

Introduction

Mental Health Among LGBTQ+

- » Increasing suicide rates over the past several decades pose an ever-growing concern to society. Of particular concern are sexual minority communities which report higher levels of depression, anxiety, difficulties in emotion regulation, and suicidality (Wittgens, et al., 2022; Hatzenbuehler, et al., 2008; Kapatais, et al., 2023)
- » Bisexual individuals make up the largest group among sexual minorities, and within our sample, while consistently reporting worse mental health outcomes when compared to both heterosexual and homosexual individuals; this includes higher risk of depression, anxiety, self-harm, suicidality, alcohol or drug abuse, and lower physical health (Wittgens, et al., 2022; Hickson et al., 2017; Borgogna et al., 2019; Ross et al., 2018; Feinstein, et al., 2017).

The Current Study

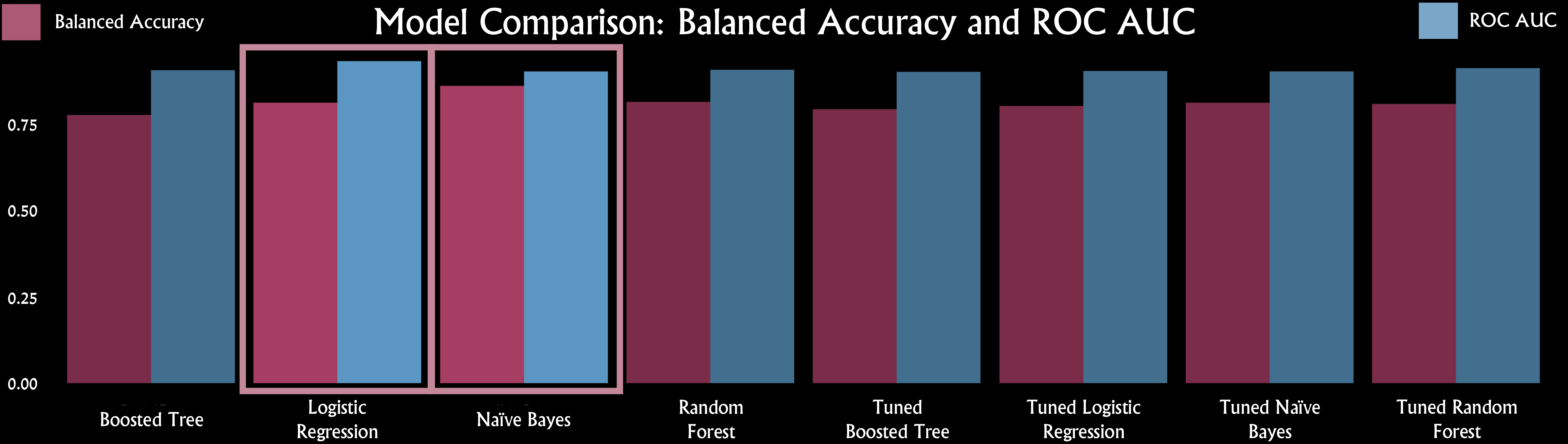
Methods

- » All analyses were conducted on data collected online in 2024 through Connect, an online data collection platform.
- » 625 sexual minority individuals in romantic relationships were recruited (n=109 lesbian; n=102 gay; n=395 bisexual; n=19 other; mean age = 34.5).
- » Models were constructed to predict the presence of suicidal ideation at any level within the past two weeks (item taken from the BDI-II, Beck, et al., 1996).

The Current Study Cont.

Measures

- » Using a Random Forest engine, we created an initial model to narrow down predictors in the larger dataset to the 10 most important questionnaires.
- » Predictors fell into four main categories:
 - » Mental Health
 - Beck Depression Inventory-II, State-Trait Anxiety Inventory, Perceived Stress Scale (Beck et al., 1996; Spielberger, 1983; Cohen, et al., 1983)
 - » Sexual Minority Stressors
 - Internalized Homonegativity-Revised: personal internalized homonegativity subscale, Sexual Orientation Concealment Scale-Revised, Stigma Consciousness Scale-Revised (Mayfield, 2001; Jackson & Mohr, 2016; Pinel, 1999)
 - » Mood and Emotion Regulation
 - Positive and Negative Affect Schedule: negative affect scale; Negative Mood Regulation Scale; Difficulties in Emotion Regulation (Watson, et al., 1988; Catanzaro & Mearns, 1990; Gratz & Roemer, 2004)
 - » Attachment Avoidance
 - Experiences in Close Relationships: avoidance subscale (Fraley et al., 2000)
- » Four initial models were tested to predict the presence of any suicidal ideation:
 - » Naïve Bayes, Random Forest, Logistic Regression, Boosted Tree.
- » We tuned the models to try improving performance, but it resulted in over-fitting the data.
- » The naïve bayes model performed best in predicting suicidal ideation, while the logistic regression model was a close second. All models consistently performed extremely well.



