30. CORRELATION OF FUNCTIONAL MRI RESPONSE TO A FOOD PARADIGM WITH CLINICAL MEASURES IN ADOLESCENTS WITH RESTRICTIVE EATING DISORDERS

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Purpose: Restrictive eating disorders (EDs) are prevalent and associated with a high incidence of anxiety and depression. Recent reports showed aberrant responses to rewarding food stimuli and increased activation of anxiety networks among individuals with EDs. This study investigated the functional abnormalities within brain systems during processing of food provocation, and correlated these data with clinical and psychological findings.

Methods: Eighteen females, aged 13-18 years, with restrictive EDs completed a baseline visit as part of a clinical trial. Functional magnetic resonance imaging (fMRI) was used to evaluate brain activation and neuronal response to food provocation. Visual stimuli included five categories of images: sweet/dessert, processed snacks, fast-food, meats/fruits/vegetables, and nonfood control images (e.g., home furnishings). Anxiety and disordered eating cognitions were assessed using the State-Trait Anxiety Inventory (STAI) and the Eating Attitude Test (EAT-26). Statistical analyses were performed using Matlab and SPM12 software. Voxel-wise analyses was performed to determine contrasts of responses to different stimuli and test for correlations between those contrasts and behavioral scores.

Results: Average age and BMI were 16.2±1.3 yr. and 19.6±1.3 kg/m2, respectively. Contrasts of all food types versus nonfood resulted in positive responses in occipital regions, left hippocampus and parahippocamus, extending to the amygdala. Negative responses were observed in temporal gyri and the precuneus. Examining sweets vs. nonfood, a similar positive activation was found in occipital, temporal, and left hippocampal regions, but extending to the left insula. Contrasting sweets to all nonsweet foods, the right parahippocampal regions and amygdala were activated together with the caudate, mid-thalamus, anterior cingulate (ACC), and medial orbitofrontal cortex (OFC). Deactivation occurred in bilateral angular/supramarginal gyri and the inferior parietal region. We examined correlations of these contrasts with the EAT-26 and STAI-State (SS) scores. Food vs. nonfood contrast showed a positive correlation to SS in the OFC, ACC, and right insula and negative correlation with the precuneus. Sweets vs. nonfood contrast correlated positively with EAT-26 in mid-temporal, ACC, angular inferior parietal, and medial frontal areas. Negative correlations to EAT-26 were observed in the cerebellum and occipital regions. SS had positive correlations to the sweets vs. nonfood contrasts in the basal ganglia and right insula. Finally, sweet vs. nonsweet activation correlated positively with EAT-26 in basal ganglia, ACC, superior medial frontal gyri, and angular gyri.

Conclusions: Food visual stimuli elicited brain responses in hippocampus/parahippocampus/amygdala regions as expected when stimulating reward circuitry. Sweet foods, in particular, when compared to nonsweet foods, extended the activation to other limbic domains such as the ACC, caudate and OFC, which may indicate regulation of anxiety. Correlations with behavior were also pronounced for sweet food contrasts. Interestingly, the regions of correlation of these contrasts to EAT-26 align with the default mode network tied to introspection. Thus, we conclude that visual food stimuli, especially sweet/dessert foods, produce activation in reward and anxiety regulating regions in patients with restrictive EDs that correlate with symptom severity.

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31.

CHARACTERISTICS OF SOCIAL SUPPORT NETWORKS AMONG YOUNG MEN AND TRANSGENDER WOMEN OF COLOR RECEIVING PRE-EXPOSURE PROPHYLAXIS (PREP) FOR HIV PREVENTION

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Purpose: To characterize perceived social support for young men and transgender women who have sex with men (YM/TWSM) taking HIV pre-exposure prophylaxis (PrEP) and identify persisting needs for support around PrEP uptake and adherence.

