

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

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# 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.

The screenshot shows the Facebook Marketing API Audience Definition interface. At the top, a message says "Your audience location has been changed from United States to Georgia. Undo Change". Below is a map of the southeastern United States with Georgia highlighted. A pin is placed near Atlanta. To the right of the map are audience selection details:

- Audience Definition:** A gauge meter indicating the selection is "fairly broad".
- Audience Details:**
  - Location: United States: Georgia
  - Age: 18 - 25
  - Gender: Female
  - People Who Match:
    - Interests: Psychosis
  - Placements:
    - Facebook Feeds
- Potential Reach: 3,500 people
- Estimated Daily Reach: 280 - 740 people on Facebook

Detailed Targeting: INCLUDE people who match at least ONE of the following:

- Psychosis

This is only an estimate. Numbers shown are based on the average performance of ads targeted to your selected audience.

<b>Target Interests</b>	Psychosis, Schizophrenia Awareness, Schizoaffective Disorder, Paranoid Schizophrenia, and Hallucination
<b>Gender</b>	Male and Female
<b>State</b>	50 states of U.S.
<b>Age Groups</b>	13-17, 18-24, 25-44, 45-64, 65+
<b>Education Levels</b>	<HS, <BA, <MA, MA/PhD
<b>Ethnic Affinities</b>	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<sup>\*</sup>)** (Source: Measure of America, Social Science Research Council)
  - **# Mental Health Issues** (Source: Henry J. Kaiser Family Foundation Health Database)