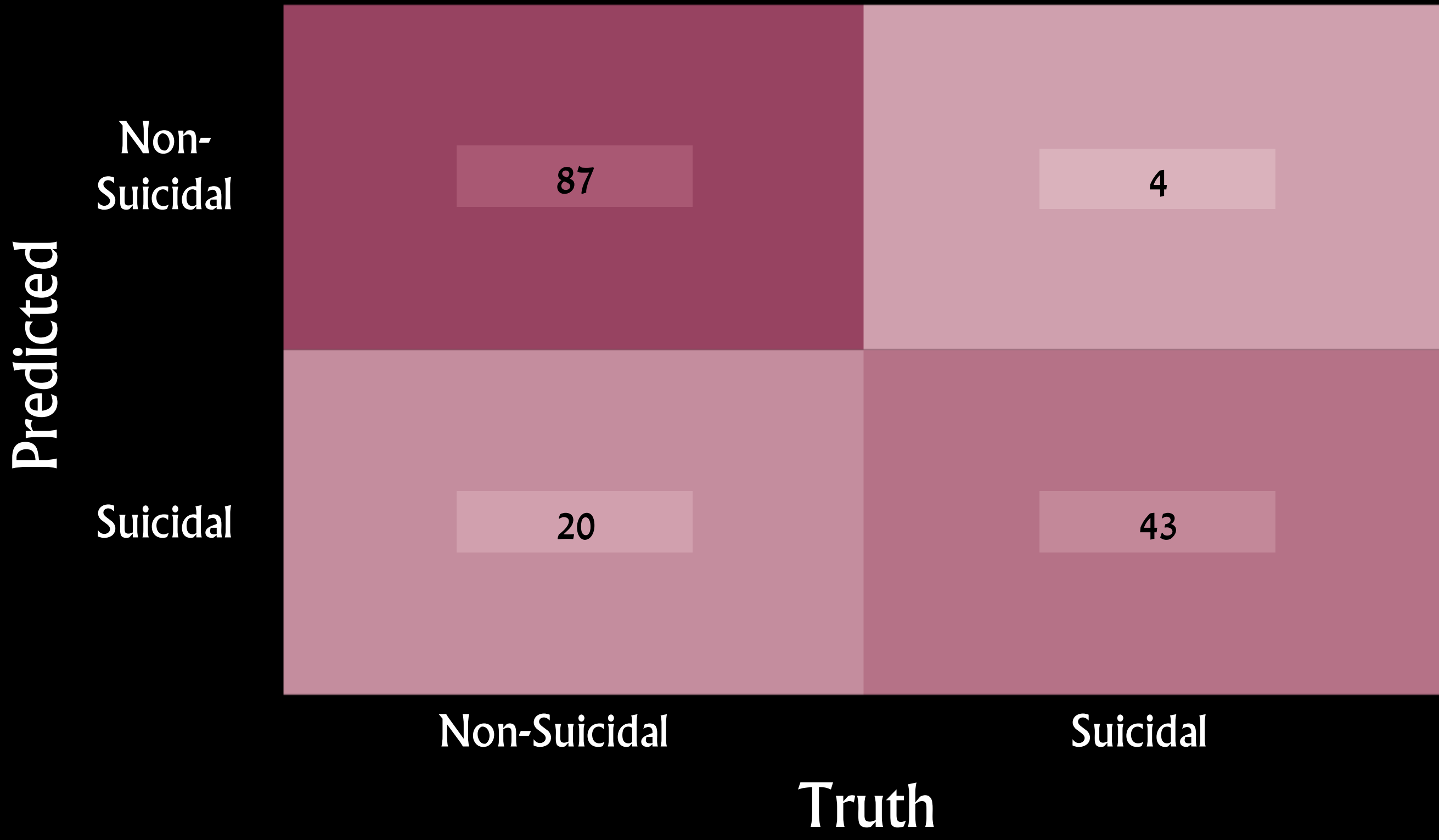
Confusion Matrix: Logistic Regression Model



Performance Metrics for All Models

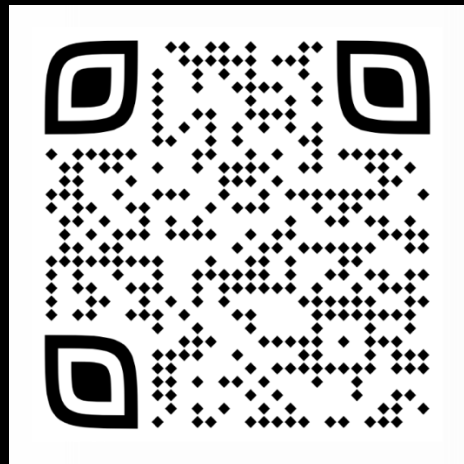
Model	Balanced Accuracy	ROC AUC	Model	Balanced Accuracy	ROC AUC
Boosted Tree	0.78	0.91	Tuned Boosted Tree	0.80	0.91
Logistic Regression	0.82	0.94	Tuned Logistic Regression	0.81	0.91
Naïve Bayes	0.86	0.91	Tuned Naïve Bayes	0.82	0.91
Random Forest	0.82	0.91	Tuned Random Forest	0.81	0.92

Confusion Matrix: Naïve Bayes Model



Discussion

- » Naïve bayes is an appropriate model to use to detect suicidal ideation extremely accurately, however, all models performed very well. This indicates excellent reproducibility for all models and that the predictors chosen are appropriate.
- » Incorporating emotion-related factors in identifying individuals with a higher risk of suicidal ideation outside of a clinical setting can help ensure that resources are available to them, rather than relying strictly on the diagnosis of mood disorders such as depression or anxiety among people already seeking treatment.
- » Focusing on a sexual minority sample allows us to develop a model that may better detect suicidality than models trained using a sexual majority sample.



Digital poster and references

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