Awan **Afiaz**

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Education

University of Washington
Seattle, USA

Ph.D. in Biostatistics [Supervised by: Dr. Jeffrey T Leek]
Sept 2022 - Expected Aug 2027

- **Relevant Coursework:** Adv Theory of Statistical Inference; Adv Regression Methods for Independent and Dependent data; Epidemiological Methods; Linear Models; Bayesian Spatial Methods; Measure Theory; Statistical Consulting.

Institute of Statistical Research and Training, University of Dhaka
Dhaka, Bangladesh

Master of Science (M.S.) in Applied Statistics
2021 - 2022

- **M.S. Thesis:** On the estimation of robust variance in penalized GEE for nearly separated longitudinal binary data with small samples. [Supervisor: Dr. M Shafiqur Rahman]
- **Relevant Coursework:** Machine Learning; Bayesian Methods; Causal Inference; Longitudinal Data; Signal Processing.

Institute of Statistical Research and Training, University of Dhaka
Dhaka, Bangladesh

Bachelor of Science (B.S.) in Applied Statistics
2017 - 2021

- **Relevant Coursework:** Generalized Linear Models (GLMs); Survival Analysis; Time Series and Forecasting; Sampling Methods; Multivariate statistics: PCA, FA, Classification, Clustering; Epidemiology; Population Studies and Demography; Economics; Actuarial Statistics; Econometric Modeling.
- **B.S. Project:** Impact of child's cognitive and social-emotional difficulties on child abuse using classification trees and generalized linear models [published]

Research Experience

Graduate Research Assistant and ITCR Resource Developer
September 2022 - Present

Data Science Lab (FH DaSL), Fred Hutch Cancer Research Center

- ◇ Supervisor: Dr. Jeffrey T Leek
- ◇ **Project 1**: Evaluating impact of biomedical research software
    - **Paper**: Best practices to evaluate impact of biomedical research software: metric collection beyond citations [**published**]
    - **Platform**: Built and maintained a web resources platform cataloging NCI-funded cancer research software for the Information Technology for Cancer Research (ITCR) program.
- ◇ **Project 2**: *Valid statistical inference with Machine Learning/Artificial Intelligence predicted data*
    - **Paper 1**: Do We Really Even Need Data? A Modern Look at Drawing Inference with Predicted Data [**arXiv**]
    - **Paper 2**: A Moment-Based Generalization to Post-Prediction Inference [**arXiv**]
    - **Paper 3**: Valid Inference after Predicting Survival (VIPS) with missingness and censoring [*working paper*]
    - **Paper 4**: Early-Stage Inference on Cancer Survival Rates in the National Lung Screening Trial (NLST) [*working paper*]
- ◇ **Project 3**: *Multimodal Deep Learning for Pulmonary Embolism Screening Using Chest X-Ray and Electrocardiogram Data using MIMIC-IV* [THSNA 2026, accepted]
    - Collaborator: Dr. Barbara Lam, Fred Hutch Cancer Research Center
    - **Paper**: Multimodal Deep Learning for Pulmonary Embolism Screening Using Chest X-Ray and Electrocardiogram Data [*working paper*]
- ◇ **Software development**:
    - **R-package 1**: `ipd` Implements multiple methods for statistically valid and efficient inference with predicted data (IPD) [**github**] [**CRAN**]
    - **Paper**: `ipd`: an R package for conducting inference on predicted data [**published**]

- **R-package 2: `scorcher`** Provides high-level functionality for building and fitting deep learning models using `torch` library in `R` [**github**]
  - **Paper**: Scorcher: An R Package for Accessible Deep Learning in Biomedical Research [*working paper*]

Undergraduate Research Assistant
June 2020 - December 2020
Institute of Statistical Research and Training, University of Dhaka

- **Project**: Early Childhood Development of Bangladeshi Children
- **Responsibilities**: Data curation and analysis; manuscript drafting and report preparation.
- Supervisors: Dr. Mohaimen Mansur and Dr. Iftakhar Alam

Independent Research Associate
2021 - 2022
University of Warwick, UK

- **Project**: Analysis of treatment effect in the presence of covariate-dependent missing data in Cluster Randomized Trials (CRT)
- Mentor: Dr. Anower Hossain, University of Warwick

Collaborative Research Projects

- **Topics:** COVID-19, BMI and Cardiometabolic diseases, Intimate partner violence (IPV), women's reproductive healthcare, children and adolescent health, Child abuse.

