction is characteristic of AN and sAN, that such restriction is remarkably persistent in AN, and that dorsal striatal circuits are engaged when individuals with AN make decisions about what to eat.

Learning Objectives:

- Appreciate the significance and persistence of dietary restriction in anorexia nervosa and anorexia-like illnesses.
- Describe the neural underpinnings of food choice.
- Assess the cognitive neuroscience approach to understanding anorexia nervosa.

PS2.3.3: The Disruptive Effects of Estrogen Removal during Adolescence on Risk for Binge Eating in Female Rats

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Previous research in humans suggests that lower estrogen levels may increase genetic risk for binge eating during puberty. However, in humans, it is difficult to experimentally manipulate estrogen levels to examine causal effects. The binge eating resistant (BER)/binge eating prone (BEP) rat model shows excellent face validity for binge eating in humans and can be used to examine the causal effects of estrogen removal on binge eating risk. In this study, we compared rates of BEP phenotypes in female rats that underwent pre-pubertal ovariectomy (OVX) versus those left intact to confirm a role for

estrogen in pubertal risk for binge eating. We also examined the emergence of BER/BEP phenotypes during adolescence to identify when during development (i.e., pre-adolescence, mid-adolescence, adulthood) the OVX and intact rats diverge in their BEP status. The sample included 77 pre-pubertal OVX and 79 intact rats that underwent binge eating feeding tests from pre-puberty into young adulthood. Feeding tests consisted of 4-hour access to high fat/high sugar food (and ad lib access to water and chow) given 3 days/week. Results showed significantly increased rates (2-5x higher) of adult BEP phenotypes in OVX rats as compared to intact rats. Importantly, there were no OVX/intact group differences in binge eating in pre-adolescence, but significant differences emerged in early-to-mid-adolescence when the OVX BEP rats engaged in substantially more binge eating than any other group (i.e., OVX BER, intact BEP, intact BER rats). This pattern of results was not observed for chow intake (e.g., no OVX BEP/BER rat differences), suggesting a specific effect of pre-pubertal OVX on palatable food intake and BEP status. Overall, findings confirm that estrogen removal has substantial effects on later risk for binge eating, and that this risk emerges during adolescence where the absence of estrogen may disrupt typical brain development and lead to increased BEP phenotypes in adulthood.

Learning Objectives:

- Describe increases in binge eating during puberty in girls.
- Discuss the role of estrogen in these pubertal increases.
- Describe how lower levels/the absence of estrogen during puberty may alter brain development and lead to binge eating in adulthood.

PS2.3.4: Association between plasma nutrient levels and methylation of selected genomic regions in women with Anorexia Nervosa

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DNA methylation, an important regulator of gene expression, is reportedly altered in Anorexia Nervosa (AN) at genes that influence diverse physiological and brain functions. As DNA methylation is directly responsive to nutritional factors, it constitutes a plausible etiological factor in AN. This ongoing study examines correlations between methylation levels at 80 gene probes (reported in previous studies as being differentially methylated in AN) and plasma levels of micronutrients involved in DNA methylation (folate, B12, betaine, choline, methionine, and dimethylglycine). Thus far, we have obtained nutrient and methylation indices from 14 women with active AN, 30 women in whom AN had been in remission for at least one year, and 26 women with no eating disorder history. With BMI controlled, preliminary regression analyses identified significant overall associations between micronutrient and methylation levels at 29 of the investigated CpG sites—several of which have figured in previous research in AN. Among these, B12 was associated with methylation at a site in the ASPA gene (related to myelination and white matter), B12 and methionine were both associated with methylation at two sites in the ELOVL2 gene (related to aging), and methionine was linked to methylation at sites related to the HDAC4, PXDNL, and NRIH3 genes (associated respectively with histone acetylation, dopamine/glutamate

functioning, and lipid/cholesterol metabolism). Previous research has linked altered methylation at ASPA and ELOVL2 genes with chronicity of illness in AN. In associating plasma nutrient levels with methylation levels at genes that have elsewhere been found to be differentially methylated in AN and/or responsive to duration of illness exposure, our findings point to the possibility that some malnutrition-linked consequences in AN are epigenetically mediated.

Learning Objectives:

- Describe a nutrigenomic pathway that could be involved in the etiology and/or maintenance of Anorexia Nervosa.
- Summarize the changes in plasma micronutrient levels and DNA methylation levels that are observed in Anorexia Nervosa, and understand how the methylation differences may be related to malnutrition.
- Understand gene-specific alterations in DNA methylation in Anorexia Nervosa and of the relationship between such alterations and nutritional status.

PS2.3.5: Rate of weight loss predicts degree of bradycardia in patients with restrictive eating disorders

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Medical instability is an indication for hospitalization in patients with malnutrition secondary to anorexia nervosa (AN). Lower admission weight traditionally indicated greater degree of malnutrition and risk for refeeding syndrome. Patients with atypical anorexia nervosa (AAN) are “normal” weight by definition, highlighting the limitations of this approach. We examined weight-based characteristics, medical instability and eating disorder (ED) psychopathology among patients with AN (n=52) vs. AAN (n=42) within 24 hr of hospital admission. Participants were 12-24 yr-olds with median BMI (%mBMI) > 60% enrolled in a multicenter randomized clinical trial, the Study of Refeeding to Optimize inpatient Gains (StRONG; ClinicalTrials.gov NCT02488109). Rate of weight loss was defined as highest historical weight minus admission weight divided by duration of loss (mo) prior to admission. ANOVA compared AN vs. AAN upon admission; multiple variable linear regression examined associations between weight-based characteristics and heart rate (HR) or global EDE-Q score. Participants with AAN had significantly higher admission %mBMI than AN [95 ± 9 vs. 77 ± 6 %, $p < 0.001$]. Groups did not differ in age, total, % or rate of weight loss, duration of amenorrhea, HR, or EDE-Q score. Greater rate of weight loss was associated with lower HR when adjusted for baseline weight ($B = -1.25$, $p = 0.004$); higher presentation weight was associated with higher EDE-Q score when adjusted for rate of weight loss ($B = 0.06$, $p = 0.020$). In conclusion, participants with AN and AAN lost a similar percentage of body weight at a similar pace and presented with equally severe medical instability and ED psychopathology. However, those who lost weight faster were more medically unstable, and those admitted at higher weight had worse ED cognitions. These findings point to rate of weight loss as a potentially useful marker of illness severity and underscore the limitations of relying on low presentation weight alone.

Learning Objectives:

- Describe similarities and differences in medical instability and weight-based characteristics among patients with anorexia nervosa (AN) and atypical anorexia nervosa (AAN).
- Assess the role of weight-based characteristics such as rate of weight loss in determining medical instability in restrictive eating disorders.
- Discuss limitations of using admission weight alone in assessing degree of malnutrition in restrictive eating disorders.

PS2.3.6: Correlates of the Discrepancy Between Predicted and Measured Resting Energy Expenditure in Individuals with Bulimia Nervosa

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Weight loss is associated with metabolic alterations designed to facilitate a return to one's initial/highest body weight. For individuals with bulimia nervosa (BN), many of whom present to treatment with significant weight suppression, metabolic pressure to regain lost weight may maintain the extreme attempts at weight control (e.g., dietary restraint, inappropriate compensatory behaviors) characteristic of this disorder. Previous studies have found differences in metabolic efficiency in individuals with BN compared to healthy controls, including lower resting energy expenditure (REE; amount of energy used when the body is at complete rest). However, other studies have found no differences in REE in those with BN, suggesting that reductions in REE may not occur for all individuals. We hypothesized that current age and longer dieting history would be correlated with greater discrepancies between predicted REE (REE-P) and measured REE (REE-M). Participants (n=35, projected N=40 by August 2018; treatment-seeking adults with BN; BMI M=18.2, SD=5.9) completed demographic questionnaires and the Dieting and Weight History Questionnaire. REE-M was measured objectively using indirect calorimetry via a ventilated canopy hood system, and REE-P was calculated using Mifflin-St. Jeor equations. Average discrepancy between REE-M and REE-P was 113.4 calories/day ($t=-1.9$, $p=.06$), though substantial variability was present (range=712.1). Significant moderate-to-large negative partial correlations were found between the REE-M/REE-P discrepancy and age ($r=-.55$, $p=.01$, $M=31.3$ years, $SD=12.6$), and length of dieting history ($r=-.49$, $p=.03$, $M=17.2$ years, $SD=11.4$), when controlling for current BMI. Thus, contrary to our hypotheses, greater difference between REE-P and REE-M was correlated with younger age and shorter length of dieting history. These preliminary results may indicate that metabolic changes occur rapidly due to BN symptoms and dieting behaviors but may improve over time.

Learning Objectives:

- Understand the alterations in metabolic efficiency experienced by individuals with bulimia nervosa.
- Appreciate the clinical relevance of resting energy expenditure in individuals with eating disorders.
- Discover the relationship between individuals' predicted/measured resting energy expenditure discrepancy, age, and length of dieting history.

PS2.4.1: The role of DNA methylation of the Histone deacetylase 4 (HDAC4) gene in Anorexia Nervosa

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The HDAC4 gene – a gene implicated in regulating transcription of genes involved in neuroplasticity and neurodevelopment – has emerged in several recent studies as a possibly relevant component in eating disorder etiology and associated phenotypes. There is not much known about the specific role of HDAC4 in Anorexia Nervosa (AN). In the present study, we study the association between HDAC4 methylation and AN, as well as its link with specific symptomatology and remission status. DNA from 75 female symptomatic patients (AN-active), 31 female recovered patients (AN-R) and 41 sex and age-matched controls was obtained from lymphocytes and analyzed for genome-wide DNA methylation. HDAC4 probes were extracted and subjected to regression analyses. In all analyses, age was included as a covariate. False Discovery Rate was set to 5%. The AN-active group had greater HDAC4 methylation relative to the control group (50 probes) and to the AN-R group (87 probes). There were no differences between the AN-R and control group. In the full sample, greater HDAC4 methylation was associated with eating disorder symptoms as assessed with the Eating Disorder Questionnaire (67 probes) and with the Eating Attitudes Test (EAT-26) (60 probes), as well as with depressive symptoms (CES-D, 11 probes). These associations were not significant when BMI was controlled for. Within the AN-active group, HDAC4 methylation was positively associated with restricted expression (DAPP subscale), impulsivity (BIS-11), and perfectionism (MPS) (all one probe). Together, these data indicate that DNA methylation in the HDAC4 gene plays a role in AN. The finding that this gene was linked to current AN diagnosis and to BMI, but only marginally to the behavioural and cognitive symptoms of AN, suggests that alterations in HDAC4 methylation may result from physical consequences of malnutrition / starvation, rather than being linked to the emotional and cognitive characteristics of AN.

Learning Objectives:

- Understand what epigenetic processes and histone deacetylases are.
- Describe the relevance of epigenetic processes for Anorexia Nervosa, in particular with regard to histone deacetylases.
- Understand the challenges and limitations of epigenetic research in Anorexia Nervosa.

PS2.4.2: Reduced Reward Learning in Bulimia Nervosa: Novel Use of the Probabilistic Reward Learning Task and Associations with Binge Eating and Compensatory Behaviors in Current Bulimia Nervosa

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Theoretical models and empirical research suggest that persons with bulimia nervosa may have reduced responsivity to reward (e.g., food, money) that maintains binge eating and compensatory behaviors. One facet of reward responsivity is reward learning, or the ability to change one's behavior in response to implicit reward receipt (e.g., increasing time spent with a friend because you enjoy their company). Importantly, previous research found that reward learning was compromised in persons recovered from bulimia nervosa. However, few studies have tested for reward learning dysfunction in persons with

current bulimia nervosa. In order to fill this gap in the research literature, medication-free women with bulimia nervosa (n=20) and healthy controls matched on age, educational attainment, and sex (n=20) completed the Probabilistic Reward Learning Task, a monetary reward-learning task. Linear-mixed models showed that women with bulimia nervosa (vs. healthy controls) took significantly longer to learn implicit stimulus-reward associations. In women with bulimia nervosa, reward-learning latency was associated with increased frequencies of self-induced vomiting and excessive exercise, but not binge eating, restricting, or laxative and diuretic misuse. Our findings suggest that reduced reward learning may represent a promising candidate neurocognitive biomarker for bulimia nervosa. Past research found medications that modulate reward processing (e.g., aripiprazole) normalize reward learning and decrease symptom expression in other forms of psychopathology. Thus, future research is needed to test whether novel adjuvant applications of medications that improve reward-learning deficits have utility for reducing symptoms of bulimia nervosa.

Learning Objectives:

- Describe what is known about reward responsivity in bulimia nervosa.
- Assess the potential role of reward responsivity and reward learning in the expression of bulimia nervosa symptoms, and how reward learning differs between persons with and without bulimia nervosa.
- Evaluate findings on reward learning and reward responsivity dysfunction in bulimia nervosa and assess how these findings may be leveraged to identify and test novel treatments for bulimia nervosa.

PS2.4.3: Brain white matter abnormalities in females with Binge eating disorder

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Binge eating disorder (BED) is the most prevalent eating disorder and frequently associated with obesity. Although with unclear etiology, few pilot studies reported that altered functioning of reward and inhibitory control brain regions are implicated in its pathophysiology. In order to contribute to a better understanding of the neural substrates underlying the disorder, the purpose of this study is to conduct the first white matter microstructure examination in BED. Diffusion tensor imaging and tract-based spatial statistic were used for cross-sectional comparisons of fractional anisotropy, mean, axial and radial diffusivity maps between females with BED and two control groups: women at normal weight and obese. White matter quantitative mean values for the parameters were extracted from regions of interest set a priori for further investigation. The current analysis identified extensive differences in white matter microstructure between the BED and normal weight control groups, and, to a less extent, between the BED and obese control groups. In relation to BED, specifically, this investigation revealed important findings. First, higher frequency of binge eating episodes is associated with higher mean and radial diffusivity in the uncinate fasciculus. Second, greater axial diffusivity in the uncinate fasciculus together with greater radial diffusivity in the inferior longitudinal fasciculus, which are fiber bundles connecting limbic structures to the orbital frontal cortex, and cingulate gyrus are the main factors that characterize individuals with BED and discriminate them from individuals who are obese. Third, BED group was characterized by abnormalities of white matter pathways involved in processes of appraisal

and choice outcome, which may reflect a failure to update the value of food and food-related outcome, and ultimately lead to "compulsive", persistent, and habitual binge eating behavior.

