Characterizing Awareness of Schizophrenia Among Facebook Users By Leveraging Facebook Advertisement Estimates

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Saha, K., Weber, I., Birnbaum, M. L., & De Choudhury, M. (2017). Characterizing awareness of schizophrenia among Facebook users by leveraging Facebook advertisement estimates. *Journal of medical Internet research*, *19*(5), e156, https://www.jmir.org/2017/5/e156/

BACKGROUND

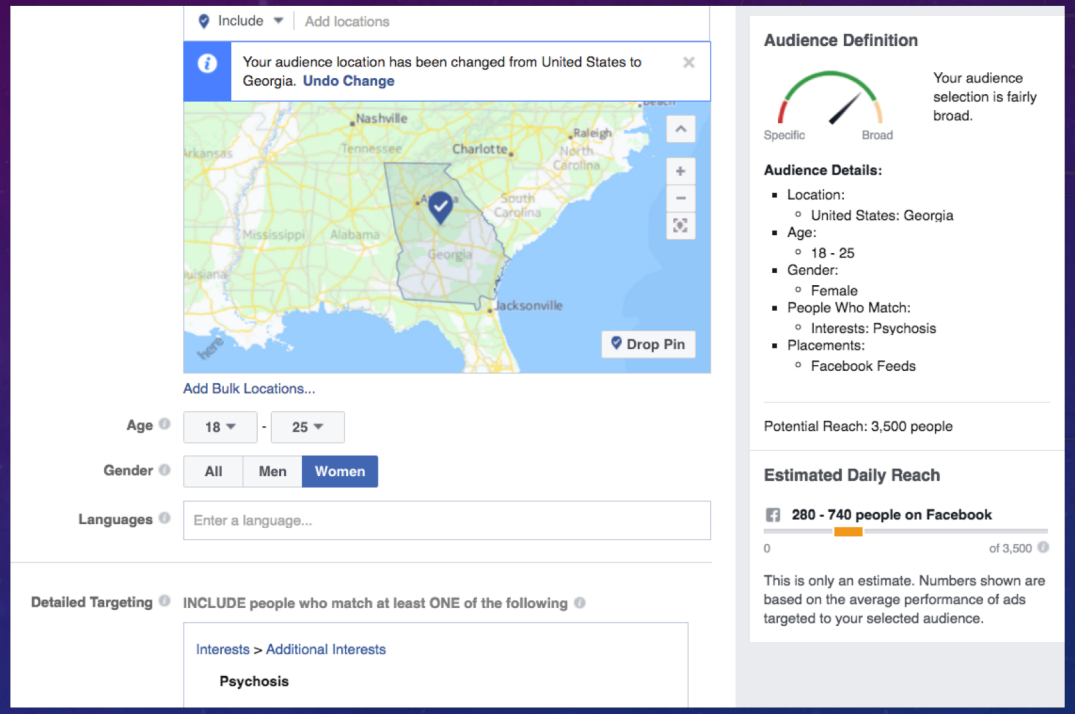
- Schizophrenia:
  - Affects 1% of the world's population
  - 2% of the U.S. healthcare expenditure
- Major impediment to Healthcare: Lack of Public Awareness
- Assessing awareness: Limited in scale & robustness in terms of temporal & demographic granularity

OBJECTIVES

- Construct a Schizophrenia Awareness Index (SAI)
- Understand how:
  - SAI varies across demographic groups
  - SAI correlates with offline variables about population well-being

DATA: FACEBOOK MARKETING API

Targeted and **Custom** audience.



Target Interests	Psychosis, Schizophrenia Awareness, Schizoaffective Disorder, Paranoid Schizophrenia, and Hallucination
Gender	Male and Female
State	50 states of U.S.
Age Groups	13-17, 18-24, 25-44, 45-64, 65+
Education Levels	<HS, <BA, <MA, MA/PhD
Ethnic Affinities	African American, Asian American, Hispanic, Others

DATA: OFFLINE

- For each state:
  - Population Estimates (Source: United States Census Bureau)
  - # Mental Health Institutions (Source: Substance Abuse and Mental Health Services Administration (SAMHSA))
  - American Human Development Index (HDI❄) (Source: Measure of America, Social Science Research Council)
  - # Mental Health Issues (Source: Henry J. Kaiser Family Foundation Health Database)

❄ HDI is a composite index of life expectancy, education and per capita income indicators. Intuitively, the HDI quantitatively summarizes the three dimensions of (i) health and well-being, (ii) knowledge and (iii) standard of living