Publications

Published
‡ *student-supervised paper*

- Salerno S, Miao J, **Afiaz A**, Hoffman K, Neufeld A, Lu Q, McCormick TH, Leek JT. **(2025)** ipd: An R Package for Conducting Inference on Predicted Data **Bioinformatics**. DOI: 10.1093/bioinformatics/btaf055
- Jitu MHI‡, **Afiaz A**, Biswas RK **(2025)**. More than just visits: Timing, frequency, and determinants of effective antenatal care in Bangladesh - BDHS 2007 to 2017-18. **PLOS One**, 20(5), e032168. DOI:10.1371/journal.pone.0321686
- **Afiaz A**, Ivanov A, Chamberlin J, …, Leek JT, Wright C **(2024)** Best practices to evaluate the impact of biomedical research software - metric collection beyond citations . **Bioinformatics** 40(8). DOI: 10.1093/bioinformatics/btae469
- Biswas RK, **Afiaz A**, Huq S, Bhuiyan FM, Kabir E **(2023)**. Public opinion on COVID-19 vaccine prioritization in Bangladesh: Who gets the vaccine and whom do you leave out? **Vaccine** 41(34); DOI: 10.1016/j.vaccine.2023.06.050
- Biswas RK, **Afiaz A**, Huq S, Bhuiyan FM, Kabir E **(2023)**. Public opinion on COVID-19 pandemic in Bangladesh: disruption to public lives and trust in government's immunisation performance. **Int J Health Plann Mgmt** 1-16; DOI: 10.1002/hpm.3721
- Mansur M, **Afiaz A**, Hossain MS **(2021)**. Sociodemographic risk factors of under-five stunting in Bangladesh: Assessing the role of interactions using a machine learning method **PLOS One**, 16(8), e0256729. DOI: 10.1371/journal.pone.0256729
- **Afiaz A**, Arusha AR, Ananna N, Kabir E, Biswas RK **(2021)**. A national assessment of elective cesarean sections in Bangladesh and the need for health literacy and accessibility **Scientific Reports**, 11(1), 1-12. DOI: 10.1038/s41598-021-96337-0
- **Afiaz A**, Biswas RK **(2021)**. Awareness on menstrual hygiene management in Bangladesh and the possibilities of media interventions: using a nationwide cross-sectional survey **BMJ Open**, 11(4), e042134. DOI: 10.1136/bmjopen-2020-042134
- **Afiaz A**, Masud MS, Mansur M **(2021)**. Impact of child's cognitive and social-emotional difficulties on child abuse: Does mother's justification of intimate partner violence also play a role?. **Child Abuse & Neglect**, 117, 105028. DOI: 10.1016/j.chiabu.2021.105028
- **Afiaz A**, Biswas RK, Shamma R, Ananna N **(2020)**. Intimate partner violence (IPV) with miscarriages, stillbirths and abortions: Identifying vulnerable households for women in Bangladesh. **PLOS One** 15(7): e0236670. DOI: 10.1371/journal.pone.0236670
- Biswas RK, **Afiaz A**, Huq S **(2020)**. Underreporting COVID-19: the curious case of the Indian subcontinent. **Epidemiology and Infection**, 148, E207. DOI: 10.1017/S0950268820002095

- Biswas RK, Huq S, **Afiaz A**, Khan HT **(2020)**. A systematic assessment on COVID-19 preparedness and transition strategy in Bangladesh. **Journal of evaluation in clinical practice**. 26(6):1599-611. DOI: 10.1111/jep.13467.
- Biswas RK, Huq S, **Afiaz A (2020)**. Relaxed lockdown in Bangladesh during COVID-19: should economy outweigh health? **International Journal of Health Policy and Management**, 9(11), 488-490; DOI: 10.34172/ijhpm.2020.98.

Pre-prints/under review

- Salerno S, Hoffman K, **Afiaz A**, Neufeld A, McCormick TH, Leek JT **(2025)**. Do We Really Even Need Data? A Modern Look at Drawing Inference with Predicted Data (**arXiv**)
- Salerno S, Hoffman K, **Afiaz A**, Neufeld A, McCormick TH, Leek JT **(2025)**. A Moment-Based Generalization to Post-Prediction Inference (**arXiv**)
- Jitu MHI[‡], Biswas RK, **Afiaz A (2025)**. The joint effect of mother and child's functional difficulties on anxiety and depression among children (*Manuscript under review*)
- Biswas RK, **Afiaz A**, Jitu MHI, Chowdhury B, Sultana S, Moosa A, Kabir E, Bhowmik J, Koemel NA, Fontana L **(2025)**. Prevalence of hypertension and diabetes in Bangladesh: Identifying the unaware and misinformed from the recent national survey (*Manuscript under review*)
- Biswas RK, **Afiaz A**, Koemel NA, Fontana L **(2025)**. Re-evaluating BMI Thresholds for Cardiometabolic Risk in South and Southeast Asia: Insights from India's National Health Survey (*Manuscript under review*).

