

Case Study 3: Team 3

Phuc Nyugen, Ezinne Nwankwo, Frances Hung

2/16/2020

Introduction

THE CHRONICLE OF HIGHER EDUCATION

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STUDENTS



48% of Female Undergrads at Duke Say They Were Sexually Assaulted While Enrolled, Up Sharply From 2016

By Katherine Mangan | FEBRUARY 22, 2019



Lance King, Getty Images

Nearly half of Duke University's female undergraduates say they have been sexually assaulted since enrolling at the university, a sharp increase from the proportion in 2016, according to a [report](#) released on Thursday.

Complaints of both sexual assault and sexual harassment increased from 2016 to 2018. It was unclear, the report says,

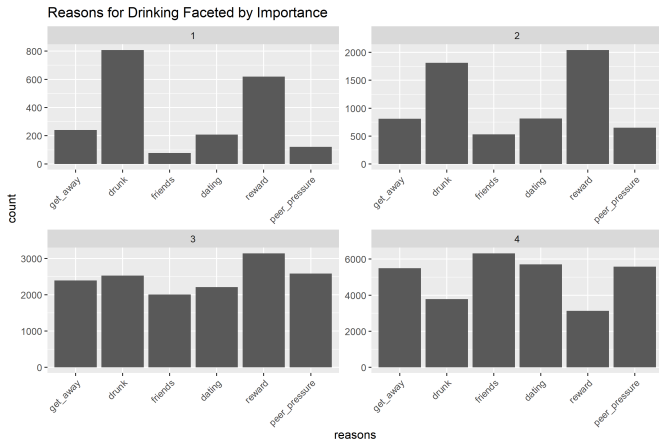
Questions of Interest

- ▶ What factors influence college drinking behavior?
- ▶ Relationship between drinking policies and college drinking behavior
- ▶ Relationship between college drinking behavior and sexual assault (caused by drinking)

Data Cleaning

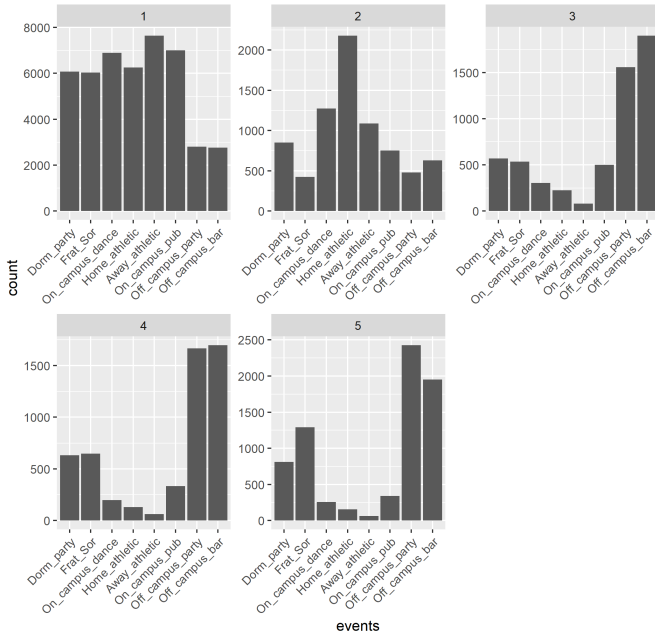
- ▶ Concentrated on 1997 dataset
- ▶ Used predictors from original survey questions
- ▶ Zero-imputation for NA answers to ordinal data (if sensible)

EDA: Drinking Habits



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Event Types attended, Faceted by #Drinks



EDA: Elastic Net

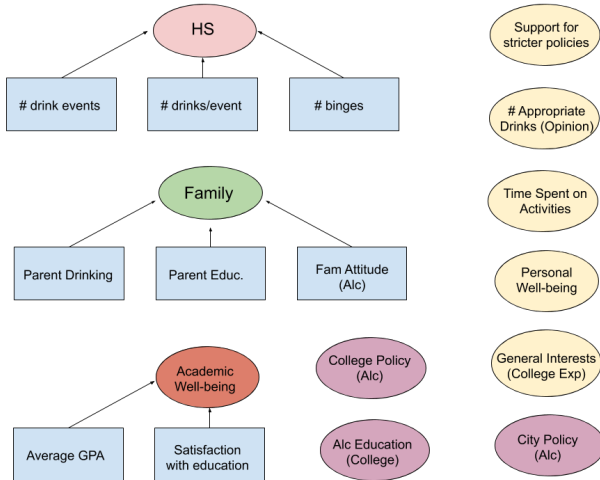
► **Heavy Drinking (+)**

- Importance of parties in college experience
- Disruptive/loud drinking
- Opinion on off-campus bar (# acceptable drinks)
- % friends who are binge drinkers
- HS binge behavior in senior year