Learning Objectives:

- Describe the white matter pathways involved in food initiation and maintenance identified to be altered in BED by the study.
- Describe the white matter pathways that characterized the BED group and obese individuals with out BED and its significance in treatment strategies.
- Describe how compulsivity is the root problem in BED and how it resembles obsessive compulsive disorder.

PS2.4.4: Reduced cortical complexity in Anorexia Nervosa: a study by means of Fractal Dimensionality

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In the present study we used Fractal Dimensionality (FD) – a technique specifically designed for the analysis of complex structural patterns - to examine the cortical complexity in a sample of patients with acute Anorexia Nervosa (AN) and in a sample of patients with weight-recovered AN (REC-AN). 38 patients with acute AN, 38 healthy controls (HC) and 20 patients recovered from AN underwent MRI scanning. Data was collected on a Philips Achieva 1.5 Tesla scanner equipped for echo-planar imaging. Surface extraction was completed using FreeSurfer package. FD was computed using a specific Matlab toolbox (Madan et al., 2016). Results showed a global FD reduction in the AN group when compared to HC. Total FD significantly correlated with BMI and duration of illness in patients with AN. Regression analysis evidenced a relationship between FD and age, BMI, cortical volume and gyrification index in the experimental group. The FD of the left middle occipital gyrus and the right subparietal sulcus were significantly decreased both in acute AN patients and in REC-AN group when compared to HC. Our findings support the hypothesis that cortical alterations in AN are complexly determined by several variables and confirm the importance of age in determining cortical complexity. FD represents a method to explore cortical complexity that demonstrated to be sensitive to the effects of malnutrition. Moreover, the relation between FD and gyrification index is consistent with previous researches that evidenced that cortical folding is a high source of cortical complexity. In conclusion, the evaluation of cortical morphology by means of FD allows to widen the horizons of surface-based analysis by integrating cortical thickness and gyrification data with novel and non-redundant information.

Learning Objectives:

- Describe the relations between cortical structure alterations and specific clinical variables in Anorexia Nervosa. Cortical morphology is here described by means of Fractal Dimensionality, an index which is specifically designed for the analysis of complex structural and morphological patterns.
- Comprehend a novel method to characterize the structure, the morphology and the complexity of the cerebral cortex in Anorexia Nervosa.
- Comprehend the usefulness to integrate the information given by other structural and morphological parameters (i.e. cortical thickness and gyrification) with an index which is likely to provide novel and non-redundant information.

PS2.4.5: Performance and brain activity during the Wisconsin Card Sorting Test is aberrant in adolescents with obsessive-compulsive disorder but not adolescents with weight-restored anorexia nervosa

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Obsessive-compulsive disorder (OCD) and anorexia nervosa (AN) both show a peak age of onset during adolescence and share a number of phenotypic features, such as rigid rule-bound behavior and perseverative thinking. There is evidence of difficulties with set shifting or task switching in adults with each disorder, but evidence in adolescents is limited. Further, no studies have previously directly compared AN and OCD on this cognitive process or examined comparative neural correlates. This study provides preliminary evidence to address this gap by measuring brain activity with functional magnetic resonance imaging (fMRI) during a computerized version of the Wisconsin Card Sorting Test (WCST) in female adolescents with OCD (n=11) or weight-restored AN (WR-AN) (n=14) and healthy controls (n=24). Results revealed significantly greater perseverative errors in the OCD group than healthy controls, but no difference between WR-AN and the other groups. Greater activity in the right front pole, inferior frontal gyrus, and middle frontal gyrus during the task (compared to a control matching task) was associated with more perseverative errors in the OCD group, but not healthy controls. The correlation between perseverative errors and brain response to the task in the WR-AN group was not different from either comparison group. This suggests greater impairments in set shifting in adolescents with OCD than in adolescents with WR-AN. These findings suggest that similarities between OCD and AN are driven by obsessive compulsive features present in AN.

Learning Objectives:

- Assess the overlap in set shifting between anorexia nervosa and obsessive compulsive disorder.
- Describe the brain regions involved in set shifting.
- Consider implications for interpreting results of set shifting studies in anorexia nervosa and how they impact treatment planning.

PS2.4.6: Clinical correlates of cortical and subcortical brain morphology in a large naturalistic sample of inpatients with anorexia nervosa.

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Anorexia nervosa (AN) is associated with brain reductions and cortical thinning. The mechanisms underlying these changes are not known. The objective of this study was to test for associations between Freesurfer derived cortical and subcortical brain morphology and clinical characteristics, including diagnostic information and biochemical test results, in a large naturalistic sample of patients with AN. T1-weighted magnetic resonance brain images of adolescent and adult patients with AN

collected during routine clinical evaluation between 2008 and 2017 at two inpatient clinics were combined and analysed (n = 252). Data from healthy controls with a similar demographic profile will be used to assess case-control differences in brain morphology. Our study comprises the largest sample of patients with AN to date, and will contribute to our understanding of AN-related brain characteristics and their clinical correlates. As this is an ongoing study, analyses are not yet completed. These will be completed during fall 2018, and results will be presented at the conference.

Learning Objectives:

- Describe the subcortical brain changes in anorexia nervosa.
- Describe the cortical brain changes in anorexia nervosa.
- Reflect on the clinical correlates of brain changes in anorexia nervosa.

PS2.5.1: Application of Network Analysis to Investigate Sex Differences in Interactive Systems of Eating Disorder Psychopathology

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Enhanced Cognitive Behavioral Therapy for Eating-Disorders (CBT-E) is a widely used treatment for eating disorders (EDs). However, the theoretical assumptions underlying CBT-E have not been rigorously tested in men. The purpose of this study was to compare the interconnectivity among ED symptoms in men versus women using network analysis. Consistent with cognitive-behavioral theories of EDs, we hypothesized that symptoms related to overvaluation of weight and shape would emerge as the most important (central) symptoms in networks for both men and women. Participants (n=1354) were patients with EDs who were users of Recovery Record, a smartphone app that allowed individuals to monitor their ED symptoms. Participants were matched on age and duration of illness. Separate networks were created for both sexes and centrality indices of betweenness, closeness, and strength were calculated. The Network Comparison Test (NCT) was used to identify sex differences in the overall structure of networks and the cumulative strength of the connections within networks. For both sexes, items related to food restriction had the highest betweenness and closeness centrality values and binge-eating items emerged as highest in strength. The NCT identified significant differences in global strength ($p=.03$), but not network invariance ($p=.10$) suggesting that although the structure of the networks was not statistically different, the strength of the connections within the network was greater for women. Results showed that EDs are maintained through similar behavioral processes in both sexes; however, higher global strength suggested that ED symptoms may be more difficult to disrupt in women. Lower global strength in networks for men suggested that there was a wider variety of symptom presentations in men with EDs. Overall, our findings have important clinical implications by supporting the theoretical underpinnings of cognitive-behavioral models of EDs in both men and women.

Learning Objectives:

- Understand the dynamic relationships between eating disorder symptoms in both men and women.
- Identify sex differences and similarities in networks of eating disorder symptoms.
- Assess the utility of common theoretical and clinical frameworks for eating disorders in men.

PS2.5.2: Assessing Barriers to Research Participation and Eating Disorder Intervention Utilization in Racial/Ethnic Minority College Women

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There are disparities in research and treatment for minority individuals with eating disorders (EDs). This study reports on barriers to research participation and intervention use encountered by minority college women in the Healthy Body Image Program (HBI), an online, guided self-help ED intervention. HBI used online screening to identify women (N=926) with clinical/sub-clinical EDs at 28 U.S. colleges and offered an online intervention or referral to in-person care, based on randomized condition. Participants were classified as minority (n=422) if they identified as either non- Caucasian or Hispanic, and non-minority (n=504) otherwise. Chi-square analyses examined if minorities were less likely to participate in the research study or engage in the offered program or referral. Of the minorities, 84.1% did not use the referral to in-person care, which was significantly higher compared to 76.6% of the non-minorities ($p=.05$). Of the minorities, 22.9% did not enroll in the study, and 36.7% did not use the intervention, which were not significantly different than the 27.8% of non-minorities who did not enroll, or 36.4% who did not use the intervention. To enhance understanding of these findings, a follow-up study was conducted on the barriers faced by minority women who did not seek in-person care (n=63 responses). The most commonly endorsed barriers were: believing their problem was not serious enough for treatment, believing one should help themselves, believing people of their racial/ethnic background do not have EDs, in-person treatment being too expensive, turning to other sources of support, and lack of trust in providers. Results illuminate the barriers that prevented participants from utilizing the referral to in-person care. This information is helpful in guiding future research towards decreasing treatment disparities for minority individuals with EDs, such as improving outreach to emphasize that EDs affect individuals across all racial/ethnic backgrounds.

Learning Objectives:

- List the engagement rates in offered treatment by minority and non-minority individuals with EDs.
- To present some of the barriers endorsed by minority individuals who do not utilize online or in-person treatment for their ED symptoms.
- To consider what improvements could be made to programmatic and in-person ED interventions to be more inclusive and culturally relevant for racial/ethnic minority groups.

PS2.5.3: “Pretty for a Black girl”: Messages Black women receive about their bodies and health

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Extant research on eating and appearance concerns has been largely informed by Eurocentric beauty ideals that emphasize thinness and leanness. It has been suggested, however, that Black women may not identify with such ideals and instead attribute value to culturally-specific physical features. The purpose of our qualitative study was to examine messages Black women receive about attractiveness and investigate how such messages impact their body satisfaction and behaviors related to eating and exercise. Twenty-four Black female college students participated in individual (n = 13) and group (n = 11) interviews regarding the messages they receive about attractiveness, perceptions of beauty ideals, body satisfaction, and eating and exercise behaviors. Preliminary analyses revealed that participants generally reported receiving mixed messages about the attractiveness of their natural features, particularly lip size, buttocks size, hair texture, and skin tone. Specifically, participants reported that while such attributes were seen as undesirable while growing up, they are now regarded as desirable in mainstream culture. Participants also reported that they had felt pressured to maintain their bodies through diet and exercise to attain certain body ideals (e.g., toned arms, flat stomach, hourglass figure). Although participants indicated that women of color are becoming increasingly visible in the media, many perceived that diversity is still lacking across media outlets and, further, they did not feel their cultural identities are well-represented in existing body positive movements. The results of this qualitative study suggest more research is needed to better understand the risk of internalizing a blend of cultural beauty ideals for Black women, particularly regarding their natural features in the context of mainstream culture. Such results also support the incorporation of increased diversity within body positive movements and eating disorder prevention efforts.

Learning Objectives:

- To explore the messages Black women receive about beauty ideals from the media, peers, and family.
- To examine how messages of attractiveness impact Black women's satisfaction with their own bodies, as well as their eating and exercise behaviors.
- To discuss the importance of incorporating more diversity in body positive movements and eating disorder prevention efforts for Black women.

PS2.5.4: The Association between Maternal Criticism and Body Dissatisfaction on Disordered Eating Pathology across Racial and Ethnic Groups

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Limited research exists examining the influence of familial weight, shape, and size-related criticism in predicting disordered eating pathology across racial and ethnic groups. The current study sought to assess the differential influence of perceived maternal criticism and individual body dissatisfaction on disordered eating pathology in a sample of college undergraduates. The sample consisted of 794 individuals. Disordered eating pathology, body dissatisfaction, and perceived maternal criticism were assessed in 507 White, 138 Latinx, and 149 Asian American undergraduates. This racially and ethnically diverse sample of undergraduates was representative and consistent with existing literature; body dissatisfaction and disordered eating were positively associated with one another, and more so for females than for males. Individual body dissatisfaction and perceived maternal criticism differentially predicted disordered eating pathology across racial and ethnic groups. Among Whites and Latinx, body

dissatisfaction was more strongly associated with disordered eating pathology than was perceived maternal criticism, and this was consistent across gender. However, among Asian Americans, perceived maternal criticism was more strongly correlated with disordered eating pathology than body dissatisfaction was and this was consistent across gender. Maternal criticism was the most salient predictor of disordered eating pathology among Asian Americans. Findings speak to the role of culture and may inform intervention science and treatment for eating pathology.

Learning Objectives:

- Describe the influence of maternal criticism on body dissatisfaction and disordered eating.
- Evaluate disordered eating pathology across racial and ethnic groups.
- Discuss the role of culture on disordered eating pathology, treatment, and intervention science.

PS2.5.5: Role of gender in the treatment experiences of people with an Eating Disorder: A Metasynthesis

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This study is designed to synthesise the available qualitative research studies to more broadly understand the diverse experiences of ED and their treatment, specifically in relationship to issues of gender. The methodology involved a systematic search and quality appraisal of the literature published after 1980 using terms that aimed to represent the primary concepts of “role of gender” and “treatment experiences” and “eating disorders”. Nine qualitative studies met the inclusion criteria. Meta-themes were inductively generated through a synthesis of data across themes from the relevant included papers. Analysis of data was constructed around three meta-themes, each with subthemes. The first meta-theme "Out of sight, out of mind" depicted the experience of gender issues that were marginalised in treatment. More specifically for transgender people, when gender issues were ignored by treatment providers, this frequently led to non-disclosure of their gender identity. The second meta-theme "Lack of literacy among health care providers" focused on issues related to misdiagnosis of EDs, and the question of whether this was related to a lack of health literacy amongst health professionals. The final theme "Pathways into treatment that address stigma and other barriers" highlighted the need for the development of future treatment interventions address the complex social reality of the experiencing person, including questions of gender. Gender issues impact upon the ED experience and require broader consideration in the development and evaluation of ED treatment interventions, including the further development of gender-informed interventions.

Learning Objectives:

- Ignoring gender in therapeutic interventions was not neutral in its effects.
- It is important to train practitioners in the identification of EDs in men, including in interventions that give men therapeutic opportunities to examine and question gender norms rather than inadvertently applying them to themselves.
- The gap in treatment services is likely to be a significant barrier to care and has significant implications for clinical practice and future research.

