Longitudinal prediction of NSSI among transgender population

CCPX 4199 Computational Psychiatry – final presentation

Ya-Wen (Yama) Chang
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Background

Research Question
What factors would prospectively predict non-suicidal
self-injurious behaviors among gender diverse individuals?

- ◉ Outcome variable: 12-month NSSI engagement
- ◉ Predictors: 31 variables

Baseline sample

- N=330 transgender participants, 16 – 87 years old (M = 34.4, SD = 13.7)

- 169 (51.2%) identified as woman, transgender woman, gender–queer, –nonbinary, or –nonconforming and were assigned male at birth; 161 (48.8%) identified as man, transgender man, gender–queer, –nonbinary, or –nonconforming and were assigned female at birth.

- 18.5% Latinx / 43.6% Caucasian / 15.8% Black / 3.6% Asian / 18.4% other ethnic groups

- 33.3% unemployed

Measures - 31 variables in 5 category

- Self Injurious Thoughts and Behaviors Interview (SITBI) with the addition of the four questions from the long version of this measure assessing functions of NSSI (Nock et al., 2007)
- Everyday Discrimination Scale (ES)
- Stigma Consciousness Scale (10 items) (Pinel, 1999) (FS)
- Multidimensional Scale of Perceived Social Support (Zimet et al., 1988) (4 items) (MSPSS)
- Gender Minority Stress and Resilience Measure (5 items subscale) community connectedness
- Transgender Congruence Scale (12 items) (TCS)
- Transgender Identity Survey (Bockting et al., 2020) (TIS)
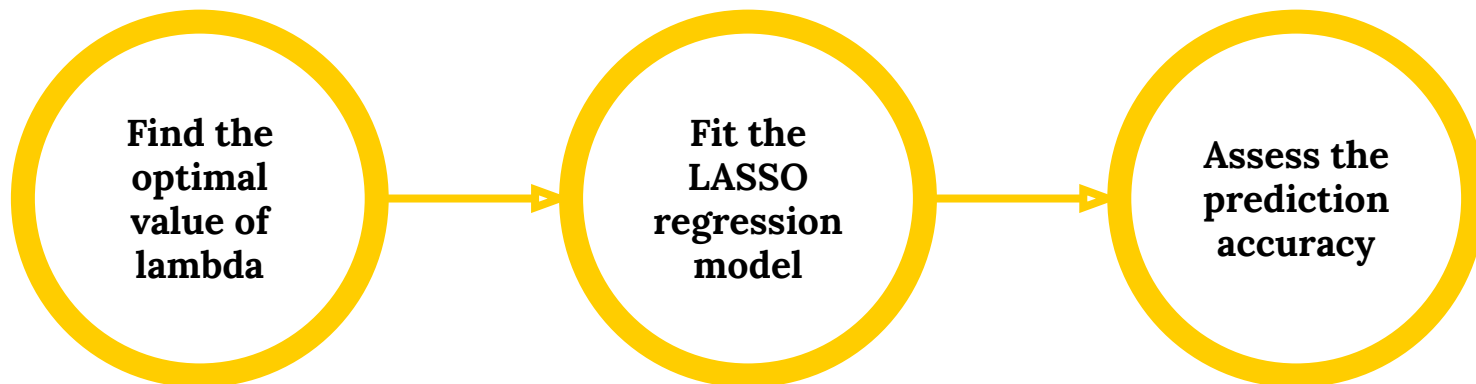- BSI–18 mental health

Why LASSO Regularized Regression?