Methods: HIV-negative YM/TWSM of color prescribed daily oral tenofovir-emtricitabine as PrEP for ≥ three months in Philadelphia participated in a mixed-methods study. Participants completed an egocentric sociogram survey to characterize their social support networks and identify whom they could turn to for support around PrEP use. We calculated the mean proportion of individual roles and perceived PrEP supportiveness among the networks and to identify the proportion of network members to whom the index participant disclosed their PrEP use. A subset of participants (n=30) completed individual, semi-structured interviews which further characterized the social support provided by the network members, and the rationale for identifying the PrEP-specific support figures. Interview transcripts were analyzed using an inductive open-coding approach.

Results: Participants (n=50) were 69% African-American, 24% multiracial and 12% Latino/a. Median age was 21.5 years (SD: 2.0), and 10% were transgender women. Biologic family were the most commonly cited support figures, with 75% of participants identifying ≥1 biologic family member in their support network (mean network proportion 0.37 [SD: 0.31]), followed by friends who were identified in 67% of networks (mean network proportion 0.38 [SD: 0.31]). Most individuals had disclosed their PrEP to a large proportion of their network (0.74 [SD: 0.31]), and network members were perceived to be highly supportive of the participant's PrEP use (0.87 [SD: 0.28]). Nearly all (98%) participants could identify ≥1 member they would turn to for support around PrEP. In contrast to the general support figures, these individuals were more often friends (48%) than family (36%). However, this difference was not statistically significant (p=0.22). In the interview data, the predominant forms of PrEP-related social support were concrete support such as reminders about pill taking or transportation to clinic/pharmacies; and emotional support which included encouragement to be healthy and demonstrations of love and affection. Key characteristics of PrEP-specific support figures included emotional closeness, trust, and homophily (alikeness) with respect to sexual orientation and PrEP use. Non-disclosure of PrEP use was perceived as a barrier to receiving PrEP-related support for some participants. Disclosure of PrEP use to network members was often indirect, such as posting one's PrEP status on mobile dating applications, or accidental, such as having their family members find their pills. Participants less commonly discussed PrEP disclosure in the context of direct conversations about safer sex negotiation or as a means to obtain healthcare-related support from network members.

Conclusions: While most YM/TWSM identify PrEP-specific social support figures within their networks, our data suggest that interventions to increase PrEP adherence and persistence should include skill-building around communication, particularly with respect to disclosure of PrEP use.

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32. RECEIPT OF ADDICTION TREATMENT FOLLOWING OPIOID-RELATED OVERDOSE AMONG MEDICAID-ENROLLED YOUTH

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Purpose: Evidence-based guidelines recommend adolescents and young adults ("youth") with opioid use disorder (OUD) receive treatment that includes medication. Non-fatal opioid overdose may be a critical touchpoint when youth with previously undiagnosed OUD can be drawn into treatment. Amidst rising overdose rates, the extent to which youth receive timely, evidence-based treatment after opioid overdose is unknown. This study's objectives were to determine the proportion of youth who receive recommended treatment within 30 days following an opioid overdose, and examine predictors of treatment receipt.

Methods: We conducted a retrospective cohort study using the Truven MarketScan-IBM Watson Health data, which includes all inpatient, emergency department, outpatient, and pharmacy claims of 4,039,260 Medicaid-enrolled youth aged 13-22 years from 16 de-identified US states during 2009-2015. We identified youth who had a non-fatal opioid-related overdose using ICD-9 codes. We examined "timely" receipt of addiction treatment (i.e., within 30 days after overdose), including receipt of behavioral health services alone compared with receipt of medication (buprenorphine, methadone, or naltrexone, either alone or in combination with behavioral health services) using billing codes. Using multivariable logistic regression, we identified differences in treatment receipt, adjusting for potential confounders, including age, sex, race/ethnicity, psychiatric comorbidity, substance use disorders, and comorbid pain conditions.