PS2.5.6: Is lack of integration into mainstream culture associated with more disordered eating among immigrants?

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Individual experience of acculturation with a host culture is believed to be an important predictor of immigrant wellbeing. Multiple studies on immigrant groups have linked acculturation strategy of integration with the most favorable adjustment outcomes, while acculturation strategy of marginalization - with least favorable ones. Within current context of migration, globalization, and multiculturalism, exploring the relations between immigrant acculturation styles and their eating behaviors seems particularly relevant. A study on 253 Georgian women living in UK and USA examined the links between their acculturation strategies and eating patterns. Measures of disordered eating and acculturation included Eating Disorder Examination Questionnaire (EDEQ) and East Asian Acculturation Measure (EAAM). Findings suggested that acculturation strategy of integration was indeed associated with healthiest eating patterns - significant mild negative correlations were identified between integration and eating concern, and shape concern outcomes ($r = -0.14, p < 0.05$; $r = -0.16, p < 0.05$). Strategies of separation and marginalization, on the other hand, were associated with more disordered eating. Regression analysis proved that separation and marginalization can be considered predictors of unhealthier eating on four (eating concern, shape concern, weight concern and global) out of five subscales of EDEQ (separation: $\beta = .22, p < 0.001$; $\beta = .20, p < 0.01$; $\beta = .24, p < 0.001$; $\beta = .22, p < 0.001$; marginalization: $\beta = .22, p < 0.001$; $\beta = .18, p < 0.01$; $\beta = .18, p < 0.01$; $\beta = .21, p < 0.01$). To conclude, findings suggested that lower mainstream culture orientation, e.i. lack of integration into host society as a common feature of separation and marginalization, might be accountable for unhealthier eating patterns. Research on acculturation in the context of eating disorders can contribute to advancing preventive measures and improving interventions targeted to immigrant populations at risk.

Learning Objectives:

- Examine the link between acculturation strategies and eating patterns.
- Recognize the role of integration into mainstream culture with respect to healthy eating.
- Reflect upon why low host culture orientation might be a risk factor among immigrants.

PS2.6.1: Identifying Programmatic and Population-Level Barriers to Eating Disorder Treatment for Cisgender Males and Transgender Individuals

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The first aim of this study was to use Geographic Information Systems (GIS) to map the inpatient, residential, and partial hospitalization/intensive outpatient (PHP/IOP) ED treatment programs that accept cisgender males and transgender individuals in California. The second aim of this study was to identify population-level characteristics that may impact access to ED treatment for cisgender males and transgender individuals. Based on public registries from the Alliance for Eating Disorder Awareness and the Eating Disorder Resource Center accessed between 12/2017-01/2018, we identified 116 ED treatment programs within the state of California. A total of 76 programs (6 inpatient, 27 residential,

and 43 PHP/IOP) participated in a phone vetting protocol. GIS software was used to map all 76 ED treatment programs. We assessed accessibility of the treatment programs by importing 5-year 2015 American Community Survey (ACS) data regarding income, health insurance, urbanicity, and transportation at the level of census tracts. Results indicated that cisgender males and transgender individuals may have reduced availability to ED treatment programs. For residential ED programs, 16 accept cisgender males, 13 accept transgender individuals on a case-by-case basis, and four only accept transgender individuals whose sex assigned at birth is female. Four residential programs did not accept transgender individuals. For PHP/IOPs, 41 accept cisgender males and 39 accept transgender individuals without restrictions. One PHP/IOP only accepts transgender individuals whose sex assigned at birth is female and one PHP/IOP accepts adolescent transgender individuals on a case-by-case basis. Two PHP/IOPs did not accept transgender individuals. All six inpatient programs accept cisgender males and transgender individuals. Preliminary results of ACS plots indicate that a majority of facilities were located in urban regions with high levels of transportation access.

Learning Objectives:

- Describe the gaps in treatment accessibility for cisgender males and transgender individuals.
- Identify population-level characteristics that impact access to eating disorder treatment for cisgender male and transgender individuals.
- Describe the use of Geographic Information Systems (GIS) as a method for eating disorder research.

PS2.6.2: Eating Disorders and Intersectionality: Disordered Eating Symptoms at the Intersection of Sexual Orientation and Ethnicity

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Research documents elevated risk for disordered eating among sexual minority individuals; however, research on differences between specific sexual minority subgroups, including bisexual and questioning, is limited. Furthermore, despite evidence of mental health disparities associated with minority stress related to ethnicity and sexual orientation, research on the intersection of sexual orientation and ethnic identities is even more limited. This study aimed to examine differences in disordered eating between ethnic groups in college students identifying as sexual minorities. A secondary analysis was conducted on a sample of college students between the ages of 18 and 30 (N = 705) from 12 universities. The analytic sample includes students identified as Asian (n = 77), Black (n = 28), Latina/o (n = 75), White (n = 525); and gay/lesbian (n = 216), bisexual (n = 343), or questioning (n = 146). Data were weighted to represent the university populations. Participants completed the Eating Disorder Examination Questionnaire (EDE-Q) to assess eating disorder symptoms (higher = more symptoms). A two way ANOVA stratified by gender revealed a significant interaction effect between sexual orientation and ethnicity among women (p < .001) and men (p < .001) on Global EDE-Q Scores. Post hoc tests revealed significant differences between ethnicities. Among lesbian women, Asian women scored higher than White women (p < .01). Among women identifying as questioning, White and Latina women scored higher than Asian women (p < .001). Among gay men, both White and Latino men scored higher than Asian men (p < .001). Among bisexual men, White men scored highest overall (p < .001). These findings suggest that certain intersecting forms of minority stress may have differential implications for

disordered eating. Continued research on the intersectionality of sexual orientation and ethnicity as it relates to disordered eating risks and tailored prevention and screening efforts are needed.

Learning Objectives:

- Consider gaps in the current literature on eating disorder risk and the intersection of sexual orientation and ethnicity.
- Identify and evaluate potential factors increasing risk for eating disorders among individuals identifying as both a sexual and ethnicity minority.
- Discuss the importance of understanding intersectionality as it relates to eating disorder risk factors among sexual minority college students and the clinical implications.

PS2.6.3: Eating Disorder Behaviors in Transgender and Gender Nonconforming Individuals: Findings from Project AFFIRM

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Estimates of the prevalence of eating disorders in transgender and gender nonconforming (TGNC) individuals vary. Project AFFIRM is a multi-site longitudinal study evaluating a spectrum of social, psychological, and medical challenges faced by this at-risk population. Non-treatment seeking TGNC adolescents and adults at three sites (New York, Atlanta, San Francisco) were interviewed in-person as part of Project AFFIRM. Participants were asked 10 questions about eating disorder symptoms. Data was collected on demographics, gender identity, weight history, health care access, and general mental health for the year prior to assessment. 287 individuals (Mean 35.7y, SD 13.4) participated from 08/2017 – 03/2018. Current gender identities reported were: 13.5% (39) Woman, 6.6% (19) Man, 25% (72) Transgender woman, 22.9% (66) Transgender man, 11.1% (32) Non-binary, 11.8% (34) Genderqueer, and 9% (26) Another gender identity. During the past month, 37% (107) individuals reported eating disorder behaviors, with 34.1% (98) reporting objective binge episodes, 3.5% (10) self-induced vomiting, 3.8% (11) laxative, diuretic, or other medication use to control weight or shape, and 7.3% (21) compulsive exercise to control weight or shape. Of participants with active eating disorder symptoms, 60.1% (65) had seen a mental health practitioner in the past three months and 81.3% (87) identified a specific healthcare site they visited when sick or in need of advice about their health, with 50.6% (44) visiting a clinic or health center, 54% (47) a doctor's office or HMO, 1.1% (1) a hospital emergency room, 4.6% (4) a hospital outpatient department, and 2.3% (2) Other. Over one third of TGNC participants reported active eating disorder symptoms in the past month. As the majority of these individuals report accessing healthcare across a range of clinical settings, dissemination of information on eating disorder identification and treatment is critical.

Learning Objectives:

- Describe the prevalence of eating disorder behaviors in transgender and gender nonconforming adolescents and adults.
- Identify the common healthcare sites at which transgender and gender nonconforming individuals with eating disorder symptoms present for treatment.

- Appreciate the importance of disseminating information related to the screening, identification, and treatment of eating disorders to healthcare providers caring for this at-risk population.

PS2.6.4: Disordered eating and sexual orientation in women: A meta-analysis

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Most research in the field of eating disorders and disordered eating focuses on heterosexual women. Whereas studies with men consistently show that homosexual and bisexual men have a higher risk for body dissatisfaction and eating pathology than heterosexual men, research on the sexual orientation women is contradictory. We examined the connection between sexual orientation and disordered eating in women by conducting a meta-analysis. Twenty-one studies met inclusion criteria, and 17 separate meta-analyses were conducted, dividing the concept of disordered eating into three categories: restricting, bingeing and purging. Heterosexual women reported restricting more than lesbians, with a small effect size ($d=-0.25$), but bingeing less than lesbians, with a medium effect size ($d=0.34$). Bisexual women reported significantly higher rates of overall disordered eating ($d=0.28$) and restriction ($d=0.38$) than heterosexual women, with small effect sizes. They also reported restricting ($d=0.85$) and purging ($d=0.72$) more frequently than lesbian women. Women who identified themselves as “mostly heterosexual” reported restricting ($d=0.22$), purging ($d=0.36$) and bingeing ($d=0.34$) more than exclusively heterosexual women. Study quality moderated the association between sexual orientation and disordered eating, with high- but not low-quality studies supporting the hypotheses. Overall, results suggest a possible explanation for conflicting findings about disordered eating in lesbian women, since lesbian women tend to restrict less than heterosexual women, but binge more. Findings from low quality studies should be regarded with caution. High levels of disordered eating in bisexual women and “mostly heterosexual” women than in heterosexual women raise the possibility that confusion about sexual identity, rather than sexual orientation itself may be associated with disordered eating.

Learning Objectives:

- Explain what is known about the association between sexual orientation and disordered eating in women.
- Synthesize the results of 21 relevant studies of restricting, bingeing and purging behaviors by heterosexual, lesbian, bisexual and “mostly heterosexual” women.
- Suggest an explanation for the apparent lack of consistency in past research on the subject.

PS2.6.5: Eating disorder screening in gender nonconforming adolescents

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The purpose of our study was to screen gender nonconforming adolescents for eating disorders and to assess different aspects of eating disorder psychopathology in this population. Adolescents ages 13 to 22 years presenting to a gender clinic at an academic medical center were invited to complete the Eating Disorder Examination Questionnaire (EDE-Q) and a questionnaire assessing weight manipulation for gender-affirming purposes. EDE-Q global and subscale scores (restraint, eating concern, shape

concern, weight concern) were compared to population norms. Weight was reported as % median body mass index (%mBMI = BMI/median BMI x 100), where mBMI was calculated as the 50th percentile BMI for age, height, and assigned sex at birth. We report on the initial 57 participants (mean age 16.9 ± 1.7 years, mean %mBMI $117.9 \pm 33.0\%$); $n=40$ assigned female (AF; mean age 16.6 ± 1.6 years, mean %mBMI $124.8 \pm 32.1\%$), and $n=17$ assigned male (AM; mean age 17.1 ± 2.4 years, mean %mBMI $103.8 \pm 30.6\%$). Of all participants, 44% were on gender-affirming hormonal therapy (53% AF, 24% AM). Average global EDE-Q score for our sample (1.43 ± 1.20) was within population norms (1.55 ± 1.21). However, 9 participants (16%; 7 AF, 2 AM) had global scores above the EDE-Q norms, 4 of whom (2 AF, 2 AM) had above-norm scores across all 4 subscales. Of these 9 participants, 5 (56%; 4 AF, 1 AM) were on hormonal therapy. Across the entire sample, 70% ($n=40$; 75% AF, 59% AM) reported attempting to change weight due to body dysphoria, of whom 23% ($n=13$) had above-norm global EDE-Q scores. Of the 40 AF participants, 5 (13%) endorsed manipulating weight specifically for menstrual suppression, 2 of whom also had above-norm global EDE-Q scores. Our results demonstrate that many gender nonconforming adolescents engage in disordered eating behaviors, mostly for gender affirming purposes, and may be at risk for developing eating disorders.

Learning Objectives:

- Recognize that many gender nonconforming youth engage in disordered eating behaviors.
- Understand that gender nonconforming youth engage in disordered eating behaviors for gender affirming purposes.
- Describe some weight manipulation behaviors gender nonconforming youth may engage in to relieve gender dysphoria.

PS2.6.6: Predictors of muscularity-oriented disordered eating: What roles do gender, ethnicity, and sexual orientation play?

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Body dissatisfaction and disordered eating have historically been considered gendered and culturally-bound phenomena. Despite increasing evidence that the drive for muscularity may be more common in males than females and is prevalent across diverse ethnic groups, little is currently known of the rates of muscularity-oriented disordered eating (MDE) pathology in diverse populations. This study examined the role of gender, ethnicity, and sexual orientation in predicting MDE pathology in an online sample. The sample ($n=426$) was recruited from Amazon's Mechanical Turk, comprising individuals identifying as Caucasian, African American, Asian, and Latino. Participants completed an online questionnaire (Eating for Muscularity Scale) examining MDE attitudes and behaviors. Results found males reported greater impairment, MDE dieting behavior, and overall MDE pathology than female counterparts. There were no differences at the subscale or total scale level between heterosexual and homosexual participants; nor between individuals identifying as Caucasian, African American or Latino. Asian participants, however, reported significantly higher MDE dieting behaviors, impairment, and overall MDE pathology than other ethnic groups. The finding that males exhibit higher MDE pathology than females is consistent with previous research examining the pursuit of muscularity and related sequelae. However, the absence of ethnic differences and differences between sexual orientations is novel. Previous research has indicated that Asian males typically report a higher drive for muscularity than Caucasian males, however, this is the first study that has examined MDE in ethnically diverse populations. As previous research has relied upon thinness-oriented measures, we suggest that this may have contributed to the underestimation of

body dissatisfaction and eating pathology in ethnically diverse population. These findings highlight the need for culturally-sensitive practice in assessing MDE.

