

The background is a dark navy blue. On the left, there are two overlapping diagonal shapes: a blue one in front of a purple one. Below these is a circular inset showing a close-up of a circuit board. In the top right corner, there is a 3D perspective view of a circuit board's traces.

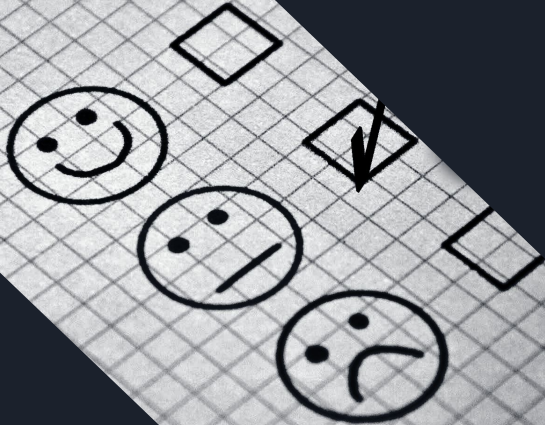
Mental Health and Insurance Coverage

By Desmond Webb



Behavioral Risk Factor Surveillance System (BRFSS)

- Telephone survey system
- Focuses:
 - risk behavior
 - chronic health conditions
 - utilization of services
- Over 400,000 interviewees per year
- Spans U.S., District of Columbia, and some U.S. territories





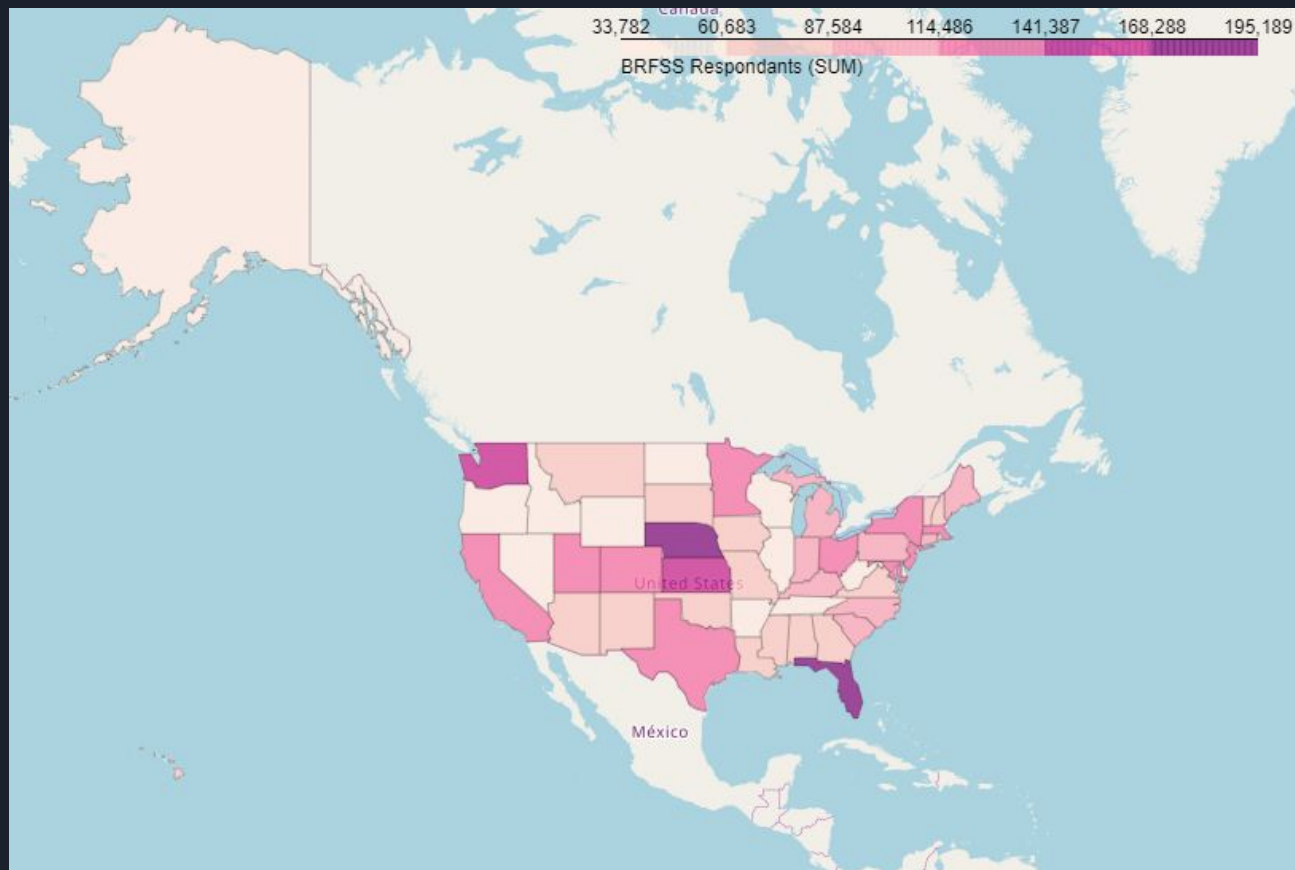
Project Scope

- BRFSS participants
 - 30 day delay
- Aggregate
 - 2009-2018

Project Objectives

- Explore Factor Relationships
- Classification Model

BRFSS Participation






BRFSS National Trends

Perceived Health:

- Regional variation
 - Poorer health
 - Midsouth
 - Southeast

Recent Health Concerns:

- Physical
 - Southeast
 - Activity levels?
- Mental
 - Southeast
- Quality of Life



Insurance Coverage and Recent Mental Health

✓ General Insurance Coverage ¹:

