**“Investigating Gender Differences in the Co-Occurrence of PTSD and Food Addiction  ”**

Lindzey Hoover – University of Michigan – lindzeyh@umich.edu

**Description:** The data set supports a study investigating co-occurring PTSD and food addiction in a community sample with results stratified by gender. Data for co-occurring problematic substance use and obesity are also included to allow for within-sample comparison. Participants (n=318) were recruited from Amazon Mechanical Turk for a study on how past experiences impact health behaviors. Participants were asked to complete self-report measures on post-traumatic stress disorder (PTSD), food addiction, problematic substance use (alcohol, cannabis, smoking, and nicotine vaping), and BMI. Participants also completed demographic questions.

**Data Cleaning:** Analyses were conducted in IBM SPSS Statistics version 28 (IBM Corporation, Armonk, NY). Data were reviewed for quality assurance and 29 participants were excluded due to failure to meet quality control criteria (failed multiple check questions, completion in <10 minute, etc.). We also excluded any participants who did not indicate a gender identity (n=3), who indicated a non-binary gender identity (n=1), or who were missing data on primary variables of interest (i.e., PTSD, food addiction n=35) from all analyses. No participants identified as transgender. This resulted in a final sample of 318 participants included in analyses. Participants had the option to select “prefer not to answer” due to the sensitive nature of some questions (e.g., substance use) and this resulted in some missing data (n=1 to n=18). Improbable BMI values were also excluded from analyses (BMI<15 or>50, n=17). All other data were retained for participants with improbable BMI values. This resulted in a total of n=35 missing data for BMI after accounting for both missing data and data excluded for improbable values.

**Methodology:** Pearson zero-order correlation analyses were conducted between primary variables of interest and demographic variables to identify potential sociodemographic covariates. Subjective socioeconomic status (SES) and age were both included as covariates in the current model. We estimated unadjusted and adjusted risk ratios among food addiction, PTSD, problematic substance use (i.e., alcohol, cannabis, smoking, and nicotine vaping) and obesity using Modified Poisson regression with robust standard error estimations. We ran these analyses for the whole same and stratified by gender identity.

**Conclusions:** Food addiction co-occurred with PTSD at comparable or stronger rates than other types of problematic substance use (alcohol, cannabis, smoking, nicotine vaping). Results suggested that this risk may be particularly high for men compared to women. It may be important to assess for food addiction in those with PTSD to assist in identifying high-risk groups.

More information about the data and the study can be found in the following publication:

Hoover, L. V., Yu, H. P., Duval, E. R., & Gearhardt, A. N. (In Press). Investigating gender differences in the Co-occurrence of PTSD and food addiction. *Appetite.* https://doi.org/10.1016/j.appet.2023.106605.

**Scoring Information:** The following self-report measures were administered to assess participant PTSD, food addiction, problematic substance use, and obesity.

1. The Posttraumatic stress disorder checklist for DSM-5 (PCL-5; Blevins et al., 2015; Weathers et al., 2013) is a 20-item self-report measure that assesses PTSD symptoms and symptom severity. The PCL-5 uses a 1-5 Likert scale ranging from Not at All (1) to Extremely (5). We scored and analyzed results using the DSM-5 scoring to parallel YFAS2.0 scoring. Using the DSM-5's criterion for PTSD, each item on the PCL-5 was considered “endorsed” if it received a score of 2 (“moderately”) or higher. For each DSM-5 symptom dimension (criterion B, criterion C, etc.), we determined whether enough items were endorsed to meet each criterion (1+ for criterion B, 1+ for criterion C, 2+ for criterion D, 2+ for criterion E). Participants who endorsed sufficient items to meet all four individual criteria categories were considered as meeting provisional diagnostic criteria for PTSD.