◉ Improve prediction accuracy compared to classic stepwise methods

◉ Effectively improve model interpretability by selecting predictors and avoiding overfitting (Fonti & Belitser, 2017)
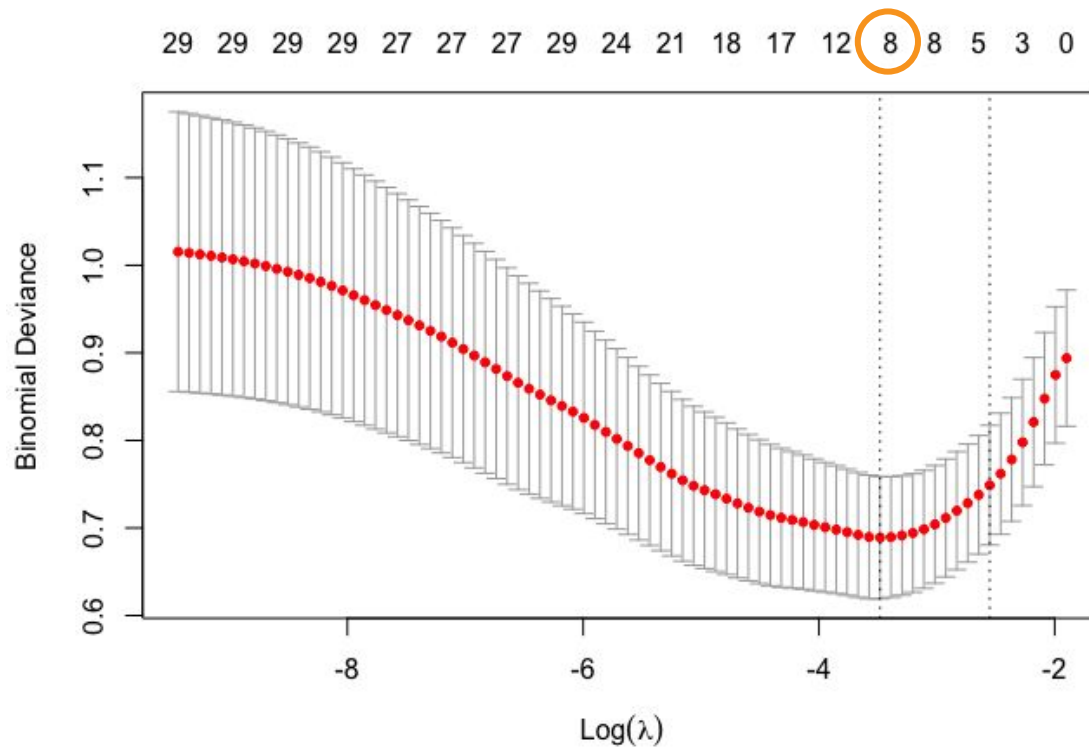
LASSO Procedure

Find the optimal value of lambda → Fit the LASSO regression model → Assess the prediction accuracy

The optimal value of Lambda λ

Lambda λ = 0.03075171

Fit the lasso regression model

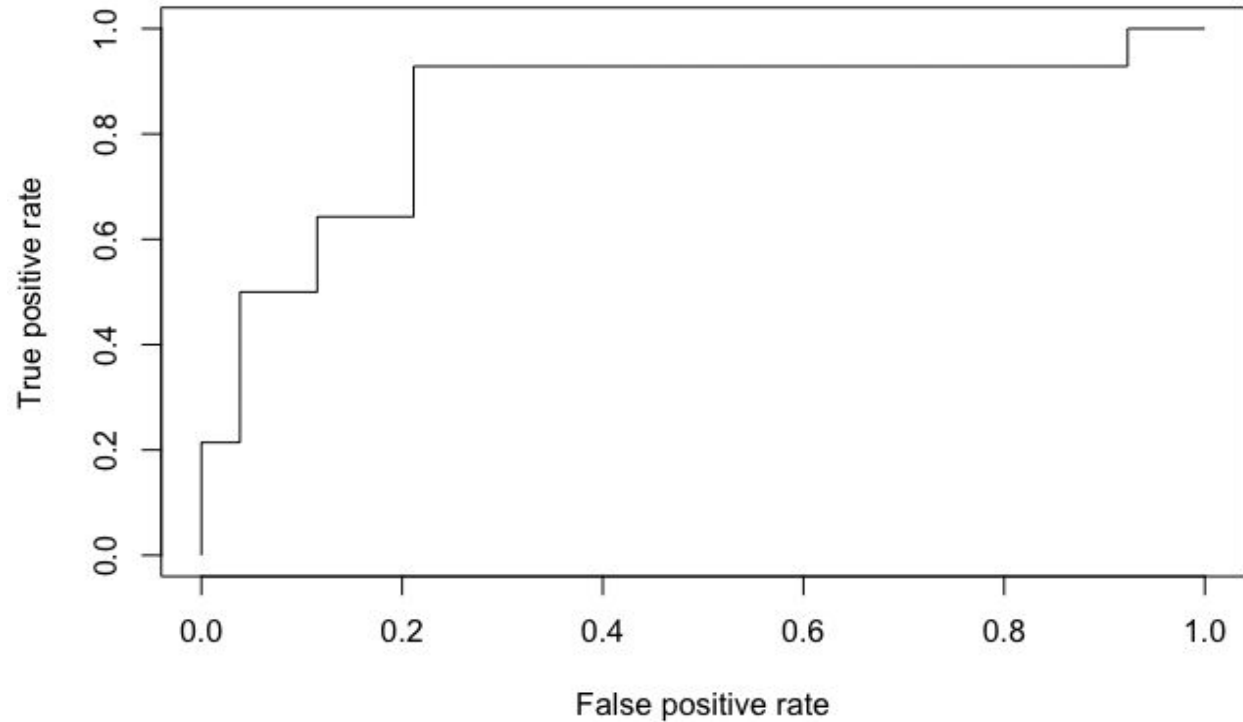Table 1 Coefficients for Variables in Lasso Regularized Logistic Regression

