

# Binge and Heavy Drinking on Sugar and Fat Intake among People Living with HIV

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## Background

- Sugar- and fat-rich obesogenic diet is considered a main facilitator of morbidity and mortality in the United States, especially in obesity and obesity-associated metabolic diseases such as metabolic syndrome, diabetes, and fatty liver.
- Alcohol use, another catalyst of metabolic dysfunction, is thought to be linked with diet, and evidence suggests that simultaneous exposure to alcohol and poor diet further exacerbates these negative health outcomes.
- This association may be especially important in people living with HIV (PLWH), a population more susceptible to metabolic disease with evidence of lower diet quality and higher drinking rates than the general population.

## Objectives

- To assess the association between binge and heavy drinking and sugar and fat consumption among a cohort of PLWH.

## Methods



- 212 PLWH (≥18) under care enrolled in the New Orleans Alcohol use in HIV (NOAH) study.
- Alcohol use was identified using the 30-day Alcohol Timeline-Followback (TLFB) Calendar
  - Binge drinking: ≥4/5 drinks/2 hours (females/males)
  - Heavy drinking: >3/4 drinks/day (females/males)
- Overall intake of calories and grams of sugar, total fat, and saturated fat were assessed through the Automated Self-Administered 24-Hour Dietary Assessment Tool.
- Sugar, fat, and calorie intake were also assessed categorically using the following categories:
  - High sugar: ≥20% of total energy intake (TEI)
  - High total fat: ≥35% of TEI
  - High saturated fat: ≥10% of TEI
  - High calories: >2000/2500 calories/day (females/males)
- Descriptive statistics and multivariable logistic and linear regression analyses were conducted to assess the association between binge and heavy drinking and sugar and fat intake in this cohort of PLWH.
- A secondary analysis using 2017-2018 National Health and Nutrition Examination Survey (NHANES) data was conducted to compare the association between binge and heavy drinking on sugar and fat intake between NOAH/HIV+ and NHANES/HIV- participants
  - Excluding those under the age of 18
  - Limited to only Black participants for each, to account for stark racial differences in the study populations
- All analyses were conducted using SAS version 9.4.

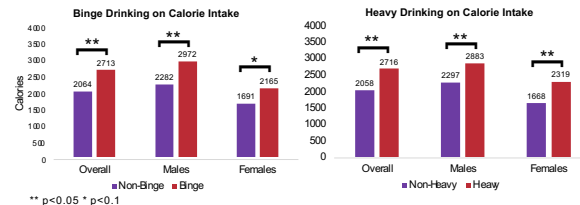
## Results

Table 1. NOAH Participant demographics, stratified by sex

	All (n=212)	Males (n=135)	Females (n=77)	p
Age	51.4 (10.0)	51.8 (10.5)	50.6 (9.0)	0.420
Race		% (n)		0.113
Black	83.2 (173)	81.2 (108)	86.7 (65)	
White	15.4 (32)	18.1 (24)	10.7 (8)	
Other	1.4 (3)	0.8 (1)	2.7 (2)	
Diabetes	11.5 (22)	11.3 (14)	11.8 (8)	0.918
Binge Drinking	26.8 (53)	28.4 (36)	23.9 (17)	0.502
Heavy Drinking	28.6 (54)	31.4 (38)	23.5 (16)	0.250

• NOAH participants were mainly Black and male. Males and females were similar in terms of age, race, diabetes, and drinking.

Figure 1. Binge and heavy drinking on overall calorie intake, stratified by sex



• Overall, binge and heavy drinking were associated with higher calorie intake in both males and females.

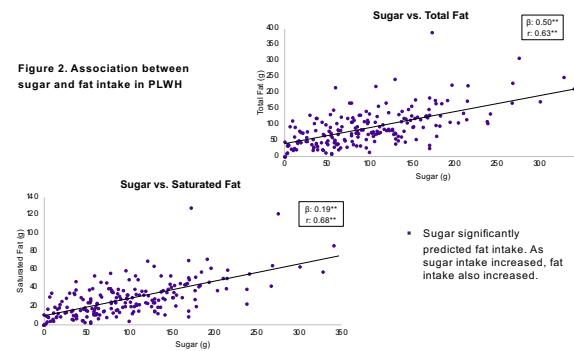
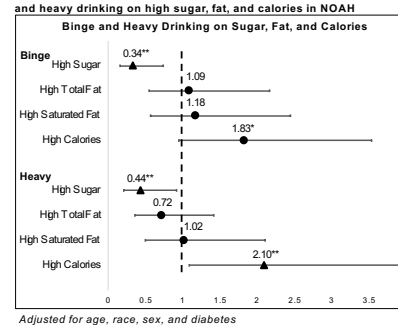
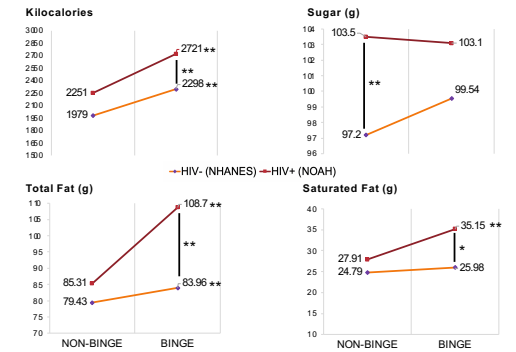


Figure 3. Adjusted odds ratios and 95% confidence intervals for binge and heavy drinking on high sugar, fat, and calories in NOAH



• Binge and heavy drinking were significantly associated with higher odds of having a high calorie intake but a lower odds of having a high sugar intake.

Figure 4. Adjusted binge drinking on calories and total grams of sugar and fat – comparison between Black NOAH and NHANES participants



• Binge drinking was significantly associated with higher calorie and total fat intake in Black NOAH and NHANES participants. Black NOAH participants had higher calorie and total fat intake than Black NHANES participants, regardless of drinking.

## Conclusions

- Both sugar and fat intake individually lead to obesity and obesity-associated metabolic outcomes; sugar intake significantly predicted fat intake in PLWH, which leads to even higher susceptibility to disease in an already vulnerable population.
- Binge and heavy drinking were associated with significantly lower odds of having a high sugar intake as a percent of TEI, which may be accounted for by inflated calorie intake in drinkers or it could be evidence that binge and heavy drinkers are substituting their TEI with alcohol, rather than supplementing nutrient intake.
- In both HIV+ and HIV- Black participants, binge and heavy drinking were significantly associated with higher calorie intake and gram intake of total fat, with HIV+ drinkers showing higher calorie and fat intake than HIV- drinkers.

## Implications

- Nutritional interventions aimed at hazardous drinkers may be useful in reducing the burden of metabolic disease, especially in PLWH.
- Further studies looking at potential location-based facilitators of calorie, sugar, and fat intake are currently underway.

## Acknowledgements

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