1. The Yale Food Addiction Scale 2.0 (YFAS2.0; Gearhardt et al., 2016) is a 35-item self-report measure of food addiction which is based off DSM-5 criteria for substance use disorders. We scored the YFAS2.0 by summing the number of symptoms (0 to 11) to create one composite score. Participants who scored 2+ symptoms and indicated clinically significant impairment/distress met the criteria for food addiction (0 = not met, 1 = met).
2. The Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) is a brief 10-item self-report measure that screens for problematic alcohol use. Item scoring ranges from 0 to 4 resulting in a possible overall score ranging from 0 to 40. Participants scoring 8 or higher met criteria for problematic use based on established thresholds for hazardous or harmful alcohol consumption (0 = not met, 1 = met criteria; (Saunders et al., 1993).
3. The Cannabis Use Disorders Identification Test - Revised (CUDIT; Adamson et al., 2010);) is a brief 8-item self-report measures that screen for problematic cannabis use. Item scoring ranges from 0 to 4 resulting in a possible overall score ranging from 0 to 32. Participants scoring 8 or higher met criteria for high-risk cannabis use based on established thresholds for problematic cannabis use (0 = not met, 1 = met criteria; (Adamson et al., 2010).
4. The Fagerstrom Test for Nicotine Dependence (FTND; Heatherton et al., 1991) is a 6-item measure of cigarette dependence. Items are scored 0 or 1 for yes/no questions and 0 to 3 for multiple choice questions resulting in a possible overall score ranging from 0 to 10. A cutoff score of 4 or higher was used to indicate problematic cigarette use based on recommendations from past literature (Huang et al., 2008).
5. The E-Cigarette Dependence Scale-Brief Version (EDS; Morean et al., 2019) is a 4-item measure of e-cigarette dependence. Participants respond to each question on a 5-point scale (0 = never to 5 = almost always) and responses were summed for an overall score ranging from 0 to 20. No scoring cutoff was indicated. Thus, we used the FTND recommended cutoff score of 4 or higher (Huang et al., 2008) for problematic nicotine vaping (0 = not met, 1 = met criteria).
6. Body Mass Index (BMI) was calculated by using self-report height and weight. Obesity was indicated by a BMI of 30.0 or above based on the Center for Disease Control cut-off ((Center for Disease Control and Prevention, 2021); Not Obese, BMI <30.0 = 0, Obese, BMI ≥30.0 = 1).

More information about these measures can be found in the following articles:

1. Adamson, S. J., Kay-Lambkin, F. J., Baker, A. L., Lewin, T. J., Thornton, L., Kelly, B. J., & Sellman, J. D. (2010). An improved brief measure of cannabis misuse: The Cannabis Use Disorders Identification Test-Revised (CUDIT-R). *Drug and Alcohol Dependence*, *110*(1), 137-143. http://doi.org/10.1016/j.drugalcdep.2010.02.017
2. Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The posttraumatic stress disorder checklist for DSM-5(PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress*, *28*(6), 489-498. https://doi.org/10.1002/jts.22059
3. Center for Disease Control and Prevention. (2021). *Defining Adult Overweight & Obesity*. Retrieved 2021, October 25 from https://www.cdc.gov/obesity/adult/defining.html
4. Gearhardt, A. N., Corbin, W. R., & Brownell, K. D. (2016). Development of the Yale Food Addiction Scale Version 2.0. *Psychol Addict Behav*,*30*(1), 113-121. https://doi.org/10.1037/adb0000136
5. Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K.-O. (1991). The Fagerstrom Test for Nicotine Dependence: a revision of the Fagerstrom Tolerance Questionnaire. *British Journal of Addiction*, *86*(9), 1119-1127. http://doi.org/10.1111/j.1360-0443.1991.tb01879.x
6. Huang, C.-L., Lin, H.-H., & Wang, H.-H. (2008). Evaluating screening performances of the Fagerstrom tolerance questionnaire, the Fagerstrom test for nicotine dependence and the heavy smoking index among Taiwanese male smokers. *Journal of Clinical Nursing*, *17*(7), 884-890. https://doi.org/10.1111/j.1365-2702.2007.02054.x
7. Morean, M. E., Krishnan-Sarin, S., Sussman, S., Foulds, J., Fishbein, H., Grana, R., & O'Malley, S. S. (2019). Psychometric Evaluation of the E-cigarette Dependence Scale. *Nicotine & Tobacco Research*, *21*(11), 1556-1564. https://doi.org/10.1093/ntr/ntx271
8. Saunders, J. B., Aasland, O. G., Babor, T. F., De La Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption-II. *Addiction*, *88*(6), 791-804. https://doi.org/10.1111/j.1360-0443.1993.tb02093.x
9. Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). The PTSD checklist for DSM-5 (PCL-5) - *Standard* [Measurement Instrument].