Learning Objectives:

- Describe components of muscularity-oriented eating pathology and how these differ from thinness-oriented eating pathology.
- Reflect on how differences in gender, ethnic, and sexuality influence our internalization of muscular body ideals and engagement in muscularity-oriented disordered eating.
- Integrate findings from this research to inform culturally-sensitive practice in treating eating pathology.

PS2.7.1: Anorexia Nervosa and treatment outcome: the role of the neuropsychological and clinical characteristics

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To date, the role of neuropsychological difficulties in anorexia nervosa (AN) as predictors of outcome is unclear. The main aim of the study was to investigate whether cognitive profile or specific cognitive functions predict change in body mass index (BMI), eating disorder symptoms and psychopathology in a group of individuals affected by AN. The secondary aim was to assess and replicate literature data on the predictive value of other factors, such as clinical and psychopathological characteristics, for treatment outcome. A total of 144 outpatients with a diagnosis of acute AN (DSM-5), referred to the Eating Disorder Unit of the Hospital of Padova, Italy, were assessed with a clinical and neuropsychological battery at intake, followed by cognitive-behaviorally oriented treatment for an average of one year and a half. The neuropsychological assessment covered several cognitive domains, such as visuo-spatial abilities and memory beyond central coherence, working memory, set-shifting, cognitive inhibition and decision-making. As regards clinical factors, both BMI at onset and illness duration appeared as independent variables significantly affecting the outcome (OR 1.62; p 0.006 and OR 0.98; p 0.05 respectively). The role of the neuropsychological profile of patients was determined by including cognitive performance on different tasks in a multivariate analysis, along with initial BMI, illness duration and diagnostic subtype. The Global Score (Wisconsin Card Sorting Test) and the Central Coherence Index (Rey-Osterrieth Complex Figure Test) significantly increased the predictive ability of the model for full remission (OR 0.99; p 0.06 and OR 3.61; p 0.03 respectively). Specific clinical and cognitive variables are predictors for treatment outcomes in AN. Neuropsychological assessment, along with some clinical features, should be taken into account to identify those patients who need more specific or intensive and timely treatment, such as cognitive remediation therapy or other types of non-invasive brain stimulation interventions (TMS, tDCS).

Learning Objectives:

- Introduce participants to those clinical and neuropsychological aspects affecting treatment outcome in anorexia nervosa.
- Define more tailored treatment, such as cognitive remediation interventions (i.e., CRT), on the basis of specific neuropsychological impairments or difficulties in anorexia nervosa.

- Gain a deeper understanding of those maintaining factors that may affect the prognosis of anorexia nervosa.

PS2.7.2: Dating App Use Associated with Elevated Odds of Unhealthy Weight Control Behaviors Among a Sample of U.S. Adults

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The purpose of this study was to explore the association between mobile dating app use and unhealthy weight control behaviors (UWCBs). Despite the increased use of mobile dating apps on a national scale, few studies have examined the association between dating apps and body image concerns and disordered eating. Therefore, we evaluated the association between dating app use and UWCBs among a sample of adults in the United States. Our sample included 1,769 adults who completed an online survey. UWCBs included fasting (not eating for at least a day), self-induced vomiting, using laxatives, using diet pills without a doctor's advice, using anabolic steroids, and using muscle-building supplements (e.g., creatine, amino acids, DHEA, hydroxyl methyl-butyrate [HMB], or growth hormone). Overall, 63.6% (n=1098) of our sample were women and 36.4% (n=628) were men. Additionally, 16.7% (n=183) of women and 33.3% (n=209) of men were dating app users. The prevalence of the six UWCBs ranged from 3.8-30.0% among women and 14.4-36.0% among men. Results of multivariate logistic regression models suggested dating app users had substantially elevated odds of UWCBs compared to non-users (odds ratios [OR] range = 2.7—16.2). These findings were supported by results of additional gender-stratified multivariate logistic regression analyses among women and men. Our results also suggested racial and ethnic minorities have significantly elevated odds of engaging in UWCBs compared to white participants. Overall, the findings from our study continue to fuel speculations that dating app users may be at risk of preventable physical and mental health outcomes. Therefore, identifying individuals at risk of eating disorders and their risk factors is critical in informing effective public health efforts aimed at alleviating the global burden of these potentially deadly yet preventable conditions.

Learning Objectives:

- Describe what dating apps are and why they are currently used.
- Explain how dating apps may contribute to body image dissatisfaction and unhealthy weight control behaviors among women and men.
- Describe future areas of innovative research and interventions regarding dating apps and unhealthy weight control behaviors.

PS2.7.3: Self-Photo Editing and Its Effect on Eating Disorder Risk in College Students

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While social media has been implicated as a correlate and a cause of increased disordered eating, little is known about how specific aspects of social media use differentially impact eating and related pathology. In a two-stage design, the present study seeks to determine how editing and then posting photos of the self on social media relates to and influences disordered eating in male and female college students. In

the first stage, undergraduates (N=1000, 76.4% women) reported on current disordered eating and their use of photo editing applications to alter their physical appearance. In the second stage, participants (N=48, 89.6% women) who regularly post edited photos were brought into the lab, photographed, and randomly assigned to either edit or not edit and post or not post that photo to Instagram. Assessments of momentary levels of eating disorder risk factors were taken immediately before and after the photo was taken, as well as after the experimental manipulation and at 24-hour follow-up. Preliminary results support higher levels of disordered eating in those who post edited photos on social media. Following the experimental manipulation, participants randomly assigned to post their photo reported greater declines in appearance satisfaction, urges to engage in disordered eating, and increases in anxiety compared to those in the no post condition, with no additional effects due to editing condition. Further, those in the post condition reported greater decreases in sadness 24 hours after posting compared to those in the no post condition. Finally, 24 hours after posting, participants randomly assigned to the edit condition reported decreases in appearance satisfaction compared to those in the no edit condition, with no additional effects due to posting condition. Overall, results suggest that both editing photos and posting photos are correlates and contributors of eating disorder risk in college students.

Learning Objectives:

- Describe previously conducted research on the topic of eating disorder pathology and social media.
- Distinguish between the effects of editing and posting on eating disorder pathology.
- Understand the effect of self-photo editing on eating disorder pathology at multiple time points.

PS2.7.4: Does Weight History Matter? Understanding the Effects of Weight Suppression by Deconstructing Its Dimensions

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Weight suppression (WS), the difference between one's highest past (HP) and current weights, has been linked to weight gain and eating disorder symptomatology. However, the prevalence of WS has not been examined in the general population, and it is unknown how the dimensions of weight history influence WS' effects. This study aimed (1) to characterize the prevalence of WS in a general population for the first time; (2) to examine how dimensions of WS (i.e., HP weight, duration of a HP weight, lowest past weight, duration of lowest past weight, weight rebound, current weight, and duration of current weight) relate to WS; and (3) to determine whether these characteristics moderate WS' effects on binge eating. The study used Amazon Mechanical Turk and recruited 502 participants from the general population to complete a series of questionnaires. A majority of participants (i.e., 60.6%) had previously lost at least 5% of their body weight. HP weight was significantly correlated with WS ($r = .57$), but durations of previous weights were not. Using linear regressions, we found significant interactions between WS and several other variables in predicting binge eating (as measured by the ELOCS), such that WS had a more pronounced effect on binge eating at a lower lowest past weight, a longer duration at a lowest past weight, and a higher current weight. The results of this study have important implications including (1) the general prevalence and degree of WS appears to be much higher than previously thought and similar to those found in samples with bulimia, (2) WS appears to be higher among those with greater past weights, which may reflect a stronger motivation to lose weight among those at higher weights, and (3) the degree and duration of a low past weight may influence the relationship between WS and binge eating, suggesting that other dimensions of weight history may interact to have clinical impact and provide crucial information on identifying risk for binge eating.

Learning Objectives:

- Describe the prevalence and degree of weight suppression in the general population and compare these to previous findings on weight suppression among those with bulimia nervosa.
- Distinguish how various dimensions of weight history might contribute to an individual's current weight suppression status.
- Characterize how weight suppression and its interaction with other dimensions of weight history may increase risk for binge eating.

PS2.7.5: How do Argentine female adolescents experience appearance - related teasing? A qualitative study.

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The aim of this study was to explore, describe and analyze the way female adolescents describe their experience with appearance - related teasing. Some published studies in other countries have pointed out that appearance- related teasing is linked to higher body dissatisfaction, lower self- esteem, more disordered eating behaviors and more depressive symptoms. This is a qualitative, explorative and descriptive study. 34 semi-structured interviews were performed with girls aged 14 – 17, who attend school in Buenos Aires, Argentina. A Thematic analysis showed that the girls who had been the target of appearance - related teasing, although in many cases time before, linked these experiences to several and intense emotions: sadness, anguish, anger and impotence. While in some cases teasing had been performed by family members, mainly brothers or cousins, the great majority had proceeded from male schoolmates during primary and secondary school. Out of 14 girls who presented disordered eating attitudes and/or behaviors, 9 stated they had experienced appearance- related teasing. Therefore, the convenience of including this issue in bullying and harassment prevention programs is discussed.

Learning Objectives:

- Explore the way female adolescents feel when they have experienced appearance-related teasing.
- Explore whether Argentine girls experience appearance-related teasing in similar ways to what has been described in northern countries.
- Pose the convenience of including this issue in bullying and harassment prevention programs.

PS2.7.6: Compulsive Exercise or Exercise Dependence? An Examination of the Associations Between Two Models of Maladaptive Exercise and Eating Disorder Pathology

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Maladaptive exercise relates to eating disorder (ED) pathology and impairment in clinical and non-clinical populations and has been conceptualized as either compulsive or addictive in nature. Compulsive exercise is posited as a means to avoid negative affect due to not exercising, whereas addictive exercise is associated with tolerance to exercise benefits and avoidance of exercise withdrawal. To date, no work

has directly compared these conceptualizations of maladaptive exercise in relation to severity of ED pathology. Participants (N=375, 69% female) were undergraduates with threshold or sub-threshold EDs who completed the Eating Disorder Examination Questionnaire (EDE-Q), the Compulsive Exercise Test (CET), and the Exercise Dependence Scale (EDS). Multiple linear regression analyses evaluated independent associations between EDE-Q and CET (adj. $R^2=.47$) and EDS subscale scores (adj. $R^2=.20$). To evaluate the relative importance of specific compulsive and addictive qualities of exercise, we compared subscale regression coefficients. In the CET model, avoidance ($B=.28$, $p<.001$, $sr^2=.03$), weight control ($B=.55$, $p<.001$, $sr^2=.20$), mood improvement ($B=-.17$, $p<.01$, $sr^2=.01$) and lack of exercise enjoyment ($B=.13$, $p<.01$, $sr^2=.01$) related to ED pathology. In the EDS model, no subscales were significant, though the simultaneous addition of all subscales improved model fit. Results suggest that compulsive qualities of exercise, including exercise to control shape and weight, avoid negative affect, and lack of exercise enjoyment are associated with severity of ED pathology; exercise for mood improvement was negatively related to EDE-Q scores, indicating this function of exercise may be protective. In contrast, specific qualities of exercise dependence were not associated with severity of ED pathology. These results improve our understanding of the specific nature of maladaptive exercise and can inform tailored interventions that address physical activity in the context of EDs.

Learning Objectives:

- Describe negative consequences of maladaptive exercise in the context of eating disorders.
- Describe and distinguish compulsive and addictive exercise.
- Identify qualities of exercise most strongly associated with severity of eating disorder pathology.

PS2.8.1: A pilot project: the preliminary efficacy of a primary care-based treatment for adolescent restrictive eating disorders

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Adolescent restrictive eating disorders are associated with significant morbidity and mortality, placing a substantial burden on the healthcare system. In spite of these serious consequences and the relative consensus that Family Based Treatment (FBT) is a first line intervention for adolescents with restrictive eating disorders, there is a serious shortage of trained FBT providers. As such, the majority of children and adolescents with eating disorders fail to receive evidence based care, with many unable to access any care at all. The first stage of FBT largely focuses on weight restoration, a prerequisite for recovery from a restrictive eating disorder. This clinical pilot project examined an adaptation of FBT which is a modification of stage 1 to be delivered by primary care providers to support weight restoration in adolescents (FBT for primary care: FBT-P). This treatment was designed as an early intervention for less acute presentations, and as a treatment to reverse or arrest weight loss in more severe patients waiting to access eating disorder treatment. This pilot study examined the retention of adolescents with restrictive eating disorders enrolled in FBT-P over the course of 3 months, and the preliminary efficacy of the intervention. Participants were 15 adolescents (mean age = 15.5 years; 60% female) with a diagnosis of a restrictive eating disorder. Participants attended an average of 9.2 (SD=2.8) sessions over the course of 3 months. Retention for the study was high (n=14, 93.3%). Participants experienced a significant increase in BMI percentile from baseline (mean BMI percentile=37.5; SD=25.5) to three

months of the intervention (mean BMI percentile=54.3; SD=25.1), $t(13)=-6.99$; $p < .0001$. These pilot project findings suggest FBT-P is a promising intervention, suitable for implementation in primary care and has the potential to reduce barriers to receiving treatment and to improve outcomes for young patients with restrictive eating disorders.

Learning Objectives:

- Describe a primary care-based intervention for adolescent restrictive eating disorders (FBT-P).
- Identify potential strengths and challenges of training primary care providers in an intervention such as FBT-P.
- Explain the preliminary findings from the first 3 months of the FBT-P pilot study.