Predictor	NSSI LASSO	Predictor	NSSI LASSO
Self-injurious thoughts and behaviors		Protective factors	
Lifetime engagement - NSSI	–	Transgender congruence	–
Lifetime engagement - Suicidal Ideation	–	Sense of safety	-.811
Lifetime engagement - Suicide Attempt	–	Community connectedness	–
Lifetime frequency - NSSI	–	Social support	–
Lifetime frequency - Suicide Attempt	–	Family support	–
Past year engagement - NSSI	.621	Peer support	–
Past year engagement - Suicidal Ideation	.861	Support from important others	–
Past year engagement - Suicide Attempt	–	Mental health	
Past year frequency - NSSI	.003	BSI-GSI	.128
Past year frequency - Suicide Attempt	–	Somatization	.180
Minority stress		Anxiety	.183
Felt stigma	–	Depression	–
Enacted stigma	.068	Gender affirming process	
Internalized transphobia	–	Started hormones	–
Internalized transphobia - Pride	–	Had surgery	–
Internalized transphobia - Shame	–		
Internalized transphobia - Alienation	–		
Internalized transphobia - Concealment	–		
Gender dysphoria	–		

ROC curve

AUC = 0.846

Excellent: > 0.90
Good: 0.80–0.89
Fair: 0.70–0.79
Poor: 0.60–0.69
Extremely poor:
0.5–0.59

📌 Main Result

Prospective Model Performance: Lasso regularized regressions produced good predictive accuracy (AUC = 0.846) for predicting NSSI in 12-month follow up study.

Main Result

Predictor importance: Predictors remaining in the lasso model showed importance to 12-month NSSI among transgender individuals.

- Past year NSSI engagement
- Past year NSSI frequency
- Past year suicidal ideation engagement
- Enacted stigma
- Overall mental health (BSI-GSI)
- Somatization
- Anxiety
- Sense of safety

Result

- 12-month NSSI is correlated to several minority stress-related variables, mental health variables, lifetime suicidal ideation and behaviors, and past year suicidal ideation
- 12-month NSSI is negatively correlated to having had surgery, sense of safety, community connectedness, and family support
- Past year suicidal ideation is correlated to internalized transphobia and shame

Conclusions

Predictor selection
- **Lifetime** engagement in NSSI, suicidal ideation, and suicidal attempts did not emerge as predictors in 12-month NSSI.
- **Past year NSSI engagement and higher frequency** predicted future engagement in NSSI.
- Among minority stress factors, only enacted stigma could longitudinally predict future engagement in NSSI.
- Transgender individuals with somatization or anxiety could longitudinally predict future engagement in NSSI.
- Sense of safety might serve as a protective factor of future engagement in NSSI.

Introduction

- Transgender population demonstrates higher rates of non-suicidal self-injury (NSSI) compared to other sexual and gender minority (SGM) populations (Bockting et al., 2013).
- Past studies have shown some risk factors that are associated with NSSI among transgender individuals including past-year NSSI (Taliaferro, McMorris, & Eisenberg, 2018), depression (Taliaferro et al., 2018; Wilcox et al., 2012), discrimination (Arcelus et al., 2016), felt stigma and gender dysphoria (Jackman et al., 2018).
- Also, researchers also identified some protective factors preventing NSSI, such as parent connectedness and school safety (Taliaferro et al., 2018) among transgender individuals..

Reference

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6. Taliaferro, L. A., McMorris, B. J., & Eisenberg, M. E. (2018). Connections that moderate risk of non-suicidal self-injury among transgender and gender non-conforming youth. Psychiatry

Thank you!

Ya-Wen (Yama) Chang

MA in Clinical Psychology

E-mail: yc3508@tc.columbia.edu

GitHub: https://github.com/yamachang/NSSI_LONGITIDUNAL