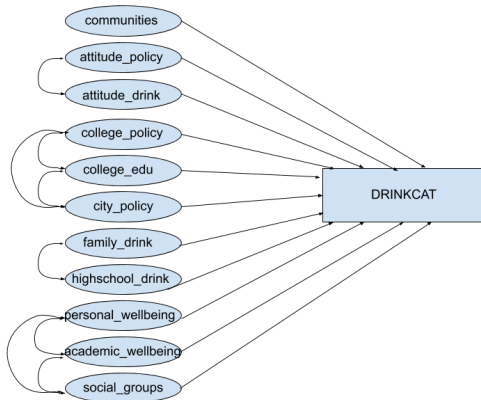
Dimension Reduction

- ▶ Grouping into Latent Factors
- ▶ Factors: Correlated and Interpretable
 - ▶ for lavaan, latent factors must be continuous
- ▶ Ordinal predictors for each factor

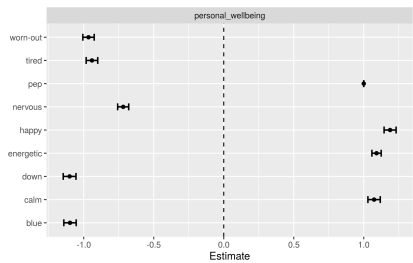
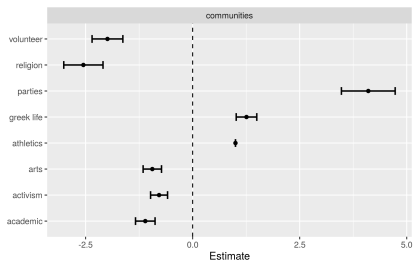
Dimension Reduction



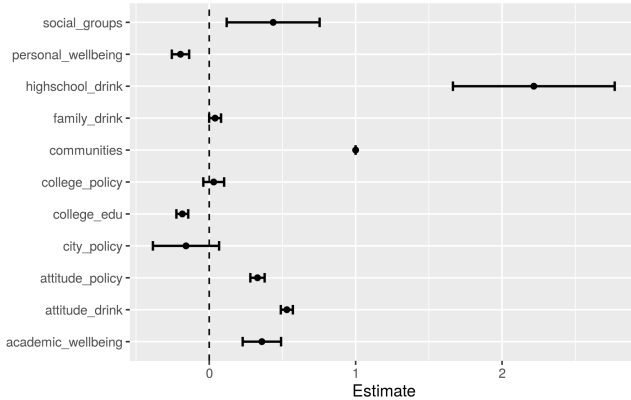
Latent Variable Model - SEM



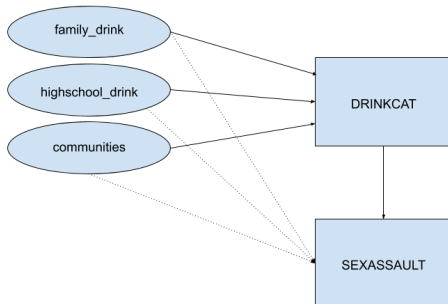
SEM Results



SEM Results



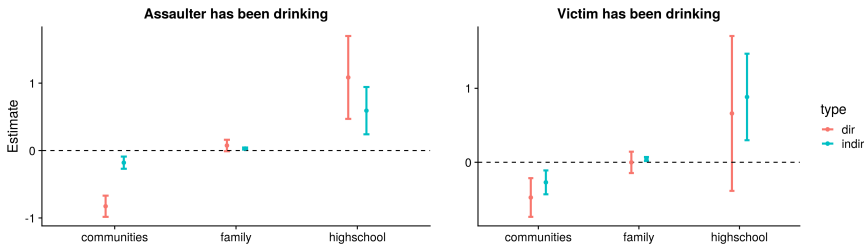
Mediation



Mediation Results

$\text{drinkcat} \sim \text{communities} + \text{family} + \text{highschool}$

$\text{sexualassault} \sim \text{communities} + \text{family} + \text{highschool} + \text{drinkcat}$



Discussion and Future Work

- ▶ Influential Factors:
 - ▶ High high school drinking habits is associated with increased college drinking behavior
 - ▶ Worse academic well-being is associated with increased college drinking, while better personal wellbeing is associated with a decrease in college drinking
- ▶ Policies:
 - ▶ No evidence of a relationship between strictness of college or city drinking policy and drinking behaviors
 - ▶ Less education material on drinking is associated with less drinking
- ▶ Sexual Assault:
 - ▶ High school drinking habits alone and through mediator contributes the most to incidences of sexual assault
- ▶ We assume linearity and normality in our models, so in the future we want to extend to non-parametric models with SEM