PS2.8.2: Effects of trait-level self-regulation and reward sensitivity on momentary, naturalistic eating behavior in children and adolescents with overweight/obesity

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Self-regulatory control and reward sensitivity are two trait-level factors that have been implicated in the onset and maintenance of pediatric obesity and disordered eating, but their associations with in-the-moment eating behavior are unknown. We investigated prospective associations of these constructs with momentary, naturalistic loss of control (LOC) and overeating severity (measured via Likert scale) in a heterogeneous sample of youth ($n=40$), aged 8-14y, with overweight/obesity. Participants provided self-report, parent-report, and behavioral data on trait-level impulsivity, reward responsiveness, and perseveration/inhibitory control, respectively, in the context of a 14-day ecological momentary assessment protocol in which they reported on their eating behavior, mood, hunger, and palatability of foods consumed in near real time. Generalized estimating equations revealed that more perseverative errors on a behavioral measure of spatial learning and a lower self-reported tendency to act without thinking were related to greater overall LOC severity, while a lower tendency to act without thinking and higher parent-reported impulsivity/fun-seeking were related to greater overall overeating severity. The momentary relationship between negative affect and LOC severity was stronger among individuals with greater perseverative errors, while the momentary relationship between perceived food palatability and overeating severity was stronger among individuals with a greater tendency to act without thinking. Results suggest that trait-level factors can directly influence an individual's tendency to engage in dysregulated eating behaviors, and may also impact susceptibility to state-level factors associated with occurrence of these behaviors (i.e., negative affect and palatability of food consumed). Momentary interventions for LOC and overeating in youth may need to be tailored to address specific temperamental factors related to self-regulation and response to reward.

Learning Objectives:

- Evaluate the effects of trait-level self-regulation and reward sensitivity on state-level eating behavior in youth with overweight/obesity.
- Describe how these trait-level factors may interact with momentary mood- and food-related antecedents/correlates of dysregulated eating.

- Consider how interventions for eating- and weight-related problems could be improved by a better understanding of how trait- and state-level factors independently and conjointly influence the momentary occurrence of maladaptive eating.

PS2.8.3: Unhealthy Weight Control Behavior among Female High School Adolescents in Addis Ababa, Ethiopia

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Unhealthy weight control practices are a serious concern with clinical implication as a potential risk factor for eating disorder. Despite recent epidemiological studies indicate a high prevalence of unhealthy weight control practices in developing countries, there is lack of such knowledge in Ethiopia. This is the first Ethiopian study aimed to determine the magnitude of unhealthy weight control practice among female high school adolescents in Addis Ababa, Ethiopia. We conducted a school based cross-sectional study among randomly selected 721 adolescents in private and government schools. We used a nine item question to measure engagement in unhealthy weight control practice. We also used an eight item body part satisfaction scale to measure body part dissatisfaction. The body part satisfaction scale was translated into the local Amharic language and tested for face validity. Logistic regression was used to calculate odds ratios for predictors of unhealthy weight control practice. The magnitude of engagement in unhealthy weight control practice at least once a week in the last one month was 232 (33.8%). The overall prevalence of purging and non-purging behavior was 10(1.5%) and 222(32.3%), respectively. Factors that were significantly associated were perceived overweight [AOR=2.88, 95%CI=1.08-7.69], being overweight [AOR=2.84; 95% CI =1.31-6.17], severe depression [AOR=1.98; 95% CI =1.173-3.5], family influence to lose weight [AOR= 1.59; 95% CI= 1.03-2.45] and being wealthy [AOR=2.09; 95% CI= 1.24-3.52]. This study revealed a high prevalence rate of unhealthy weight control practices including both purging and non-purging behaviors among female adolescents in Addis Ababa, Ethiopia. Such findings imply that public health systems should pay attention to these behaviors and design prevention and intervention strategies.

Learning Objectives:

- Following the training participants will be able to understand the high prevalence of unhealthy weight control practice including both purging and non-purging behavior in Addis Ababa, Ethiopia.
- Following the training participants will be able to identify the most commonly practiced unhealthy weight control methods, purging and non-purging behaviors among female high-school adolescents in Addis Ababa, Ethiopia.
- Following the training participants will be able to identify the main predicting factors that are significantly associated with engagement in unhealthy weight control practice among female high school adolescents in Addis Ababa, Ethiopia.

PS2.8.4: Can more young people be 'Happy Being Me'? Testing the delivery of a universal body satisfaction program by school staff

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This study examines the efficacy of Happy Being Me in a non-randomised controlled evaluation of the clinician delivered intervention and its effectiveness in a non-inferiority evaluation of clinician and teacher delivery, in a UK based group independent from the intervention developers. Happy Being Me (Paxton & Richardson, 2010) is a manualised school based body image intervention programme delivered over 6 sessions to whole classes of 11-12 year old boys and girls. It targets internalisation of the thin ideal, body comparison, body teasing and appearance related conversations in order to facilitate a supportive peer environment and improved body image. Young people who took part in the program (n = 172) were significantly different to a control group (n = 186) after treatment in measures of Body Satisfaction, Internalisation of the Thin Ideal and Self Esteem. There were no statistically significant differences between teacher-led (n = 172) and clinician-led (n = 172) groups on a key mechanisms of change - Internalisation of the thin ideal. However, those in the group with intervention delivered by clinicians reported significantly higher levels of body satisfaction and topic knowledge at the end of the program. The effectiveness of Happy Being Me has been broadly replicated in a UK sample with therapists independent of the treatment developers. However, contrary to expectations the results indicate that delivery by clinicians results in greater improvement in key variables than delivery by teachers in schools. This raises important questions for funding, training and supervising the dissemination of universal programs at a time when there is increasing focus on mental health prevention programs and strategies in education systems internationally.

Learning Objectives:

- Describe the outcomes for young people following a classroom based body satisfaction program.
- Describe the differences between outcomes according to delivery by school based or clinical staff.
- Consider how this informs the dissemination of universal school based programs.

PS2.8.5: Superior response inhibition in adolescent anorexia nervosa: A potential mechanism contributing to self-starvation

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Response inhibition represents the neurocognitive ability that allows stopping automatic behaviors. It has been suggested that superior response inhibition in patients with anorexia nervosa (AN) may underlie their ability to persist in restricted eating. However, previous studies that assessed general inhibition in patients with AN did not support this hypothesis. It may be that inhibition to high calorie foods specifically underlies successful food restriction in AN. The goal of the present study was to assess the role food stimuli play in the ability to inhibit actions among adolescents with restrictive-AN. Thirty adolescents with restrictive-AN and 30 healthy adolescents performed a food stop-signal task. An advanced tracking procedure allowed assessing response inhibition when participants were exposed to high and low calorie food images separately. The results revealed that healthy adolescents were better able to stop a response in the presence of low calorie foods compared to high calorie foods. The opposite pattern was observed among adolescents with restrictive-AN. These patients were better able to stop a response when high calorie foods were presented compared to low calorie foods. To the best

of our knowledge, this is the first study to show how different food types can trigger response inhibition differently in adolescents with AN and healthy controls. The results support the hypothesis that superior response inhibition in the presence of food may act as a mechanism allowing patients with AN to persist in restricted eating.

Learning Objectives:

- Understand how neurocognitive mechanisms can maintain and contribute to clinical symptoms in anorexia nervosa.
- Understand how emotional response to difference food types can modulate the function of neurocognitive mechanisms in anorexia nervosa.
- Describe the different mechanisms that potentially underlie self starvation in adolescent anorexia nervosa.

PS2.8.6: Characterizing Intuitive Eating in a Clinical Sample of Adolescents with Overweight/Obesity

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Intuitive eating is an adaptive form of eating in which individuals are instinctively conscious of their bodies' natural hunger and satiety cues. The present study 1) examines the psychometric properties of the Intuitive Eating Scale-2 (IES-2), and 2) investigates the relationship between intuitive eating, psychological disordered eating aspects in a Portuguese sample of adolescents under treatment for overweight/obesity. A sample of 202 adolescents (124 girls and 78 boys, 12 to 19 years) undergoing weight loss treatment with a mean BMI z-score of 2.4 (SD = 0.8) was evaluated for depression, stress, anxiety, disordered eating, health-related quality of life, and intuitive eating [IES-2 total score and respective subscales: Reliance on Hunger and Satiety Cues (RHSC), Eating for Physical Rather Than Emotional Reasons (EPR), Unconditional Permission to Eat (UPE) and Body Food Choice Congruence (B-FCC)]. Exploratory and confirmatory factor analyses were conducted as well as a hierarchical regression model investigating the association between socio-demographic and the psycho-behavioral variables assessed. The IES-2 confirmatory factor analysis supported a three-factor, 13-item measure with the subscales RHSC, EPR, B-FCC. The UPE subscale could not be replicated in this sample. Age, gender, depression, and disordered eating behaviors explained 36% of the variance in intuitive eating (adjusted $R^2 = .36$, $\Delta R^2 = .34$ $F(6, 168) = 15.88$, $p < .001$). Less preoccupation with food ($\beta = -.27$), more social pressure to eat ($\beta = .24$) and less grazing eating pattern ($\beta = -.29$) accounted significantly for the variance of intuitive eating. The revised IES-2 constitutes a useful self-report instrument for the assessment of intuitive eating in adolescents with overweight or obesity. Intuitive eating correlates significantly with disordered eating behaviors/symptoms and social pressure to eat.

Learning Objectives:

- To expand the knowledge on intuitive eating as an adaptive eating behavior.
- The revised version of the Intuitive Eating Scale is a self-report measure with good psychometric properties for adolescents under treatment for weight loss that comprises 3 factors and 13 items.

- Intuitive eating is associated with less preoccupation with food, less graze eating patterns and more social pressure to eat.

PS2.9.1: Eating Disorder Recovery and Psychiatric Comorbidity in Males

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Increasing attention has been paid to how recovery from an eating disorder is defined, with a focus on being comprehensive and, ideally, consistent in order to compare across studies. To date, this recovery research has focused on females. In the current study, we applied a comprehensive definition of recovery (validated in prior work) to a male sample and examined patterns of psychiatric comorbidity across recovery categories. Participants were 36 males with a history of an eating disorder, recruited from eating disorder programs and the community, and 27 male controls screened for no history of an eating disorder and age-matched to the eating disorder history sample. Participation involved completing questionnaires, interviews, and measured weight/height. Applying a validated operationalization of physical, behavioral, and cognitive recovery yielded 15 males with a current eating disorder [ED] (20% AN, 27% BN, 7% BED, 47% OSFED), 5 fully recovered [FR] (physical, behavioral, and cognitive recovery), and 7 partially recovered [PR] (physical and behavioral, but not cognitive, recovery). When having any comorbidity (anxiety disorder, mood disorder, alcohol or substance use disorder, PTSD, BDD) was considered, groups differed as follows: ED = 53%, PR = 57%, FR = 20%, C = 11% ($p = .008$); controls were less likely to have any of these diagnoses than the PR or ED group, but did not differ from the FR group. Further examination, found that groups differed in terms of percentiles having a current mood disorder (ED = 40%, PR = 14%, FR = 20%, controls = 4%; $p = .014$) or a current anxiety disorder (ED = 33%, PR = 43%, FR = 0%, controls = 4%; $p = .009$). Groups did not differ in current diagnoses of PTSD, BDD, or alcohol or substance use disorders. Findings suggest a better psychiatric comorbidity picture for those in full recovery, but more research is needed with larger samples and a longitudinal design.

Learning Objectives:

- Describe a comprehensive definition of recovery from eating disorders applicable to males.
- Report on the nature of overall psychiatric comorbidity across different stages of eating disorder recovery among males.
- Understand which specific areas of psychiatric comorbidity appear to be related to eating disorder recovery stage in males.

PS2.9.2: Preliminary Evidence that Low Testosterone is Associated with Binge Eating Symptoms in Young Adult Men

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Males are exposed to testosterone during prenatal/perinatal development, and animal and human data suggest that this initial bout of testosterone exposure is protective against the development of binge eating (BE) later in life. While these prenatal/perinatal testosterone effects matter, males are also exposed to testosterone during/after puberty when the HPG axis is re-activated. Importantly, all males

experience this second rise and circulation of testosterone during adolescence and adulthood, yet there are substantial between-person differences in testosterone concentrations. If testosterone exerts protective effects, males with lower testosterone may be at greatest BE risk. Indeed, low testosterone has been found to have stimulatory effects on sweet-taste preferences (a core feature relevant to BE) in post-pubertal male rodents and to be predictive of BE in boys during mid-to-late puberty. Nonetheless, no prior study has examined whether low testosterone is also risky for BE in adulthood. Thus, this study compared levels of BE symptoms (e.g., loss of control over eating, eating concerns) in male college students (N = 70) who were classified as having low, average, or high salivary testosterone. Results revealed that men with lower testosterone reported significantly higher levels of BE symptoms relative to their average-to-high testosterone peers (d 's = .57-.76), even after controlling for potential confounds: body mass index, age, sexual orientation, depression, alcohol use, excessive exercise, muscle building behavior (d 's = .42-.65). This pattern of results was not observed for other eating disorder symptoms (e.g., dietary restraint; weight/shape concerns), indicative of specific effects on BE. These preliminary findings corroborate animal data and extend upon prior research in adolescent boys, in that average-to-high levels of circulating testosterone appear to be protective against BE whereas low testosterone may contribute to heightened risk for BE in men.

Learning Objectives:

- Understand organizational (i.e., long-lasting/permanent) and activational (i.e., temporary - only in presence of hormone) effects of testosterone on the central nervous system and behavior.
- Evaluate the potential role of testosterone in binge eating symptoms in young adult men.
- Assess the extent to which observed links between low testosterone and binge eating in men fit with prior developmental findings in animals and adolescent boys.

PS2.9.3: The College Environment May Not Exacerbate Young Men's Disordered Eating Pathology

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This study examined how different sources of body image concerns relate to loss of control (LOC) eating and exercise dependence in young men. Current college enrollment was examined as a moderator. A nationally representative sample of 1,114 racially/ethnically diverse men (18-30y; Mage=24.1±3.6; 37.4% currently enrolled in college) completed an online survey assessing general demographics, including height and weight, from which body mass index (BMI) was calculated (MBMI=25.4±6.2 kg/m²); concerns regarding muscularity, body fat, and height; LOC eating frequency; and exercise dependence symptoms. All analyses adjusted for BMI, education, income, race/ethnicity, and presence of a psychiatric diagnosis. Negative binomial regression models revealed that concerns with muscularity, fat, and height were all significantly and positively associated with LOC eating frequency, IRR's=1.06-1.11, $ps<.001$. College enrollment significantly moderated the associations for concerns with muscularity and LOC eating, IRR=.96, $p<.01$; and concerns with fat and LOC eating, IRR=.96, $p<.05$. Specifically, men not currently enrolled in college with high concerns with muscularity or fat reported the most frequent LOC eating. Multiple linear regressions demonstrated that concerns with muscularity, fat, and height were also significantly and positively associated with exercise dependence symptoms, $ps<.001$. College enrollment did not function as a moderator. While body image concerns were associated with LOC eating for the full sample, these findings suggest that concerns with muscularity and fat may be particularly relevant for the LOC eating behavior of men not enrolled in college. These data also suggest

that regardless of school status, body image concerns are linked to exercise dependence symptoms. Future studies should seek to identify other sociocultural factors that may represent unique pathways to disordered eating cognitions and behaviors in community vs. college samples of young men.