METHODS

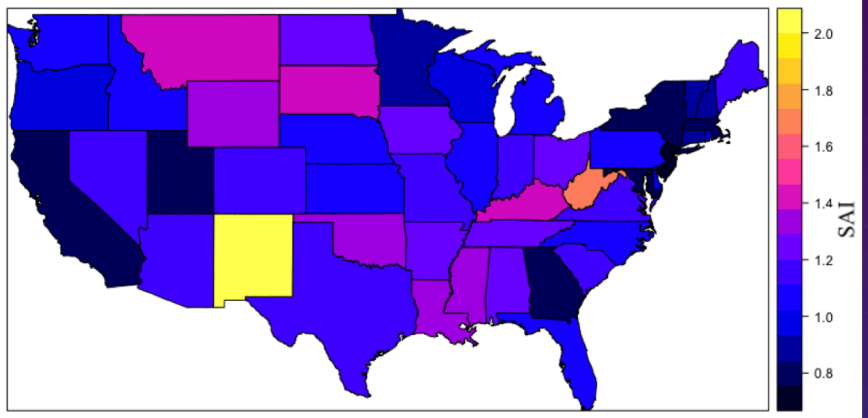
Schizophrenia Awareness Index (SAI) = $[n_s(d) \ / \ n(d)] \times 100$

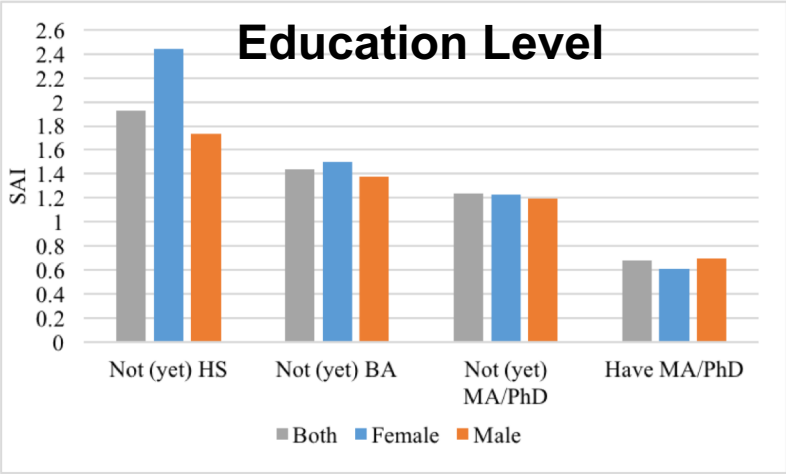
$n_s(d)$: # FB users with demographic attributes d and interested in Schizophrenia

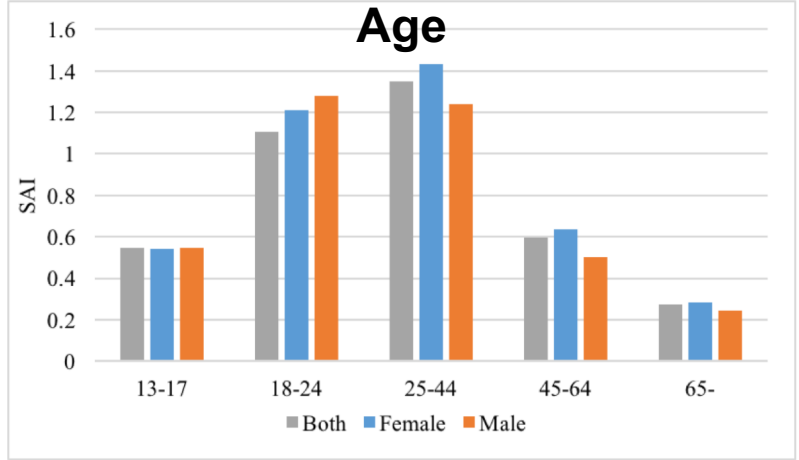
$n(d)$: Total # of FB users with the same demographic attributes d

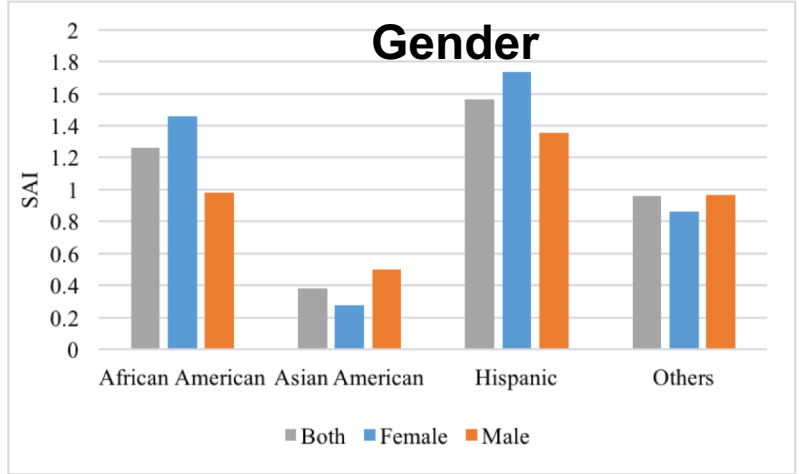
Linear regression models to fit SAI for given demographic groups