Demographics:

1. Age (Put 999 if you prefer not to answer): [text box]
2. Sex at birth
	1. Male (0)
	2. Female (1)
	3. Other (2)
	4. Prefer not to answer (-888)
3. Gender identity
4. Male (0)
5. Female (1)
6. Transgender Female (2)
7. Transgender Male (3)
8. Non-binary (4)
9. Not listed: text box (5)
10. Prefer not to answer (-888)
11. Sexual orientation
12. Heterosexual (1)
13. Gay or lesbian (or homosexual if you identify with this term) (2)
14. Bisexual (3)
15. Pansexual (4)
16. Asexual (5)
17. Queer (6)
18. Other: text box (7)
19. Prefer not to answer (-888)
20. What race / ethnicity do you consider yourself to be? Select one or more of the following.
21. American Indian or Alaska Native
22. Hispanic / Latino
23. Asian
24. Native Hawaiian or Other Pacific Islander
25. Black or African American
26. White
27. Other: [Text Box]

\*RaceEthn\_# are coded 0 = not endorsed 1 = endorsed

 \_1 = American Indian or Alaska Native

 \_2 = Hispanic/Latinx

 \_3 = Asian

 \_4 = Native Hawaiian or Other Pacific Islander

 \_5 = Black or African American

 \_6 = White

 \_7 = Other

 \_8 = prefer not to answer

1. What is the highest level of education you’ve obtained?
2. Less than High School (1)
3. High School Degree (2)
4. Some college (3)
5. Associates Degree (4)
6. Bachelor’s Degree (5)
7. Advanced Degree (e.g. Masters, Ph.D, M.D., J.D.) (6)
8. Prefer not to answer (-888)
9. What is your height in feet?
10. 3 (3)
11. 4 (4)
12. 5 (5)
13. 6 (6)
14. 7 (7)
15. Prefer not to answer (-888)

What is your height in inches

1. 0 (0)
2. 1 (1)
3. 2 (2)
4. 3 (3)
5. 4 (4)
6. 5 (5)
7. 6 (6)
8. 7 (7)
9. 8 (8)
10. 9 (9)
11. 10 (10)
12. 11 (11)
13. Prefer not to answer (-888)

What is your weight in **pounds** (enter 999 for prefer not to answer)

1. [Text box]

What is your household income? Household is defined by your permanent residence

* + 1. Less than $10,000 (1)
		2. $10,000 - $19,999 (2)
		3. $20,000 - $29,999 (3)
		4. $30,000 - $39,999 (4)
		5. $40,000 - $49,999 (5)
		6. $50,000 - $59,999 (6)
		7. $60,000 - $69,999 (7)
		8. $70,000 - $79,999 (8)
		9. $80,000 - $89,999 (9)
		10. $90,000 - $99,999 (10)
		11. $100,000 - $149,999 (11)
		12. More than $150,000 (12)
		13. Prefer not to answer (-888)

Socioeconomic status was measured using the MacArthur Scale of Subjective Social Status (Adler et al., 2000) which is a single-item measure that represents perception of rank relative to others.

Think of this ladder as representing where people stand in the United States. At the top of the ladder are the people who are the best off – those who have the most money, the most education, and the most respected jobs. At the bottom are the people who are the worst off – those who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people who are best off. Where would you place yourself on this ladder?

1 (1)

2 (2)

3 (3)

4 (4)

5 (5)

6 (6)

7 (7)

8 (8)

9 (9)

10 (10)

Prefer not to answer (-888)

More information about this measure can be found in the following article:

Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of

subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy, White women., Health Psychology, 19(6), 586. <https://doi-org.proxy.lib.umich.edu/10.1037/0278-6133.19.6.586>