Learning Objectives:

- Following my attendance of the 2019 International Conference on Eating Disorders, I hope to gain more information on how to close the research-practice gap through the acquisition of new perspectives and modes of delivery for evidence-based psychosocial treatments and preventative interventions for eating and weight disorders.
- As a presenter at the International Conference on Eating Disorders, I strive to disseminate findings on an underrepresented population in the field of eating disorders (ethnically diverse young men); gain knowledge on how research can be used to inform and advance training, public policy, and clinical services for underrepresented populations; and to network with fellow graduate students, faculty members, and other experts in the field, so to form relationships for future research collaborations and professional development opportunities.
- Ultimately, I hope the knowledge that I gain from attending the International Conference on Eating Disorders 2019 will help inform my own program of research, which is aimed at the development, implementation, and dissemination of culturally sensitive eating disorders and obesity prevention interventions for underserved and/or vulnerable populations. After successfully completing my Ph.D. in counseling psychology, I aspire to pursue a career in academic so that I may teach and mentor students while maintaining an active program of research.

PS2.9.4: Features of Eating Disorders and Muscle Dysmorphia among male Gym and CrossFit users in Buenos Aires

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While Eating Disorders (ED) have been associated with the desire to lose weight among women, Muscle Dysmorphia (MD) was associated with a desire to increase body size and muscle mass in men. Despite gender associations, transitions from thinness-oriented to muscularity-oriented disordered eating among males are well documented in the literature, which resembles the diagnostic crossover seen in women with ED. On the other hand, in addition to weight lifting in order to pursue of the muscular ideal, over the last years the practice of CrossFit (R) (a form of high-intensity training) has gained popularity among men. In the present study we aimed to assess differences in ED and MD among a large sample of CrossFit (R) (n=203) and Gym (n=210) users. Also, separate multiple regression analyses were conducted in order to assess up to what extent common factors explain ED and MD among men who exercise. No differences between gym and CrossFit (R) users were observed in ED (Eating Disorders Examination-Questionnaire) and MD (Muscle Dysmorphia Disorder Inventory) dimensions, and in disordered eating behaviors. Purging behaviors were rarely observed (1% and less), while 36.1% of the participants reported supplement intake. ED and MD correlated with psychological distress (Depression Anxiety and Stress Scale-21), Body Image (Male Body Attitudes Scale), and with different dimension of exercise motivations (Exercise Motivations Inventory). Regression models accounted 50% of the variance of ED, and 60% of MD. Body dissatisfaction, weight management exercise motivation, and supplement use were found to be common factors of ED and MD. Gym and CrossFit users showed similar features of ED

and MD, with higher eating and body image pathology than previous community samples research. Findings also suggest that ED and MD are complementary disorders influenced by social pressures towards body weight and shape, despite of being classed separately in DSM 5.

Learning Objectives:

- Identify features of ED and MD among Latino men who exercise.
- Enhance the understanding of body dissatisfaction and disordered eating in men.
- Identify factors associated to ED and MD among Latino men who exercise.

PS2.9.5: Boys, Bulk, and Body Ideals: Sex Differences in Weight Gain Attempts Among Adolescents in the United States

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Research on attempts to gain weight among adolescent males is limited and has not yet been examined using nationally representative samples in the United States. The objective of this study was to estimate the prevalence of weight gain attempts in adolescent boys using a nationally representative sample and to examine differences in weight gain attempts by weight classification, weight self-perception, age, race/ethnicity, and sexual identification. Participants were 15,624 high school students from the nationally representative 2015 Youth Risk Behavior Survey. Overall, 29.6% of adolescent boys reported attempts to gain weight, including 39.6% of boys who were normal weight, 12.8% who were overweight, and 10.6% who were obese by body mass index (BMI). In contrast, only 6.5% of adolescent girls reported attempts to gain weight. Although only 3.3% of adolescent males are underweight by BMI, 19.3% perceive themselves to be underweight. Further, over half of adolescent males who are overweight by BMI perceive themselves to be about the right weight. African American (Odds ratio [OR] 1.89; 95% confidence interval [CI] 1.50-2.38) and mixed race (OR 1.62; 95% CI 1.16-2.26) adolescent males had greater odds of weight gain attempts than White adolescent males. Adolescent males identifying as bisexual had lower odds (OR 0.47; 95% CI 0.25 – 0.88) of weight gain attempts than adolescent males identifying as heterosexual. Weight gain attempts are common among adolescent boys including those who are considered normal weight, overweight, or obese by BMI; African American or mixed race; and those self-identifying as heterosexual. Consideration of the unique nature of male body image, particularly adolescent boys' perceptions of their own weight and weight-gain attempts, should be incorporated into primary care screening for adolescent males.

Learning Objectives:

- Describe the epidemiology of weight gain attempts among adolescent males.
- Identify risk factors for weight gain attempts among adolescent males.
- Assess the relationship between weight self-perception and weight gain attempts among adolescent males.

PS2.9.6: Young men with high internalization of the muscular ideal demonstrate the most pronounced link between emotion dysregulation and exercise dependence symptoms

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This study examined the associations for emotion dysregulation and body image concerns with exercise dependence symptoms in a large sample of racially/ethnically diverse young men. Internalization of thin and muscular appearance ideals were examined as moderators. Participants (N=1,114; 18–30y; Mage=24.1±3.6y) completed an online survey assessing demographics; emotion dysregulation; body image concerns; internalization of thin and muscular appearance ideals; and exercise dependence symptoms. Linear regressions were conducted and adjusted for BMI, income, education, race/ethnicity, and presence of a psychiatric diagnosis. In a single model, both emotion dysregulation and body image concerns were significantly and positively associated with exercise dependence symptoms, $p < .001$. In separate models, internalization of the muscular ideal significantly moderated five domains of emotion dysregulation, $p < .05$. Men with high emotion dysregulation and high internalization of the muscular ideal endorsed the greatest exercise dependence symptoms. The link between nonacceptance of emotional responses and exercise dependence symptoms was not moderated by internalization of muscular or thin ideals, $p = .70-.06$. Internalization of the thin ideal did not moderate the link between emotion dysregulation and exercise dependence symptoms, $p > .05$. Neither internalization of the thin ideal nor muscular ideal moderated the association between body image concerns and exercise dependence symptoms, $p > .05$. In young men, both emotion dysregulation and body image concerns are associated with exercise dependence symptoms. These may represent unique phenotypes for the development and/or maintenance of exercise dependence symptoms. The interaction between elevated emotion dysregulation and internalization of muscular ideals requires further investigation; perhaps young men who have difficulties managing their emotions and value muscularity are most likely to turn to exercise as a coping mechanism.

Learning Objectives:

- Discuss the associations for emotion dysregulation and body image concerns with exercise dependence symptoms in a large sample of racially/ethnically diverse young men.
- Examine internalization of the muscular ideal as a potential moderator.
- Explore why men with high emotion dysregulation and high internalization of the muscular ideal endorsed the greatest exercise dependence symptoms.

PS2.10.1: An fMRI study of negative emotion processing and regulation in anorexia nervosa

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There is increasing evidence to support that alterations in emotion processing are a core component in anorexia nervosa (AN). The excessive regulation of emotions is believed to contribute to AN symptomatology by exerting control over food intake despite feelings of hunger. In the present study we

investigated the neural correlates of negative emotion processing and regulation in a sample of young women with AN (n=18) and healthy controls (HC, n=20). Emotion regulation was assessed by means of an established functional magnetic resonance imaging paradigm using negative images and in-scanner behavioral arousal ratings. In this paradigm, participants were instructed: to “maintain” the negative emotion elicited by viewing negative images, to “regulate” the negative feelings triggered by the images using previously trained cognitive reappraisal techniques, or to passively “observe” neutral images. In addition, self-reported emotion regulation difficulties were assessed via the Difficulties in Emotion Regulation Scale (DERS). When compared with HC, individuals with AN showed decreased activation in the amygdala, the precuneus, the postcentral gyrus, and orbitofrontal cortex when viewing negative images. In contrast, participants with AN displayed increased activation in the posterior cingulate cortex during negative emotion processing. During cognitive reappraisal, participants with AN exhibited decreased activation in the right dorsolateral prefrontal cortex in comparison with HC. Interestingly, activation in the amygdala during negative emotion processing only correlated with self-reported emotion regulation difficulties in the HC group, but not in the AN group, suggesting that emotional reactivity may be altered in individuals with AN. Taken together, our findings indicate that individuals with AN present differential neural responses to salient stimuli in a manner that may interfere with the successful regulation of negative emotions.

Learning Objectives:

- Examine the neural underpinnings of emotion processing and regulation in anorexia nervosa.
- Explore how alterations in neural activation patterns are associated with self-reported emotion regulation difficulties.
- Consider the neurophysiological mechanisms that may interfere with emotion processing in anorexia nervosa.

PS2.10.2: Emotion dysregulation exists across the eating pathology spectrum

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The relationship between disordered eating and emotion dysregulation is well-established. Less is known about how difficulties with emotion regulation vary across eating disorder (ED) symptoms and severity, and no study has examined emotion regulation in avoidant/restrictive food intake disorder (ARFID). We examined if distinct profiles of emotion dysregulation differentiate individuals by ED symptoms and severity in a combined community and transdiagnostic ED sample (N=541, community sample = 341, clinic sample = 200, Mage=32.52). Participants completed the Difficulties in Emotion Regulation Scale (DERS), the Eating Pathology Symptom Inventory, the Eating Disorder Examination-Questionnaire, and the Food Neophobia Scale. Using DERS subscales as indicators, results from a latent profile (LP) analysis identified a 4-profile solution with reasonable fit (LogLik = 8876.92, BIC = 18452.41, Entropy = 0.90): (LP1) low emotional awareness; (LP2) difficulties engaging in goal-directed behavior, limited access to emotion regulation strategies, and non-acceptance of emotional responses; (LP3) high emotion dysregulation and; (LP4) low emotion dysregulation group. MANOVA showed LP2 and LP3 had greater global eating pathology, body dissatisfaction, and negative attitudes towards obesity than LP1 and LP4 (all ps <.001). LP3 reported greater food neophobia, binge eating, cognitive restraint, purging, and restriction (all ps <.001) than all other groups and LP1 also reported greater restriction (p = .009)

and food neophobia at a trend level ($p = .08$) compared to LP4. Given that symptoms were more frequent in the three profiles characterized by emotion regulation difficulties (i.e., LPs 1-3), results suggest that emotion dysregulation may be a transdiagnostic feature across the eating pathology spectrum. Further, certain aspects of EDs may be related to different facets of emotion regulation.

Learning Objectives:

- Understand that emotion dysregulation is relevant across disordered eating, including eating characterized by restriction.
- Recognize the importance of understanding the role of emotion regulation in non-clinical samples.
- Understand the need to explore how certain aspects of disordered eating are related to different features of emotion regulation.

PS2.10.3: Associations between Negative Affect and Patterns of Food Intake Among Girls with Loss of Control Eating

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Loss of control (LOC) eating predicts worsening mood symptoms and partial or full syndrome eating disorders, yet not all youth go on to develop adverse outcomes. Affect theory may help predict who is at greatest risk. Momentary negative affect has been shown to predict intake in the laboratory, yet, more stable negative affective moods have not been studied in relation to patterns of intake in adolescent girls at high risk for eating disorders and obesity due to LOC eating. We studied 108 adolescent girls (14.5 \pm 1.7y) with BMI between the 75th-97th%ile (BMI z =1.5 \pm 0.3) who reported LOC eating/past month based on the EDE. Girls completed the Beck Depression Inventory and State-Trait Anxiety Inventory for Children–Trait scale. Energy intake (kcal) was then measured from a 9,385-kcal buffet test meal with an array of foods varying in macronutrients. Latent factor analysis of depressive symptoms and trait anxiety was used to compute an underlying latent Negative Affect Score. Multivariate general linear models were used to predict total energy, snacks, and macronutrient intake from negative affect, adjusting for age, race, lean mass, % fat mass and height. Negative Affect Score was positively related to total energy intake ($p=.03$), snack intake ($p=.02$), and sweet snack intake ($p=.02$). Adjusting for all covariates and total energy, Negative Affect Score was not significantly related to percentage fat, carbohydrate, or protein consumed ($p>.06$). In line with affect theory, more stable negative affect may be related to overall and palatable food intake among girls with LOC eating. Those with elevated negative affect may be hypo-responsive to reward, resulting in consumption of more calories and palatable foods as an attempt to overcome a deficit in reward responsivity. Further data are needed to determine whether those with LOC eating and stable negative affect are at heightened risk for increased energy intake, and in turn the development of eating disorders and obesity.

Learning Objectives:

- Describe the comorbidity between loss of control eating and trait negative affective symptoms such as anxiety and depression.
- Describe affect theory to potentially help identify which youth with loss of control eating may be at greatest risk for adverse outcomes.

- Examine trait negative affect in relation to patterns of intake among adolescent girls at high risk for eating disorders and obesity due to LOC eating.

PS2.10.4: The Relationship Between Emotion Regulation and Outcome in Dialectical Behaviour Therapy Self-help for Adults with Binge Eating Disorder

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The affect-regulation model proposes that dialectical behaviour therapy (DBT) – an evidence-supported treatment for binge eating disorder (BED) – improves binge eating symptoms via improvements in emotion regulation (ER). However, few studies have examined the link between ER change during treatment and DBT-BED outcome. Furthermore, while early research hypothesized that DBT-BED may demonstrate increased efficacy in individuals with greater baseline deficits in ER skills, these findings have not been empirically supported. As such, the present study aimed to investigate the relationship between difficulties in ER and treatment outcome among adults with BED who received DBT self-help. Specifically, the association between baseline ER as well as pre-to-post changes in ER and treatment outcome was examined. Data came from a community sample of 48 adults with BED who took part in a 12-week DBT-BED self-help trial. Participants completed measures of emotion regulation deficits (Difficulties in Emotion Regulation Scale [DERS]) and BED symptomatology (Eating Disorder Examination) at baseline and post-treatment. It was found that DERS total and subscale scores significantly improved from pre- to post-DBT treatment. While point biserial correlations indicated that no pre-to-post changes in DERS total or subscale scores were linked to remission status, increased emotional awareness at baseline was significantly correlated with lower remission rates. The present study suggests that DBT-BED self-help may be linked to ER improvements. These findings are also consistent with recent research that posits that individuals with less emotion dysregulation may not benefit as much from ER-oriented BED treatments.