MENTHLTH	POORHLTH
QLMENTL2	MISTMNT ^x
ADDEPEV2	DECIDE

✓ Lack of Insurance Coverage ²:

MENTHLTH	POORHLTH
QLHLTH2	MISTMNT
ADDEPEV2	DECIDE

✓ Significant Relationship

X Non-Significant Factor



Classification Models

General Insurance Coverage³:

- Accuracy: 39.94%
- Improvement: 6.61%

Lack of Insurance Coverage⁴:

- Accuracy: 46.33%
- Improvement: 12.64%



Recommendations

- Online Questionnaires
 - Anonymity
- Data quality
- Incentives
- Perception Disparities

Conclusions:

- Lower Quality of Life:
 - Southeast
 - Contradictory Ratings
- Recent Mental Health and Insurance
 - Insured Status
 - Recent Lack of Insurance
- Low Quality Predictive Models



Thank you!



APPENDIX

MENTHLTH	Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?
QLMENTL2	During the past 30 days, for about how many days have you felt sad, blue, or depressed?
ADDEPEV2	(Ever told) you have a depressive disorder (including depression, major depression, dysthymia, or minor depression)?
MISTMNT	Are you now taking medicine or receiving treatment from a doctor or other health professional for any type of mental health condition or emotional problem?
POORHLTH	During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?
DECIDE	Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?
QLHLTH2	During the past 30 days, for about how many days have you felt sad, blue, or depressed?

1. General Insurance Coverage

Logit Regression Results

Dep. Variable:	HLTHPLN1	No. Observations:	3739372
Model:	Logit	Df Residuals:	3739365
Method:	MLE	Df Model:	6
Date:	Tue, 24 Mar 2020	Pseudo R-squ.:	0.007099
Time:	21:13:42	Log-Likelihood:	-1.1410e+06
converged:	True	LL-Null:	-1.1492e+06
		LLR p-value:	0.000

	coef	std err	z	P> z	[0.025	0.975]
const	2.1055	0.036	58.132	0.000	2.034	2.176
MENTHLTH	0.0041	5.21e-05	78.875	0.000	0.004	0.004
POORHLTH	0.0006	5.46e-05	10.995	0.000	0.000	0.001
QLMENTL2	0.0016	0.000	4.750	0.000	0.001	0.002
MISTMNT	-0.0006	0.001	-0.466	0.641	-0.003	0.002
ADDEPEV2	-0.0367	0.003	-12.005	0.000	-0.043	-0.031
DECIDE	-0.0498	0.001	-92.342	0.000	-0.051	-0.049

2. Lack of Insurance Coverage

Logit Regression Results

Dep. Variable:	NOCOV121	No. Observations:	754003
Model:	Logit	Df Residuals:	753995
Method:	MLE	Df Model:	7
Date:	Thu, 26 Mar 2020	Pseudo R-squ.:	0.01534
Time:	00:16:34	Log-Likelihood:	-1.5358e+05
converged:	True	LL-Null:	-1.5597e+05
		LLR p-value:	0.000

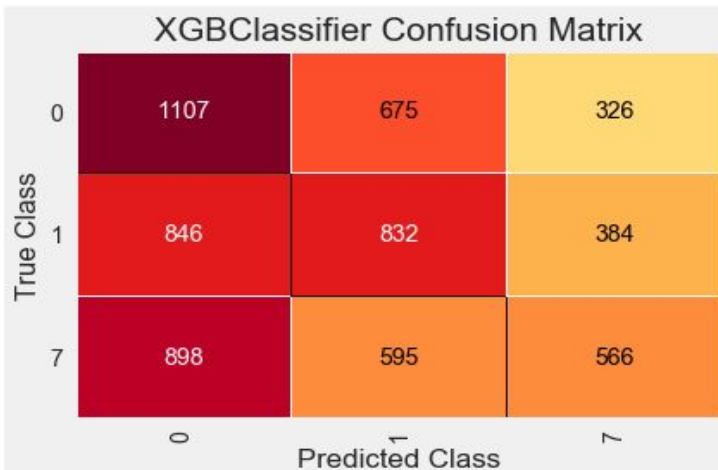
	coef	std err	z	P> z	[0.025	0.975]
const	-2.0779	0.078	-26.800	0.000	-2.230	-1.926
MENTHLTH	-0.0060	0.000	-40.746	0.000	-0.006	-0.006
POORHLTH	-0.0038	0.000	-25.679	0.000	-0.004	-0.004
MISTMNT	0.0229	0.004	5.727	0.000	0.015	0.031
ADDEPEV2	-0.1651	0.011	-15.019	0.000	-0.187	-0.144
DECIDE	-0.0756	0.008	-9.953	0.000	-0.090	-0.061
DIFFALON	0.0773	0.007	10.737	0.000	0.063	0.091
QLHLTH2	-0.0008	0.001	-1.179	0.239	-0.002	0.001

3. General Insurance Coverage

Training Accuracy: 41.77%

Validation Accuracy: 39.94%

	precision	recall	f1-score	support
1.0	0.39	0.53	0.45	2108
2.0	0.39	0.41	0.40	2062
7.0	0.44	0.26	0.33	2059
micro avg	0.40	0.40	0.40	6229
macro avg	0.41	0.40	0.39	6229
weighted avg	0.41	0.40	0.39	6229



4. Lack of Insurance Coverage

Training Accuracy: 51.74%

Validation Accuracy: 45.13%

	precision	recall	f1-score	support
1.0	0.47	0.29	0.36	285
2.0	0.42	0.70	0.52	279
7.0	0.51	0.36	0.42	267
micro avg	0.45	0.45	0.45	831
macro avg	0.47	0.45	0.44	831
weighted avg	0.47	0.45	0.44	831