Results: The non-fatal opioid-related overdose rate was 45.6 per 100,000 person-years. Among 3,835 youth experiencing overdose, 58.8% were female (21% of whom were pregnant) and 65.9% were non-Hispanic white. Median age was 18 years (IQR [16, 20]). Characteristics associated with overdose were older age (≥18 years), female sex, pregnancy, non-Hispanic white race/ethnicity, depression, anxiety, attention deficit hyperactivity disorder, substance use disorder (OUD, alcohol, and other), or pain condition ($p<0.001$ for all). Overall, 1142 youth (31.3%) received any addiction treatment within 30 days after overdose; 1,075 (29.5%) received only behavioral health services, and 67 (1.8%) received medication. Younger adolescents were less likely to receive medication (age 13-15: 0.5%; 16-17: 0.8%; 18-20: 1.8%; 21-22: 4.2%, $p<0.001$), though were more likely to receive any timely addiction treatment (age 13-15: adjusted odds ratio 1.66 [95% confidence interval 1.23-2.23]; age 16-17: 1.6 [1.22-2.09]) due to higher rates of behavioral health services. Youth who were engaged in treatment prior to overdose were more likely to continue the same treatment after overdose than individuals not previously in treatment (prior behavioral health: 5.66 [4.67-6.86]; prior medication treatment: 13.95 [7.32-26.61]), though were no more or less likely to receive the other modality of treatment after overdose. Many youth previously engaged in treatment did not resume treatment within 30 days of overdose (prior behavioral health services: 33.9%; prior medication: 40.2%).

Conclusions: In this large study of youth experiencing opioid-related overdose, less than one-third received timely addiction treatment, and only 1 in 54 youth received recommended evidence-based medications. Even youth previously engaged in treatment had low rates of treatment after overdose. Interventions are urgently needed to link youth to treatment after overdose, with a priority placed on improving access to recommended medication treatment.

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33.

TOBACCO RETAIL ENVIRONMENT AND ALTERNATIVE TOBACCO PRODUCT USE AMONG TEENS

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Purpose: The rise of non-cigarette, alternative tobacco product (ATP) use among adolescents may be due to an increase in retail availability of ATPs. This is the first study to examine the relationship of tobacco retailer density and proximity to any ATP use, assess many ATPs simultaneously, and assess this relationship longitudinally. We examine whether the proximity and density of stores near students' home is associated with a higher likelihood of initiating ATP use over time including e-cigarettes, small and large cigars, chewing or dipping tobacco or moist snuff, tobacco pipes, and hookah.

Methods: This geospatial analysis of a multilevel, longitudinal data set linked survey data from 728 adolescents (ages 13-19) nested in 191 neighborhoods nested in 10 California high schools with location data for tobacco retailers from a state licensing list. At the individual level, proximity was measured as roadway distance from home to the nearest tobacco retailer. At the census tract level, tobacco retailer density measured tobacco retailers per square mile. Other tract-level and school-level covariates were obtained from the American Community Survey and the California Department of Education. To account for the fact that students who lived in the same census tracts attended different high schools, cross-classified multilevel logistic regression models were used to estimate odds ratios (OR) and 95% confidence intervals (CI) for proximity to a tobacco retailer and tract density (at baseline) with ATP initiation at follow-up.

Results: The sample was predominantly female (63.5%) and was racially and ethnically diverse. Approximately one-third of participants (32.5%) reported ever ATP use at Wave 1 and 106 (14.5%) initiated ATP use within one year (Wave 2). The mean number of tobacco retailers per square mile within a tract was 5.66 (SD=6.3) and the average distance from each participant's residence to the nearest tobacco retailer was 0.61 miles (SD=0.4). In fully adjusted two-level multilevel models (MLM) adjusting for demographic, socioeconomic, and behavioral factors, higher odds of initiating ATP use were associated with living in tracts with higher retail density (OR=1.32, 95% CI= 1.21, 3.81) in the neighborhood-only model and 1.06 (1.03, 1.92) in the school-only model. After adjusting for covariates, greater tobacco retailer density was still associated with higher odds of ATP initiation (AOR=1.22, 95% CI=1.07, 2.12). Neighborhood-level and school-level variations were 4% and 3%, respectively. Only retail density, not proximity, was related to ATP initiation.