Learning Objectives:

- Describe the role of emotion regulation in DBT-BED self-help outcome, and the state of the literature surrounding this topic.
- Consider psychological characteristics that may influence an individual's response to DBT-BED treatment.
- Reflect on avenues for future research that may help shed further light on psychological factors that impact DBT-BED outcome.

PS2.10.5: Affect as a Moderator of Hormone-Emotional Eating Associations Across the Menstrual Cycle

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Prior research has found associations between hormonal shifts across the menstrual cycle and emotional eating, but few moderators of these effects have been identified. We examined trait negative

affect (NA) and positive affect (PA) as individual differences that might help explain why some women are more prone to emotional eating in response to changing hormone levels than others. Female twins ($n = 401$) from the Michigan State University Twin Registry provided saliva samples for hormone measurements and rated their NA and PA and the extent to which they had engaged in emotional eating daily for 45 days. Trait-like measures of NA and PA were created by averaging each woman's affect ratings over the study period. Trait affect significantly moderated associations between changes in emotional eating and estradiol and progesterone levels across the menstrual cycle. Compared to women with low trait NA, women with high trait NA reported significantly greater increases in emotional eating during the transition between the ovulatory and midluteal, midluteal, and premenstrual phases. Lower estradiol was also associated with more emotional eating for women high in NA. While trait PA showed fewer moderating effects, women with high trait PA tended to report less emotional eating than women with low trait PA during risky hormonal milieus (e.g., when both estradiol and progesterone levels are high). The moderating effects of trait NA remained significant when controlling for daily fluctuations in NA. These results suggest that trait NA may be an important individual difference that contributes to variation in women's tendencies to engage in emotional eating across the menstrual cycle. Investigation of neurobiological systems related to affect may provide additional insight into the relationships between ovarian hormones and disordered eating.

Learning Objectives:

- Describe the relationship between emotional eating and ovarian hormones across the menstrual cycle.
- Understand how individual differences in affect moderate tendencies to engage in emotional eating in response to hormonal shifts.
- Describe possible mechanisms through which affect, emotional eating, and changes in estradiol and progesterone levels may be related.

PS2.10.6: Associations of Emotion Reactivity and Emotion Regulation with Eating Disorder Symptoms in a Transdiagnostic Clinical Sample

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Difficulty with emotion regulation (i.e., the control of emotional experience) has been implicated in the maintenance of eating disorder (ED) symptoms, but little is known about the relation between EDs and emotion reactivity (i.e., the depth and persistence of emotional experience). Findings from other areas of psychopathology have suggested that high levels of emotion reactivity may predispose individuals to problems with emotion regulation and more severe clinical presentations. Thus, the current study examined associations between emotion reactivity, emotion regulation, and ED behaviors (i.e., restricting, binge eating, and purging) in a transdiagnostic sample ($N=86$) of individuals aged 15-81 years presenting to an outpatient ED clinic. Participants completed a diagnostic interview and self-report questionnaires including the Emotion Reactivity Scale, Difficulties in Emotion Regulation Scale, and Eating Disorder Examination-Questionnaire. There were no significant differences among AN, BN, or BED in emotion reactivity or emotion regulation (p 's $> .18$). Controlling for age and BMI, emotion reactivity predicted restriction ($B=.03$, $p = .02$), binge eating ($B=.05$, $p = .001$), and purging ($B=.04$, $p = .004$), whereas emotion regulation only predicted restriction ($B=.02$, $p = .02$). However, when depression was added to the model, the only significant association was between emotion reactivity and binge eating ($B=.05$, $p = .01$). Emotion reactivity also continued to be a significant predictor of binge

eating ($B=.05$, $p=.01$) when accounting for emotion regulation. This is the first study to examine both emotion regulation and emotion reactivity in a clinical sample of individuals with ED. Findings demonstrate the importance of examining the mechanisms behind the emotional difficulties often observed in individuals with ED to understand the unique role of emotion regulation vs. emotion reactivity.

Learning Objectives:

- Understand the difference between emotion regulation and the less-studied construct of emotion reactivity.
- Discuss the role of both emotion reactivity and emotion regulation in eating disorder symptoms from a transdiagnostic perspective.
- Highlight the complexity of the role of emotion in eating disorders, and discuss the potential importance of including emotion reactivity in the conceptualization of eating disorder pathology.

PS2.11.1: The Dissemination and Implementation of an Evidence-Based Eating Disorder Treatment: Clinician Knowledge of Interpersonal Psychotherapy prior to and following Use of an Online Training Platform

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Individuals with EDs often do not receive evidence-based care, such as interpersonal psychotherapy (IPT), partly due to lack of accessible clinician training in these treatments. In-person workshops are the typical method of therapist training; this method is expensive, time consuming, and requires an expert trainer. More scalable methods of training, such as online training, are needed and could lead to greater dissemination of evidence-based treatment, which would enhance access to quality care and patient outcomes. We delivered an online IPT training program and measured therapist change in knowledge of IPT (i.e., assessment of knowledge about elements of IPT) before and after, as well as predictors of IPT knowledge change (i.e., openness to online training, total scores and subscales of the Evidence-Based Practice Attitudes Scale). The online training program featured video lectures, treatment materials (e.g., treatment manual, handouts, FAQs), videos of an IPT expert role-playing the three IPT phases, and an interactive discussion board. Preliminary data from therapists ($n=33$; 91% women) ages 26y to 63y ($M=39.97$ & $SD=6.16$; 9.48) at 26 U.S. college counseling centers who completed the online training program are reported on. There was a significant increase in IPT knowledge scores following online training ($t=-4.27$, $p<.001$). Further, openness to online training at pre-training was identified as a significant predictor of increased post-training knowledge scores when controlling for pre-training IPT knowledge ($\beta=.33$; $p=.05$). Scores on the Evidence-Based Practice Attitudes Scale (i.e., total score and subscales) were not associated with increased post-training knowledge (β s between -0.13 - 0.21 ; $p>.17$). Findings suggest IPT online training improves therapist knowledge of IPT, especially for

those who are open to online training. Results support using an online platform to train clinicians, which ultimately could increase access to evidence-based ED treatment.

Learning Objectives:

- Understand the challenges associated with dissemination and implementation of evidence-based treatment for EDs.
- Discuss how technology (e.g., online training) can potentially overcome barriers to increasing therapist access to training in evidence-based treatment for EDs and, thus, improve patient care.
- Discuss that results show online training produces marked increases in knowledge of IPT scores, as well as factors that do and do not predict increased post-training knowledge.

PS2.11.2: Effects of an Internet-Based Guided Self-Help Intervention for College Women with Eating Disorders: Long-Term Results from a Large Randomized Controlled Trial

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The Internet-based Healthy Body Image (HBI) Program platform uses online screening to identify individuals at risk for or with an eating disorder (ED) and then directs users to tailored, evidence-based digital or in-person interventions to address individuals' risk/clinical status. The current study aimed to conduct the first national deployment of our comprehensive platform and test whether the newest intervention in our suite of programs, Student Bodies-Eating Disorders (SB-ED), an Internet-based guided self-help program based on the principles of cognitive-behavioral therapy, yields significant improvements in ED outcomes over referral to usual care (i.e., treatment per protocol at students' college mental health center) among college women with EDs. HBI was deployed at 28 U.S. colleges, with 690 female students screening positive for an ED (other than anorexia nervosa) randomized to SB-ED or referral to usual care at the school level. Participants completed assessments at baseline and 6-month, 1-year, and 2-year follow-ups. The primary outcome of this project is ED symptom severity (i.e., Eating Disorder Examination-Questionnaire Global scores). Preliminary results (n=14 have not yet completed the 2-year follow-up) from mixed effects modeling based on an intention-to-treat analysis suggest that the controlled effect size estimate for SB-ED was $d=0.40$ at 6-month follow-up and $d=0.42$ at 1- and 2-year follow-up (averaged). Final results will be presented, as will data on secondary outcomes (e.g., in-person ED treatment uptake, clinical impairment, psychiatric comorbidities). This is the first national deployment of a comprehensive online platform for screening and delivering tailored interventions to a population of individuals with varying ED risk and symptom profiles. This study demonstrates the feasibility of disseminating such an online platform as well as the efficacy of SB-ED and its potential for bridging the wide treatment gap for EDs.

Learning Objectives:

- Demonstrate an understanding of the problem of eating disorders on college campuses and the Healthy Body Image Program.

- Acquire an understanding of the long-term effects of an Internet-based guided self-help program for college women with eating disorders.
- Consider the implications of study findings for bridging the wide treatment gap for eating disorders.

PS2.11.3: Comparison of Eating Disorder Characteristics and Treatment in Competitive Athletes and Non-Athletes from the National Eating Disorders Association Online Screening Tool

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Previous research has often demonstrated that athletes exhibit a higher prevalence of eating disorders (EDs) compared to non-athletes. However, less is known about ED characteristics and treatment differences between these groups. This study assessed EDs and ED characteristics in athlete and non-athlete respondents who completed the National Eating Disorders Association online screen during National EDs Awareness week from 2/26/18 – 3/4/18. The Stanford-Washington University ED screen was used to assess probable ED diagnoses and risk, as well as ED behaviors. 26,004 respondents completed the screen, 90.4% were female, 82.4% were 13-24 years old, and 13.9% (N=3,618) were athletes. In total, 89.3% of athletes and 87.0% of non-athletes screened positively for a subclinical or clinical ED ($p=0.000$). Screen results were as follows (athletes, non-athletes): anorexia nervosa (6.8%, 6.3%), bulimia nervosa (9.3%, 9.0%), binge eating disorder (1.5%, 3.2%), subclinical bulimia nervosa (29.1%, 26.6%), subclinical binge eating disorder (2.7%, 4.2%), purging disorder (1.0%, 1.2%), unspecified feeding and eating disorder (33.6%, 31.1%), avoidant/restrictive food intake disorder (5.3%, 5.3%), at risk for an ED, (7.4%, 10.1%), and not at risk for an ED (3.3%, 2.9%). Using an independent samples t-test, athletes reported significantly more episodes of excessive exercise ($p=0.000$) and fewer episodes of binge eating ($p=0.002$) and diuretics/laxative use ($p=0.000$) compared to non-athletes. In both athletes and non-athletes who screened positively for a subclinical or clinical ED, the same percentage (2.8%) were in treatment. This study demonstrates that online screens are an effective way to reach a large sample of athletes and non-athletes with similar rates of EDs. Results suggest the importance of addressing the wide treatment gap for both athletes and non-athletes with EDs, and future work should explore connecting individuals in need with tailored resources linked to online screens.

Learning Objectives:

- Compare ED characteristics and diagnostic breakdown between athletes and non-athletes.
- Demonstrate the significant treatment gap of those who screen positively for a subclinical or clinical ED.
- Highlight the ability to screen large populations of athletes and non-athletes through online screening tools.

PS2.11.4: Level of concordance between a brief Ecological Momentary Assessment survey measuring children’s dietary intake and a standard 24-hour dietary recall.

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Valid and reliable assessment of dietary intake is crucial to eating disorder research. Unfortunately, the current gold standard dietary intake assessment, the 24-hour dietary recall, carries high participant burden, is costly to investigators, and is prone to inaccuracies due to recall and social desirability bias. Assessment of dietary intake via Ecological Momentary Assessment (EMA) may alleviate some of these limitations. Thus, the present study sought to understand the level of concordance between a brief EMA survey measuring children's dietary intake and a standard 24-hour dietary recall. A diverse, population-based, sample of parent-child dyads (n=150) completed three-24 hour dietary recalls and 8 days of EMA surveys; in total, there were 185 days where dietary intake data from both EMA and 24-hour recalls were available. The EMA measure asked participants to indicate whether (yes/no) they had consumed any of eight total food items (e.g. fruit, vegetable, etc.) at each reported eating occasion. Concordance of the intake of specific food items reported via 24-hour recalls and EMA varied widely and depended on type of food, eating occasion, location of meal and food preparation style. For example, participant report of sweets, meat, and fruit intake were concordant for 91%, 79% and 71% of matched meals, respectively, whereas reports of refined grains, vegetables and sugar-sweetened beverages were 54%, 68% and 69%, respectively. Concordance of intake was highest for breakfast and snacks, as compared to other eating occasions. Higher concordance was observed between the two measures if the meal occurred at home and was fully or partially home-cooked. Overall, data suggest that use of EMA to assess dietary intake is appropriate to answer specific research questions; insights gleaned from this study can assist researchers in understanding the pros and cons of each dietary intake assessment method as they move forward with their own research.

Learning Objectives:

- Gain a deeper understanding for the limitations of current dietary intake assessment tools and learn how the use of Ecological Momentary Assessment to collect information on dietary intake might help researchers to overcome the biases and limitations of more traditional methods of collecting data on dietary intake.
- Understand the level of concordance between dietary intake data collected via traditional 24-hour dietary recall and brief EMA measures.
- Be better equipped to weigh the pros and cons of 24-hour dietary recalls vs. dietary intake assessment via EMA when choosing a dietary intake assessment for their research study.