OBSERVATIONS







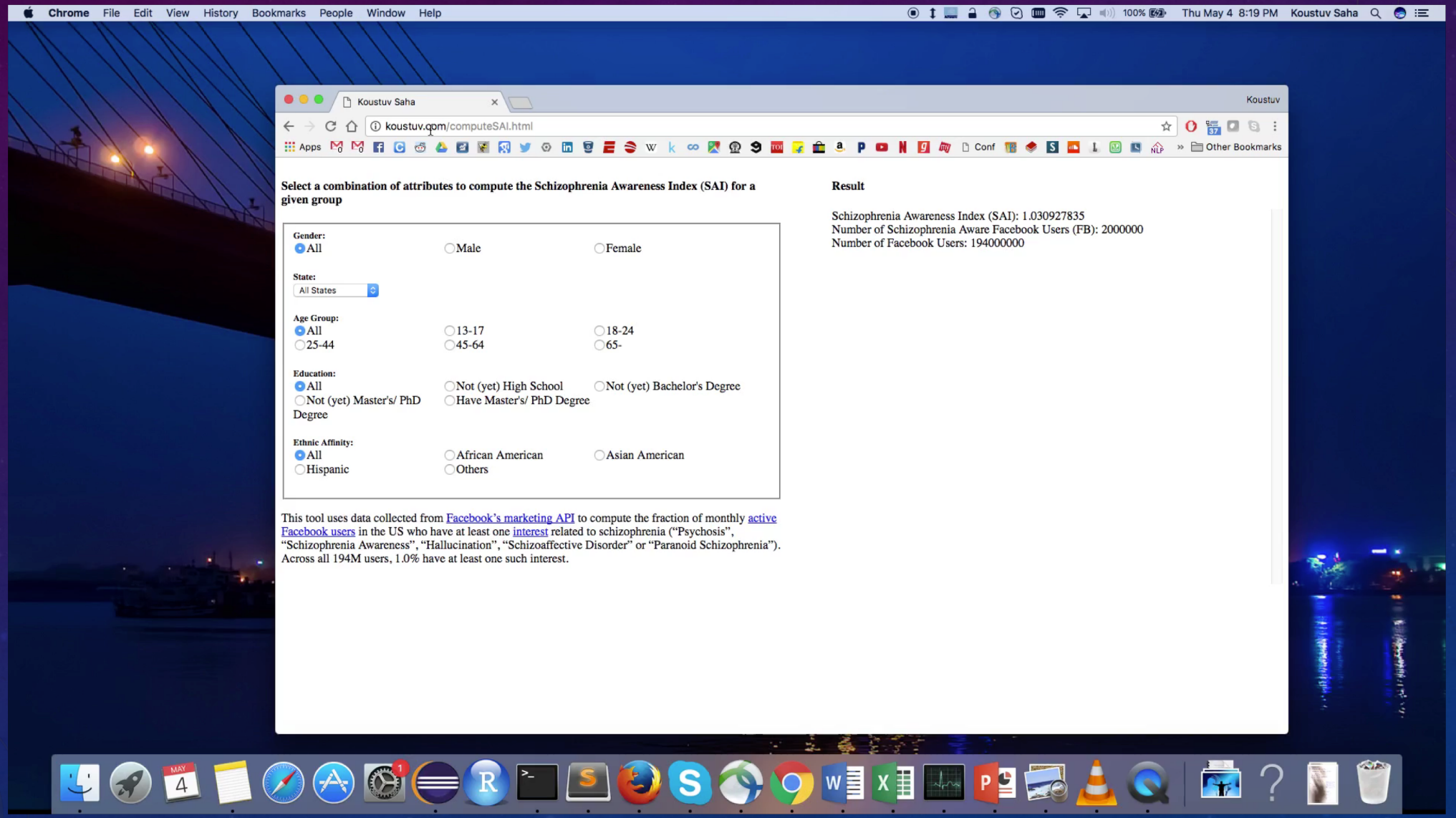


Mean SAI across states = 1.11

TO SUM UP

- Assessing differences between fine-grained demographic groups and geographical locations
- Passively collected data for monitoring awareness of stigmatized health conditions
- SAI Tool: *koustuv.com/computeSAI.html*

DEMO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koustuv.com/computeSAI.html
Apps
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Select a combination of attributes to compute the Schizophrenia Awareness Index (SAI) for a given group
Gender:
All
Male
Female
State:
All States
Age Group:
All
13-17
18-24
25-44
45-64
65-
Education:
All
Not (yet) High School
Not (yet) Bachelor's Degree
Not (yet) Master's/ PhD Degree
Have Master's/ PhD Degree
Ethnic Affinity:
All
African American
Asian American
Hispanic
Others
This tool uses data collected from Facebook's marketing API to compute the fraction of monthly active Facebook users in the US who have at least one interest related to schizophrenia ("Psychosis", "Schizophrenia Awareness", "Hallucination", "Schizoaffective Disorder" or "Paranoid Schizophrenia"). Across all 194M users, 1.0% have at least one such interest.
Result
Schizophrenia Awareness Index (SAI): 1.030927835
Number of Schizophrenia Aware Facebook Users (FB): 2000000
Number of Facebook Users: 194000000

QUESTIONS?

THANK YOU

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