|  |
| --- |
| **Variable Key** |
| **Variable Name** | **Description** | **Code Key** |
| PID | Participant ID number | N/A |
| Age | Age at time of participation | 999 = prefer not to answer  |
| Sx\_B | Sex assigned at birth | 0 = male; 1 = female; 2 = Other; -888 = prefer not to answer |
| Gen\_Id | Gender identity  | 0 = male; 1 = female; 2 = Transgender female 3 = Transgender male; 4 = Non-binary; 5 = not listed; -888 = prefer not to answer |
| Sx\_Orien | Sexual Orientation | 1 = Heterosexual; 2 = Gay or Lesbian; 3 = Bisexual; 4 = Pansexual; 5 = Asexual; 6 = Queer; 7 = Other; -888 = prefer not to answer |
| RaceEthn\_# | Race/Ethnicity\_1= American Indian or Alaska Native\_2=Hispanic/Latinx\_3=Asian \_4=Native Hawaiian or Other Pacific Islander \_5=Black or African American\_6=White \_7=Other \_8 = prefer not to answer) | 0 = not endorsed; 1 = endorsed  |
| Educa | Education | 1=less than high school; 2 = high school degree; 3 = some college; 4 = associates degree; 5 = bachelors; 6 = advanced degree; -888 = prefer not to answer |
| Income | Income | 1 = less than $10,000; 2 = $10,000-$19,999; 3 = $20,000-$29,000; 4 = $30,000-$39,000; 5 = $40,000-$49,000; 6 = $50,000-$59,000; 7 = $60,000-$69,000; 8 = $70,000-$79,000; 9 = $80,000-$89,000; 10 = $90,000-$99,000; 11 = $100,000-$149,000; 12 = More than $150,000; -888 = prefer not to answer |
| Standing | Socioeconomic status (ladder measure) | 1=1, 2=2, 3=3, 4=4, 5=5, 6=6, 7=7, 8=8, 9=9, 10=10, -888 = prefer not to answer |
| BMI\_WC\_Exclude | BMI by weight class using BMI\_Ex variable | -666 = removed due to improbable value (<15 or >50)-888 = prefer not to answer on height and/or weight question |
| BMI\_Ex | BMI excluding outlier participants  | -666 = removed due to improbable value (<15 or >50)-888 = prefer not to answer on height and/or weight question |
| BMI\_OB\_Exclude | BMI dichotomized (0=not obese, 1 = obese) using BMI\_Ex variable  | -666 = removed due to improbable value (<15 or >50) |
| PCL5Comp | PCL5 Symptom composite score | -888 = prefer not to answer |
| PCL5\_Diag\_Met | Dichotomized PCL5 score cutoff met? (0=no, 1=yes) | 0 = cutoff criteria not met; 1 = cutoff criteria met; -888 = prefer not to answer |
| YFAS\_Sym | YFAS Symptom composite score | -888 = prefer not to answer |
| FoodDepMet | Dichotomized YFAS score cutoff met? (0=no, 1=yes) | 0 = cutoff criteria not met; 1 = cutoff criteria met; -888 = prefer not to answer |
| AUDIT\_Sum | AUDIT sum score | -888 = prefer not to answer |
| AUDIT\_Problem | Dichotomized AUDIT score cutoff met? (0=no, 1=yes) | 0 = cutoff criteria not met; 1 = cutoff criteria met; -888 = prefer not to answer |
| CUDIT\_Sum | CUDIT Sum score | -888 = prefer not to answer |
| CUDIT\_Problem | Dichotomized CUDIT score cutoff met? (0=no, 1=yes) | 0 = cutoff criteria not met; 1 = cutoff criteria met; -888 = prefer not to answer |
| FTND\_Sum | FTND Severity score | -888 = prefer not to answer |
| FTND\_Smoker\_cut4 | Dichotomized FTND score cutoff met? (0=no, 1=yes) | 0 = cutoff criteria not met; 1 = cutoff criteria met; -888 = prefer not to answer |
| ECIG\_Sum | ECig dependency sum score | -888 = prefer not to answer |
| ECig\_Smoker\_cut4 | Dichotomized ECig score cutoff met? (0=no, 1=yes) | 0 = cutoff criteria not met; 1 = cutoff criteria met; -888 = prefer not to answer |
| Filter\_Men\_PTSD | Filters for men only for gender stratified analyses | N/A |
| Filter\_Women\_PTSD | Filters for women only for gender stratified analyses | N/A |

**Analyses:** Data and Syntax are publicly available for verifying data analyses (please see Deep Blue Code PTSD Paper 5.26.23).

**Files Uploaded:**

* Deep Blue Code PTSD Paper (SPSS code for verifying data analysis of published work)
* Deep Blue PTSD Paper Dataset.sav (SPSS dataset for verifying data analysis of published work)
* Deep Blue PTSD Paper.csv (.csv file of dataset for verifying data analysis of published work)

Note:Dataset only includes those participants (n=318) included in final analyses for the publication.

Questions may be sent to the corresponding author Lindzey V. Hoover (lindzeyh@umich.edu).