PS2.11.5: Experiences of Behavioral Mimicry in Anorexia Nervosa

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Individuals with anorexia nervosa (AN) describe being easily “triggered” by others, but processes of imitation are rarely studied. This study expands our understanding of social imitation by investigating the experience of mimicry, which typically increases the desire to affiliate with others, in people with a history of AN. We conducted a double-blind study in which female participants (N = 118, mean age: 21 years) engaged in an image analysis task with a female confederate, taking turns describing images to each other while the confederate either mirrored the mannerisms of the participant (mimicry condition) or maintained neutral mannerisms (no-mimicry condition). Participants completed questionnaires about body image and self-awareness and rated the likability of the confederate and the smoothness of the

interaction. Contrary to hypotheses, we found a significant ($p < .05$) main effect for condition such that participants in the no-mimicry condition rated the confederate as more likeable than did participants in the mimicry condition. However, participants with a history of AN presently at a healthy weight (AN-WR; BMI ≈ 18.5) rated the confederate as more likeable than healthy controls (HC). Additionally, a significant ($p < .05$) group by condition interaction showed that AN-WR participants in the mimicry condition rated the interaction with the confederate as more awkward (less smooth) than did AN-WR participants in the no-mimicry condition. This difference in smoothness rating across conditions was not found for HC participants. Also contradicting our hypothesis, self-awareness did not significantly moderate the effect of mimicry on likability ratings. We discuss the importance of these findings related to unconscious social affiliation processes in terms of the impact on interpersonal therapeutic processes and implications for group treatment settings for AN.

Learning Objectives:

- Describe behavioral mimicry and the chameleon effect.
- Understand the experience of behavioral mimicry for people who have a history of anorexia nervosa.
- Discuss the impact of imitation on the treatment of anorexia nervosa.

PS2.11.5: Thinspiration and pornography: A combined text-mining and network analytic approach

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Little is known about the characteristics of people who engage with ‘thinspiration’ – i.e., material encouraging eating disordered behaviours. The present study combined text-mining and network analytic approaches to elucidate the characteristics of commenters ($N=1580$) who had posted on a thinspiration discussion forum (thinspo) hosted on a large online platform (Reddit). First, the other forums (i.e., subreddits) on which thinspo commenters had posted were identified. A network analytic approach then established communities of these subreddits, based on the extent to which pairs of the subreddits shared the same commenters. The majority (60%) of thinspo commenters were found to have also posted on pornographic subreddits. Furthermore, over a third (36%) of commenters on thinspo and subreddits related to the body and eating, had also posted on pornographic subreddits. The identified thinspo, and eating and body-related subreddit commenters were separated into two groups: those who had also commented on pornographic subreddits ($n=112$), and those who had not ($n=240$). Word-frequency analyses then compared these groups of commenters regarding the content of their posts across the whole of Reddit (i.e., across all public subreddits). The group of commenters who had posted on pornographic subreddits less commonly used words relating to eating ($d=.88$), the self (i.e., personal pronouns; $d=.84$), the body ($d=.32$) and exercise ($d=.14$). This study reveals characteristics of thinspiration commenters, and suggests that thinspiration and pornography are strongly related. Specifically, the findings suggest that thinspo, eating and body-related subreddit commenters that have also posted on pornography are generally less self-focused (i.e., refer to themselves less), and less interested in eating, the body and exercise. Overall, the present findings highlight the need for greater consideration of pornography usage in the context of the eating disorders.

Learning Objectives:

- Describe a novel application of text-mining and network analysis to characterise the commenters on eating disorder-related online discussion forums.

- Present evidence for a strong link between thinspiration and pornography.
- Describe preliminary evidence for differences between commenters on thinspiration, eating and body-related forums who do and do not also comment on pornography.

PS2.11.6: Canadian Eating Disorder Priority Setting Partnership: A Collaborative Journey to Create and Disseminate Shared Research Priorities

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Eating disorders (EDs) are recognized as complex and often chronic mental health disorders that carry high mortality and morbidity rates and mediocre recovery rates, yet despite needing to better understand this population there remains a dearth of research in EDs, lending to a field that continues to be vastly under-studied, under-funded, stigmatized, and poorly understood. Additionally, the patient voice has been absent from aiding in setting research priorities, potentially leading to research dollars being spent on science that is not what is most needed by those affected by an ED. This has set the stage for launching the Canadian Eating Disorder Priority Setting Partnership (CEDPSP) to begin, as a first step, to identify the research needs in the field according to those most affected by the illness – those with lived experience, carers and healthcare professionals. The objective of this work was to co-create the top 10 research priorities for EDs using a validated consensus-building objective methodology which allows those with lived experience to have a voice to share what they think researchers and policy decision-makers should prioritize in the area of EDs. Governed by a steering committee of individuals from across Canada with lived experience, carers and clinicians, this project consisted of soliciting almost 900 opinions from the ED community as to their opinions of research priorities, cross-validating against the research literature whether the proposed research questions had already been answered, doing an interim ranking activity with the wider community, and finally bringing together 35 individuals with lived experience from across Canada to convene for an in-person workshop in mid-September to establish the top 10 research priorities. Wide dissemination of these confirmed co-created priorities to researchers and research funders in the field is anticipated. A discussion as to the patient engagement journey will be provided.

Learning Objectives:

- To learn about patient-oriented research principles and priority setting exercises.
- To walk through the journey of co-creating the shared research priorities.
- To reflect on the top 10 research priorities and how they can best be utilized by the field.

PS2.11.6: Measuring Step Count: The Relationship Between a Fitness App and FitBit

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Weight loss after bariatric surgery varies widely, thus it is important to evaluate suboptimal outcomes. Nonadherence to diet/activity guidelines negatively impacts weight loss, but many obstacles limit

widespread implementation of interventions to address adherence behaviors. Smartphone applications (apps) designed to augment behavior change or enhance adherence have expanded exponentially in recent years. However, rigorous research on apps is limited, and high-quality, adequately-powered, randomized controlled trials with large samples are required. We piloted a newly developed app, Nook Bariatric Health (NBH), in an initial test of efficacy. Patients are required to use a FitBit for activity tracking but have reported that using the device is burdensome. NBH provides automatic activity tracking based on a propriety algorithm. We compared NBH against FitBit for measurement of physical activity. Currently, 20 patients have been randomly assigned to concurrent use of NBH and FitBit to track physical activity data over the course of eight consecutive weeks. The sample is predominantly female (65%) with an average age of 38.16 (SD=9.82) years. Step count for NBH and FitBit were calculated for each available week within patients. A multiple linear regression was calculated to predict FitBit step count based on NBH step count, age, and gender. A significant regression equation was found, $F(2,67)=8.27$, $p<0.05$, indicating that NBH step count significantly predicted FitBit step count, and this relationship remained constant across age and gender. The adjusted R² for the model was 0.57, with NBH step count accounting for 49% of the variance, and age and gender accounting for 7% of the variance. This analysis suggests that NBH and FitBit are significantly associated. NBH may provide an advantage in collecting physical activity data without the use of an additional device.

Learning Objectives:

- Describe the relationship between a newly developed fitness app and FitBit regarding measurement of step count.
- Describe various technological methods for the measurement of physical activity data.
- Describe participant-level variables that account for the variance in FitBit step count estimates.

PS2.12.1: Innovation and collaboration in Ireland – The PiLaR Programme: Supporting Families and Combining education, experience, skills and support.

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Supporting families of people with eating disorders (EDs) is central to the work of Bodywhys, (The Eating Disorders Association of Ireland, est.1995). In 2014 a greater need for more structured, educational and emotional support was identified for this group, and the PiLaR programme (Peer-Led-Resilience) was developed. To date over 500 family members have attended the programme. Crucial to its success has been the collaboration between Bodywhys and the Health Service Executive (HSE), (Republic of Ireland National HealthService), which launched the National Clinical Programme for EDs (NCPED) in 2018. The primary aims of all HSE Clinical Programmes such as the Eating Disorders National Clinical Programme are standardisation of quality evidence-based practise, improved access and cost-effectiveness. Bodywhys, as the support partner to NCPED, works nationwide to provide education, understanding and emotional support to families of those attending public services. The programme, run on 1 evening per week for 4 weeks, is free and also open to the public thus supporting those not in the public health system. Families with children, adolescents and adults with any ED, of any duration, attend together. The content covers the fundamentals of understanding EDs, provides structured help and support on specific obstacles, difficulties and challenges when supporting a person with an ED through treatment and recovery. In 2018 Bodywhys and the HSE/NCPED joined with University College Dublin (UCD) Child

and Adolescent Psychiatry, to carry out a mixed-method evaluation of the PiLaR programme delving into the detail of the benefits families gain from their attendance. Drawing on qualitative and quantitative data, this paper will detail the programme, the demographics and experiences of those attending, and provide important insights into the value of this unique development within the Irish health service.

Learning Objectives:

- Identify the various ways an ED impacts on family members and the common issues that arise.
- Assess the importance of supporting and educating family to build resilience within the family as a resource which benefits treatment and recovery.
- Gain awareness of the benefits of collaboration between treatment providers and support/voluntary organisations.

PS2.12.2: Pressure to be thin and body acceptance by others mediate the relationship between BMI and intuitive eating

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Intuitive eating involves attention to, trust in, and a flexible reliance on internal hunger and satiety cues to guide eating. It is positively related to well-being and inversely related to eating disorder symptomatology. Many studies have found that higher intuitive eating is related to lower body mass index (BMI); however, programs teaching intuitive eating skills do not decrease BMI, so the link between these two variables may be more complex. The present study hypothesized that this inverse relationship exists because individuals with high BMI face greater pressure to lose weight and lower body acceptance by others, which then could disrupt their trust in and reliance on their bodies to eat intuitively. This model was examined with predominantly White (85%) college women (n=305) and men (n=364) (M_{age}=20.62, SD=5.47). Path analysis via Mplus 6.1 revealed that BMI was linked to higher pressure to be thin, $\beta=.28$, and lower body acceptance, $\beta=-.40$; in turn, pressure to be thin was linked to lower intuitive eating, $\beta=-.24$, and body acceptance was linked to higher intuitive eating, $\beta=.25$ (all $p < .001$). The direct path between BMI and intuitive eating was significantly lower in the model containing the mediators, $\beta=-.11$, $p=.003$, compared to a simple model containing only the direct path, $\beta=-.27$, $p < .001$. Mediation analyses via bootstrapping revealed that pressure to be thin, $\beta=-.07$ (95%CI: $-.010, -.004$), and body acceptance, $\beta=-.10$ (95%CI: $-.014, -.006$) emerged as significant mediators of the BMI intuitive eating relationship; no differences emerged between women and men. Findings suggest that the inverse link between BMI and intuitive eating exists in part because of weight stigma (high pressure, low body acceptance). Specifically, high BMI bodies are more likely to face this weight stigma that can disrupt their intuitive eating, whereas non-high BMI bodies are less likely to face this weight stigma, preserving their intuitive eating.

Learning Objectives:

- Describe how cultural pressures to lose weight may account for the inverse relationship between BMI and intuitive eating.
- Describe how body acceptance from others may account for the inverse relationship between BMI and intuitive eating.
- Explain the importance of low cultural pressures to lose weight and high body acceptance by others to encourage intuitive eating.

PS2.12.3: Efficacy of the ECHO Approach for Patients with Eating Disorders and their Carers

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Research has shown that the distress experienced by carers of individuals with eating disorders (EDs) can negatively impact those individuals with EDs, supporting the need to engage carers in the treatment process. The current study aimed to determine the efficacy of the newest version of The Expert Carers Helping Others (ECHO) intervention, a 2.5 hour unguided self-help DVD that demonstrates how individuals with eating disorders and their carers can improve coping, reduce expressed emotion, and manage eating disorder behaviours. Eating disorder outpatients (n = 58) were able to identify up to two carers as potential participants, resulting in a sample of 62 carers. Patients and their carers were randomly assigned to either the Treatment as Usual (TAU) group, a group-based outpatient treatment program for patients, or the ECHO+TAU group, which provided carers the ECHO intervention for patients receiving standard treatment. Carers and patients completed questionnaires at baseline, after 4-weeks of treatment, and at 3-month follow-up that assessed carers' levels of distress, expression emotion, the impact of eating disorder symptoms on carers, patient symptom severity, and qualitative feedback regarding the DVD. The results failed to provide supportive evidence for the primary hypothesis that carers in the ECHO+TAU group would report lower distress levels compared to carers in the TAU group at post-treatment and follow-up. This finding, within the context of the current literature, suggests that there may not be significant benefit to carers who use the newest version of the ECHO intervention in an unguided self-help approach. Further implications and future directions for improving carer distress will be discussed.

Learning Objectives:

- Briefly describe the current literature related to carer interventions for those with eating disorders.
- Based on the results of the current study, discuss the efficacy of a new unguided, self help intervention for carers of those with eating disorders.
- Based on the results of the current study, and other recent studies, discuss the implications for future interventions for carers of those with eating disorders.

PS2.12.4: Not Just for Kids: The Prevalence and Correlates of Eating Disorders in Adult Emergency Department Patients

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This study describes the rates of eating disorders in adult patients who present to the emergency department (ED) for medical care and examines the relationship between eating disorders, depression and substance use disorders in these patients. Emergency department patients aged 21-65 years (n=1795) completed a computerized questionnaire that included validated screening tools for each of

the variables in question. Analyses were conducted comparing individuals who screened positive for an eating disorder with those who did not based on demographics (gender, age, race, income, education), body mass index (BMI), risky drinking behavior, other substance use, and depression. Nearly sixteen percent (15.9%) of all patients screened positive for an eating disorder regardless of their reason for presenting to the ED including 9.3% (63/668) of all males and 19.8% (223/1127) of all females screened. Patients who screened positive for an eating disorder were significantly more likely to have a BMI > 30 (OR= 2.68, 95% CI= 1.98-3.62, $p<0.001$), to also screen positive for depression (OR= 3.19, 95% CI= 2.28-4.47, $p<0.001$) and to be female (OR= 2.37, 95% CI= 1.76, 3.19, $p<0.001$). No differences in rates of positive screens for eating disorders were seen across age or racial groups, level of education or income, or for any of the included substance abuse variables. Eating disorders are common among adult emergency department patients and are associated with high rates of comorbid depression. Given the significant morbidity and mortality associated with each of these conditions, targeted screening in the ED may be warranted.

Learning Objectives:

- Describe the rate of eating disorders in adult patients who present to the emergency department for medical care.
- Describe the characteristics of eating disorder patients presenting to the emergency department for medical care.
- Assess the relationship between eating disorders and common comorbidities such as depression and substance use disorder.