Teaching Experience

Graduate Teaching Assistant
University of Washington *September 2024 - June 2026*

- BIOST 511: Medical Biometry I (Autumn 2024)
- BIOST 512: Medical Biometry II (Winter 2025)
- BIOST 513: Medical Biometry III (Spring 2025)
- BIOST 310: Biostatistics for the Health Sciences (Spring 2026)

Guest Lecturer
Department of Biostatistics, University of Washington *May 2025*

- BIOST 513: Medical Biometry III
  - Introduction to Time-dependent Cox Proportional Hazards Model
  - Immortal time bias in survival analysis

Graduate Student Tutor
Institute of Statistical Research and Training (ISRT), University of Dhaka *January 2022 - June 2022*

- **Mathematics and Statistics tutor** for undergraduate courses: ASTAT 101: Elements of Applied Statistics; ASTAT 102: Probability; ASTAT 105: Calculus, ASTAT 107: Linear Algebra, ASTAT 201: Sampling Distributions, ASTAT 203: Statistical Inference; ASTAT 204: Design of Experiments; ASTAT 206: Sampling Methods.

Online Student Instructor and Tutorial Maker
10 Minute School *January 2017 - December 2021*

- Created **300+ video tutorials on mathematics and statistics** for national curriculum based students. Available for free on the YouTube channel of 10 Minute School.
- Conducted **10+ online Live Classes** on Facebook and YouTube teaching over a million students to date.

Student Mentorship

- **Jitu MHI** (M.S., ISRT, University of Dhaka)
    - • Jitu MHI, **Afiaz A**, Biswas RK (2025). More than just visits: Timing, frequency, and determinants of effective antenatal care in Bangladesh. **PLOS One**. [**published**]
    - • Jitu MHI, Biswas RK, **Afiaz A** (2025). The joint effect of mother and child's functional difficulties on anxiety and depression among children. [*under review*]
    - • Biswas RK, **Afiaz A**, Jitu MHI, Chowdhury B, et al. (2025). Prevalence of hypertension and diabetes in Bangladesh. [*under review*]
- **Chowdhury B** (M.S., ISRT, University of Dhaka)
    - • Biswas RK, **Afiaz A**, Jitu MHI, Chowdhury B, et al. (2025). Prevalence of hypertension and diabetes in Bangladesh: Identifying the unaware and misinformed from the recent national survey. [*under review*]

Industry Experience

Analysis Group   *Boston, MA*
Senior Data Science Intern (Incoming)   *June 2026 - August 2026*

10 Minute School (Edu-Tech)   *Dhaka, Bangladesh*
Department Lead: Quality Assurance and Control (QAC)   *September 2017 - December 2021*
- Spearheaded the QAC department with **over 50 employees** for the largest education platform in Bangladesh.
- Supervised creation and review of **25,000+ digital educational assets** (video tutorials, smartbooks, and academic quizsets).

Skills

Software skills

- **R** (expert), **Stata** (intermediate), **SPSS** (intermediate), **SAS** (intermediate), **Python** (intermediate).
- Proficient in **RMarkdown/Quarto**, **LaTeX** and **Microsoft Office/Google Suite**.

Technical skills

- Data analysis and visualization using `tidyverse` and `ggplot2` packages.
- Creating R-packages using `Roxygen2`.
- Shiny app, website and dashboard building using `R`.
- Deep learning model development in `R`.
- Complex survey data analysis (DHS, MICS).
- Version control with **Git/GitHub**.
- High-performance computing (HPC) cloud environments.

Grants & Fellowships

Sloan Precision Oncology Technology Dissemination Award ($250,000)   *Fred Hutch, WA, USA*
Key Personnel   *Nov 2025 - Oct 2027*
- Title: **Scorcher - Democratizing AI/ML Workflows for Precision Oncology**
- Co-develop the `scorcher` R package for accessible deep learning in biomedical research.
- Serve as analytic lead for the pulmonary embolism screening pilot using MIMIC-IV.
- Develop training and educational materials for clinical and cancer researchers.