<sup>\*</sup> 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

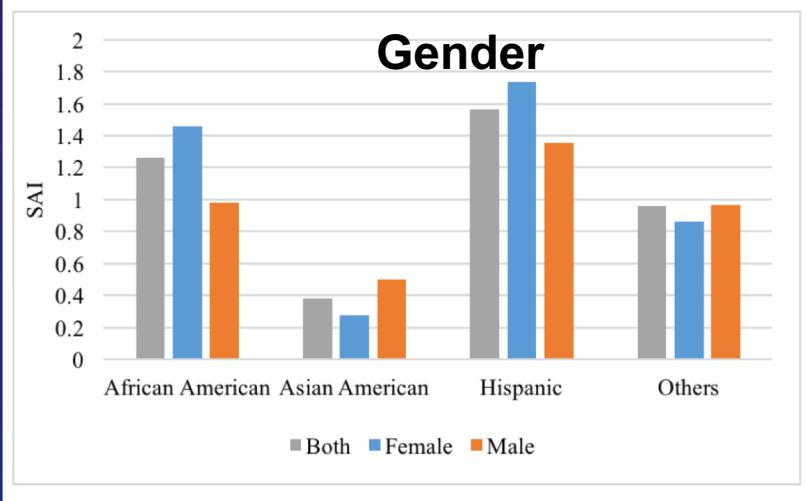
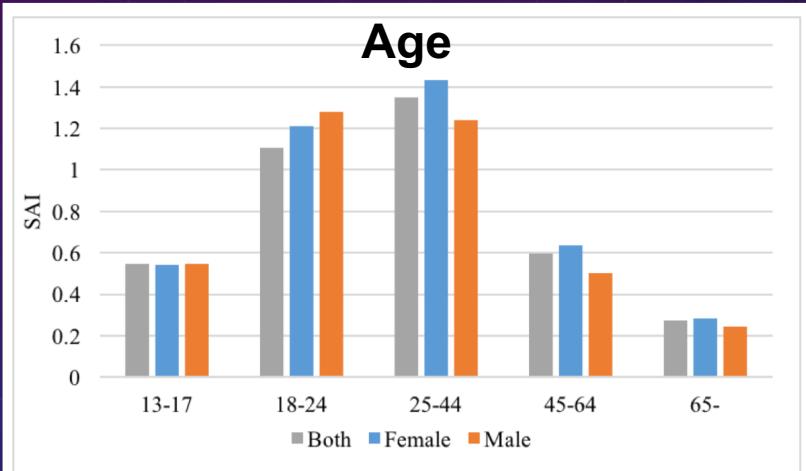
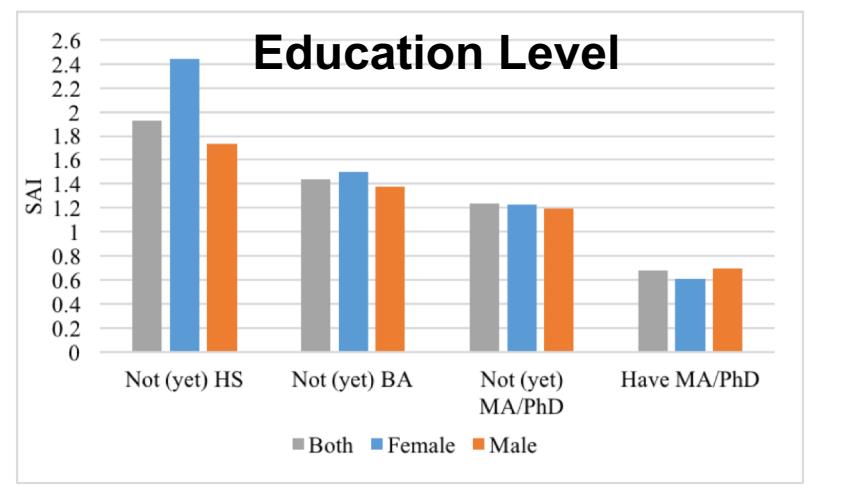
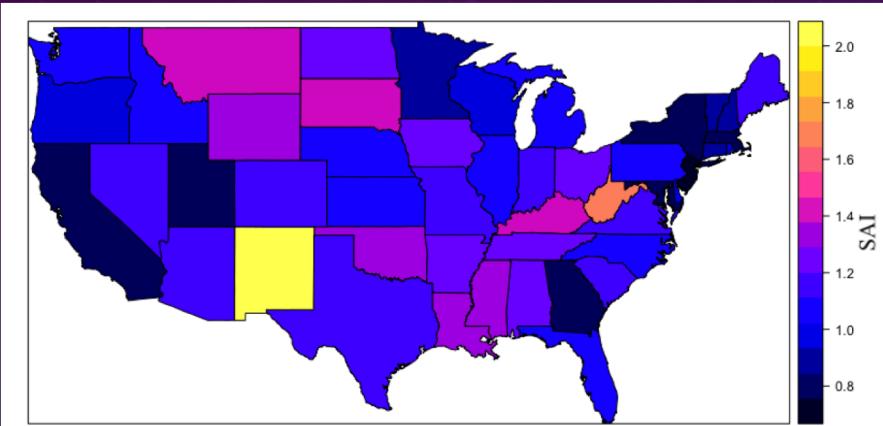
**Schizophrenia Awareness Index (SAI) =  $[n_s(d) / n(d)] \times 100$**

$n_s(d)$ : # 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

Chrome File Edit View History Bookmarks People Window Help

Thu May 4 8:19 PM Koustuv Saha 100% 3G

Koustuv Saha koustuv.com/computeSAI.html

Select a combination of attributes to compute the Schizophrenia Awareness Index (SAI) for a given group

Gender:  All  Male  Female

State:

