Isaac Baca

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Portfolio: https://isaac110820.github.io/IsaacBaca/PortWebsite

Digital Resume: https://isaac110820.github.io/IsaacBaca/Resume_website

Relevant Skills and Experience

-Statistics: Statistical Inference, Regression, Multilevel Modeling, ANOVA, Multivariate Statistics
-Psychological Measurement: Psychometrics, Item Response Theory, Factor Analysis, Structural Equation Modeling
-Software: R, SQL, Excel, LISREL, Tableau, Python, SAS, SPSS

Education

M.Ed., Quantitative Methods	May, 2023
Vanderbilt University – Peabody college	Nashville, Tennessee
	3.93 GPA

Bachelor of Science, Dual Degree in Psychology and Sociology	May, 2020
Middle Tennessee State University	Murfreesboro, Tennessee
	3.81 GPA

Work History

Healthcare Policy Analyst	January 2023 – April, 2023
Vanderbilt University Medical Center	Nashville, Tennessee

As healthcare policy analyst my job was to analyze opioid cap laws and determine whether these laws had a causal effect on the quantity of opioid prescriptions during the postpartum period.

- Software used in this role included SAS and R.
- We followed a rigorous six-step process to create a pregnancy cohort from a large healthcare claims data base. SAS was used to create the pregnancy cohort, and subsequently, to aggregate opioid prescribing data by year.
- We used R to perform a Difference-in-Differences analysis with multiple time periods (years), and multiple groups (states), to determine if opioid cap laws passed between 2017 and 2019 in various states caused a change in the quantity of opioid prescriptions written for women during an eight week period after giving birth.

Graduate Statistical Consultant for Peabody College	January, 2022 – December, 2022
Vanderbilt University	Nashville, Tennessee

As a graduate statistical consultant for Peabody College, I utilized my knowledge of statistical modeling and scientific research design to support the research efforts of faculty members in the Peabody College at Vanderbilt. This work involved providing advice on statistics/methodology related questions on a range of projects including:

I. *Modeling the episodic and longitudinal growth of depression over time.*

The goal of the proposed project was to reconcile epidemiological (between-person) and episodic (within-person) approaches to modeling depression. The suggested modeling approach included using Hidden Markov Modeling to model the within-person episodicity of depressive episodes, and a growth curve model, fit within a Bayesian framework

to model the between-person longitudinal growth of depression over time. The intent was to use a Bayesian fit statistic to compare the two models and assess the relative model fit.

   II.   _Developing a data analysis plan for education policy research concerning students who are at high risk for emotional/behavioral disorders._

The focus of this study was to determine if the _ratio_ of relationship building to negative/restrictive practices in a classroom setting is predictive of relationship quality and engagement for students at high risk for emotional/behavioral disorders. The data analysis plan included advice on scientific methodology issues including: controlling for family-wise error rate/multiple regressions, handling nested data, and handling missing data.

Data Analysis Projects (see my digital resume for links to all projects)

Exploratory data analysis: **Project in R**
- This project demonstrates a variety of data exploration techniques using categorical and numerical data.

Exploring the relationship between math proficiency and educator effectiveness   **Project in R**
- This is project uses a data set of student test results for the 2013-2014 state assessment for all schools in a district, and a data set containing a summary of teacher effectiveness ratings.

Simple linear regression and simple logistic regression   **Project in R**
- This project uses a data set on the real estate market in Taiwan to make predictions about real estate prices, and a data set from a financial services company to predict whether a customer will close all accounts during a time period.

Multilevel modeling with brain scan data   **Project in R**
- This project uses measures of white matter tract integrity (fractional anisotropy) to relate brain structure to verbal ability in children.

Summary of dating app experiences in 2022   **Project in SQL**
- This project uses SQL queries to select, count, filter, group, aggregate, and summarize data collected from one user's experience with three dating apps in the year 2022.

Summary of dating app experiences in 2022   **Project in Tableau**
- This project contains a dashboard that visualizes a user's dating app experiences in the year 2022.

The impact of Covid-19 Around the World   **Project in Tableau**
- This project contains a dashboard that demonstrates the impact of Covid-19 around the world.

Publications

Baca, I. (2021). Moral Reframing: A Perspective-Taking Approach to Political Arguments. Scientia et Humanitas, 11, 39-58