Awards & Scholarships

2025	**Quazi Motahar Hossain Award and Gold Medal**, QMH Foundation, Dept of Statistics and ISRT	*University of Dhaka*
2024	**ISCB Student Conference Award**, Full conference funding, International Society for Clinical Biostatistics, Thessaloniki, Greece	*ISCB*
2023	**Biostatistics Retention and Success Scholarship**, Department of Biostatistics	*Univ of Washington*
2022	**Pat Wahl Award ($5,000)**, Recognition of commitment to strategic use of online technologies to reach diverse communities for disseminating education.	*Univ of Washington*
2022	**UW SPH Excellence Award ($10,000)**, Awarded by UW School of Public Health	*Univ of Washington*
2022	**Dean's Merit Award**, Faculty of Sciences awardee for obtaining the highest GPA (4.0) across all departments in B.S. Honors	*University of Dhaka*
2022	**Govt. Honors Scholarship**, Talent pool, ranked 1st in the Faculty of Sciences	*University of Dhaka*
2021	**ISRT Golden Jubilee Gold Medal Award 2021**, for graduating top of the class with GPA (4.0)	*University of Dhaka*
2019	**ISRT Merit Stipend**, Institute of Statistical Research and Training	*University of Dhaka*

Conferences & Presentations

Thrombosis & Hemostasis Summit of North America (THSNA) 2026 *Portland, OR*
Oral Presentation (accepted) *19-21 March 2026*

- **Poster**: *Multimodal Deep Learning for Pulmonary Embolism Screening Using Chest X-Ray and Electrocardiogram Data using MIMIC-IV.*
- Abstract accepted for publication in **American Journal of Hematology**.

International Conference on Applied Statistics and Data Science (ICASDS) 2025 *University of Dhaka, Bangladesh*
Oral Presentation *28-29 December 2025*

- **Talk**: *A Moment-Based Generalization to Post-Prediction Inference.*

45th Conference of the International Society for Clinical Biostatistics (ISCB) *Thessaloniki, Greece*
Oral Presentation *21-25 July 2024*

- **Award**: Winner - ISCB Conference Paper Award, Full conference funding
- **Talk**: *Optimal Sandwich Variance Estimator in Penalized GEE for Nearly Separated Longitudinal Binary Data with Small Samples.*

ENAR 2024 Spring Meeting *Baltimore, MD, USA*
Oral Presentation *10-13 March, 2024*

- **Talk**: *Optimal Sandwich Variance Estimator in Penalized GEE for Nearly Separated Longitudinal Binary Data with Small Samples.*

2nd International Conference on Applied Statistics (ICAS) 2019 *University of Dhaka, Bangladesh*
Poster presentation *December, 2019*

- **Poster**: *Intimate partner violence (IPV) with miscarriages, stillbirths and abortions: Identifying vulnerable households for women in Bangladesh.*

Research Talks

Institute of Statistical Research and Training, University of Dhaka *Dhaka, Bangladesh*
Invited Session *5 January 2026*

- **Talk**: *What do we do after we have machine-learned everything?*

Institute of Statistical Research and Training, University of Dhaka *Dhaka, Bangladesh*
Invited Session *18 September 2024*

- **Talk**: *Optimal Sandwich Variance Estimator in Penalized GEE for Nearly Separated Longitudinal Binary Data with Small Samples.*

Professional Services

Academic reviewer

60 reviews for 18 Journals *2023 - Present*

- Midwifery (12)
- PLOS One (10)
- Child Abuse & Neglect (8)
- Discover Public Health (5)
- BMJ Public Health (3)
- SAGE Women's Health (3)
- Journal of Family Violence (3)
- BMC Women's Health (3)
- Spatial and Spatio-temporal Epidemiology (2)
- Scientific Reports (2)
- BMC Public Health (2)
- Nature NPJ Women's Health (1)
- Journal of Health, Population and Nutrition (1)
- Discover Social Sciences and Health (1)
- Early Child Development & Care (1)
- Int J of Behavioral Medicine (1)
- Global Social Welfare (1)
- Archives of Women's Mental Health (1)

Professional Affiliations

Member **International Society for Clinical Biostatisticians (ISCB)**, Geneva, Switzerland *2023 - Present*

Member **Western North American Region (WNAR)**, International Biometric Society *2023 - Present*

Member **Eastern North American Region (ENAR)**, International Biometric Society *2023 - Present*

University Services and Activities

Member **Graduate Student Representative**, Dept of Biostatistics, University of Washington *Sep 2022 - Present*

Member **Graduate Admissions Committee**, Dept of Biostatistics, University of Washington *Oct 2025 - Sep 2026*

Member **Communications & Alumni Relations Committee**, Dept of Biostatistics, University of Washington *Sep 2022 - Aug 2024*