Age Group:  All  13-17  18-24  
 25-44  45-64  65+

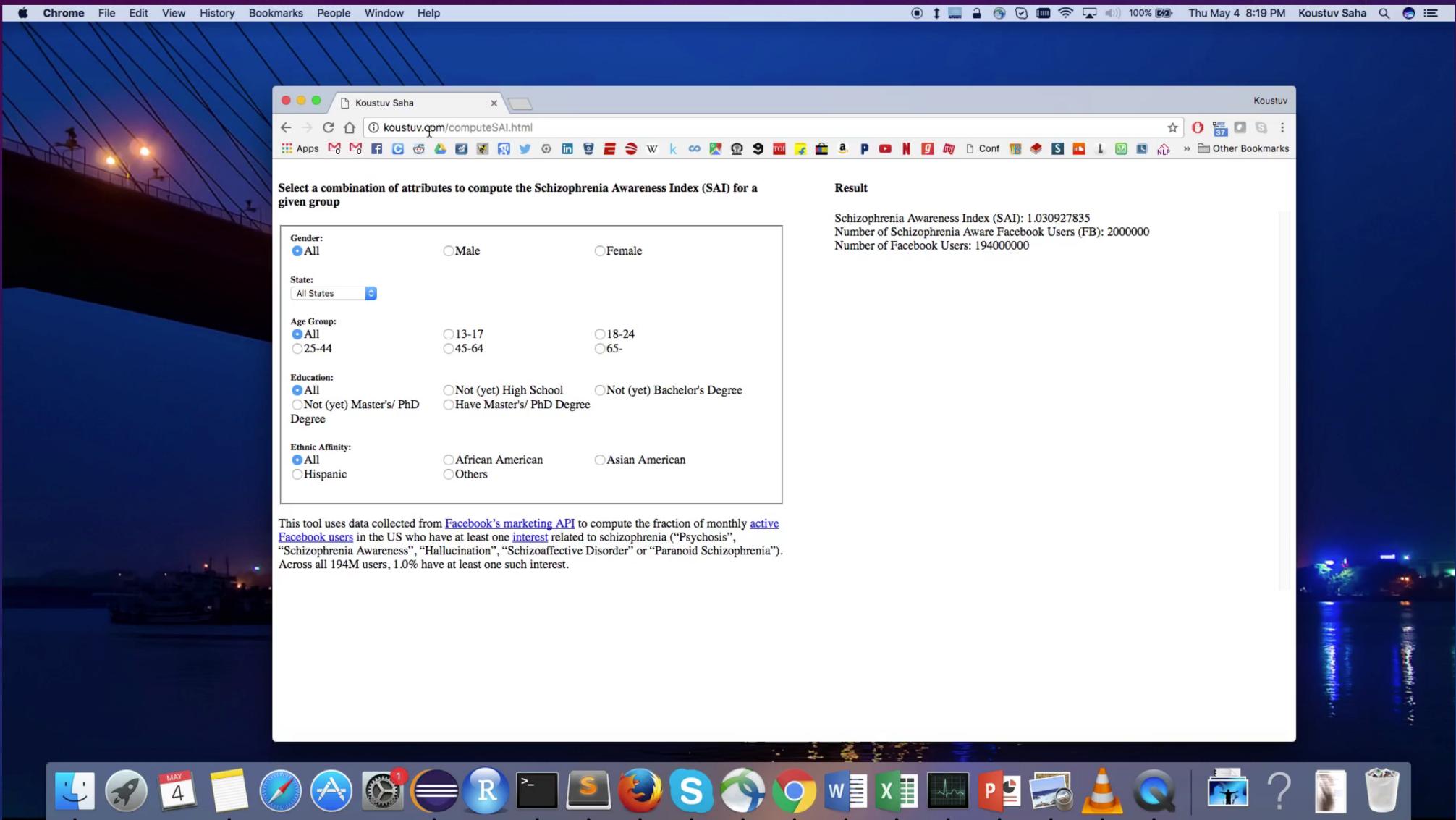
Education:  All  Not (yet) High School  Not (yet) Bachelor's Degree  
 Not (yet) Master's/ PhD Degree  Have Master's/ PhD Degree

Ethnic Affinity:  All  African American  Asian American  
 Hispanic  Others

Result

Schizophrenia Awareness Index (SAI): 1.030927835  
Number of Schizophrenia Aware Facebook Users (FB): 2000000  
Number of Facebook Users: 19400000

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.



Apps M M f C o g l n E W k ∞ S TOP a P N g m Conf S H Help Other Bookmarks

# QUESTIONS?

THANK YOU

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