KANIZ FATEMA

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github.com/Kaniz461

EXPERIENCE

Teaching Assistant
University of South Carolina
August 2023 – Ongoing   SC, USA

- Served as a lab instructor, guiding students through hands-on experiments.
- Graded assignments, tutored, and mentored students.

Research Assistant
International Centre for Diarrhoeal Disease Research
February 2023 – June 2023   Dhaka, Bangladesh

- Conducted service provider and client exit surveys for COVID-19 vaccination campaign.
- Performed vaccine center observations and lot quality assurance sampling.

PROJECTS

EM Algorithm for Imputing Missing Data in Healthcare Records: Joint Modeling of Longitudinal and Survival Data
University of South Carolina
September 2024 – November 2024   SC, USA

- Leveraged the **EM algorithm** to address missing data in healthcare records; Compared Newton–Raphson and EM for parameter estimation.
- Handled incomplete observations and complex outcome dependencies.

Evaluating the Effects of Biochar on Growth and Elemental Accumulation in Multiple Crops
University of South Carolina
February 2025 – April 2025   SC, USA

- Investigated biochar impact on carrot, lettuce, soybean, and sweetcorn using **PCA**, **K-means**, and **ANOVA**.
- Analyzed crop, soil, and biochar datasets to explore treatment interactions and elemental uptake.

PUBLICATIONS

Das, H., Jannat, Z., **Fatema, K.**, Momo, J. E. T., Ali, M. W., Alam, N., ... & Wahed, T. (2024). **Prevalence of and factors associated with zero-dose and under-immunized children in selected areas of Bangladesh: Findings from Lot Quality Assurance Sampling Survey.** *Vaccine, 42*(13), 3247–3256. https://doi.org/10.1016/j.vaccine.2024.02.048

- Collected and processed data using **KoboToolbox**, converted them into **STATA** for univariate and bivariate analyses, and utilized **RStudio** to perform dominance analysis revealing a high prevalence of zero-dose and under-immunized (ZD/UI) children in specific geographic pockets of Bangladesh.

Kundu, S., Das, P., Rahman, M. A., Al Banna, M. H., **Fatema, K.**, Islam, M. A., ... & Hossain, A. (2022). **Socio-economic inequalities in minimum dietary diversity among Bangladeshi children aged 6–23 months: A decomposition analysis.** *Scientific Reports, 12*(1), Article 21712. doi:10.1038/s41598-022-26305-9

- Measured socio-economic inequalities in achieving minimum dietary diversity (MDD) and identified their determinants using Concentration Index (CIX) and concentration curve analyses; applied CIX decomposition to assess contributing factors employing **R** and **SPSS** for data analysis.

SUMMARY

Graduate student and researcher with hands-on experience in **statistical modeling**, **data analysis**, and **public health research**. Skilled in **R**, **Python**, **SQL**, and **SPSS** for data extraction, preprocessing, visualization, and inferential analysis. Experienced in applying **causal inference**, and **biostatistical techniques** to healthcare and large-scale survey datasets to generate actionable insights.

EDUCATION

Ph.D. student in Statistics
University of South Carolina
Aug 2023 – Ongoing   SC, USA

Thesis title: Spatio-Temporal Data Analysis.

M.Sc. in Statistics
University of Dhaka
Jan 2021 - Oct 2022   Bangladesh

B.Sc. in Statistics
University of Dhaka
Jan 2016 - Jan 2020   Bangladesh

INDEPENDENT STUDIES & RESEARCH

Introduction to Causal Inference
Supervised by Dr. Ray Bai
Summer 2024   University of South Carolina

MS Thesis: Identification and Relative Importance of Predictors of Antenatal Care Count Data in Bangladesh
Nov 2020 – Dec 2022   University of Dhaka

- Investigated determinants of antenatal care utilization among Bangladeshi mothers using **Poisson** and **Negative Binomial** regression models.
- Applied **dominance analysis** to identify key predictors and developed an **R** program to compute general dominance statistics.

SKILLS

C   R   Python

SQL   SPSS   STATA   SAS   TOra

LaTex   Overleaf   R markdown

PowerPoint   MS Office   MS Excel

MS Word   Azure