Conclusions: Our findings show that tobacco retailers clustered around students' home neighborhood may be an influence on adolescents' ATP use. These findings suggest the importance of regulating the tobacco retail environment, in order to reduce the marketing and accessibility of ATPs, which can thereby reduce the uptake of ATPs among youth. Moreover, these findings suggest the importance regulations focused on adolescents' school environment are expanded to also include regulations of the tobacco retail environment in adolescents' residential neighborhoods. Policy efforts to reduce adolescent ATP use should limit and reduce the density of tobacco retailers.

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34. PHYSICAL ENVIRONMENT AND VIOLENCE PERPETRATION AMONG MALE YOUTH IN PITTSBURGH: A SPATIAL ANALYSIS

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Purpose: Male youth in urban settings experience a disproportionate burden of violence. Emerging research suggests environmental contexts in large urban centers may shape violence risk by impacting social interactions, but little is known about associations in mid-sized cities which tend to have less dense urban centers. This study examined associations between neighborhood-level physical environmental features and youth violence perpetration among Pittsburgh youth to understand how neighborhood contexts may be leveraged to reduce youth violence.

Methods: We enrolled 868 male adolescents, ages 13-19 years, through youth-serving community agencies in 20 low-resource neighborhoods in Pittsburgh, PA from August 2015 to June 2017 as part of a cluster-randomized violence prevention study. Exposure to physical environmental features, including walkability (National Walkability Index scores), street intersection density, bike lanes, green space quality (NDVI), and alcohol and tobacco outlets, was defined by the site where participants attended programming, using kernel density and inverse distance weighting methods to ascribe individual exposure estimates. Violence perpetration was measured on baseline in-person surveys by three validated Youth Risk Behavior Surveillance System items: physical fighting, threatening someone with a weapon, and injuring someone with a weapon in the past nine months (any/none). Multilevel logistic regression models separately examined associations between each neighborhood environmental feature and the three violence perpetration measures, accounting for individual-level confounders (age, race/ethnicity, caregiver education, school enrollment, and intervention group) and clustering of participants at the neighborhood level.

Results: Mean participant age was 15.5 years. Seventy-eight percent were African American, 4% Caucasian, and 6% Hispanic. In the past 9 months, 66.4% reported being in a fight, 28.6% reported threatening someone with a weapon, and 14.7% reported injuring someone with a weapon. Better neighborhood walkability was associated with significantly lower odds of fighting (adjusted odds ratio (AOR) 0.84, 95%CI 0.73-0.96). Higher density of bike lanes was also inversely associated with fighting (AOR 0.90, 95%CI 0.81-1.0). The density of alcohol and tobacco outlet retailers was inversely associated with fighting (alcohol AOR 0.98, 95%CI 0.96-0.99; tobacco AOR 0.91, 95%CI 0.87-0.96). Tobacco outlet density was also inversely associated with threatening someone with a weapon (AOR 0.96, 95%CI 0.92-0.995). Green space quality was associated with slightly increased odds of injuring someone with a weapon (AOR 1.003, 95%CI 1.001-1.005). There were no significant associations between street intersection density and violence perpetration.

Conclusions: Several neighborhood environmental features were significantly associated with violence perpetration, with features promoting pedestrian transit associated with lower odds of reporting fighting. These findings extend emerging studies from large urban centers, and suggest that walkable neighborhoods in mid-sized cities may also foster busy streets, promote social interactions, and serve as a protective factor in youth violence. While reaching statistical significance, other observed odds ratios were near 1, suggesting minimal clinical relevance in this study sample. Future research should focus on feasible contextual interventions to enhance walkability in low resource neighborhoods as part of a multifaceted strategy to reduce the disproportionate burden of violence impacting these communities.

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