ARIFA TABASSUM

Statistician | Public Health Researcher | PhD Applicant
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ACADEMIC RESEARCH PROFILE

Statistician and public health researcher with graduate training in statistics, peer-reviewed publications, and experience in infectious disease surveillance, environmental health, health-facility research, and population-based studies. Applied statistical approaches include regression and count-data models, multilevel and longitudinal analysis, structural equation modeling, and spatial analysis. Current work integrates disease, meteorological, and population data for climate-informed early warning, including evaluation of SPECTRA (GAN) model, LightGBM model, and exploration of forecasting and probabilistic deep-learning approaches. Experienced in translating quantitative evidence into research reports, scientific presentations, and public-health decision support.

EDUCATION

Master of Science in Statistics | Jahangirnagar University, Bangladesh | Academic session 2018 - 2019

CGPA: 3.80/4.00 (4th position).

Thesis: "A structural equation modeling for detecting the pain severity of the patients with cervical pain: A case study on Center for the Rehabilitation of the Paralysed, Bangladesh."

Supervisor: Dr. Md. Forhad Hossain.

Bachelor of Science in Statistics | Jahangirnagar University, Bangladesh | Academic session 2017 - 2018

CGPA: 3.68/4.00 (5th position).

Research report: "Comparison of Poisson (POI), Zero-Inflated Poisson (ZIP) and Zero-Inflated Generalized Poisson (ZIGP) model for the Torrential Rainfall in Bangladesh."

Supervisor: Dr. Azizur Rahman.

AWARDS AND ACADEMIC ACHIEVEMENTS

- National Science and Technology (NST) Fellowship, Ministry of Science & Technology, Bangladesh (2019 - 2020).
- University Merit-Based Scholarship, Faculty of Mathematical and Physical Sciences, Jahangirnagar University.

STATISTICAL AND COMPUTATIONAL EXPERTISE

Applied statistical methods: Linear and logistic regression; multilevel regression; sensitivity analysis; spatial analysis; structural equation modeling; Poisson, zero-inflated Poisson, and zero-inflated generalized Poisson models; longitudinal analysis.

Infectious disease modeling and methods: Negative-binomial generalized additive models (NB-GAM), seasonal splines, autoregressive and distributed climate lags, predictive model validation, SPECTRA (GAN), and probabilistic forecasting model.

Software: R, Stata, SPSS, QGIS; KoboToolbox, SurveyCTO, REDCap; familiarity with HMIS/DHIS2 and health-facility data systems.

PROFESSIONAL RESEARCH EXPERIENCE

Statistician | Institute of Epidemiology, Disease Control and Research (IEDCR), Bangladesh | March 2025 - Present

- Contribute to the development and implementation of the Climate-Informed Early Warning System (CI-EWS/EWARS) for dengue, malaria, and acute watery diarrhoea (AWD), integrating epidemiological, meteorological, geographic, and population information.
- Prepare and validate disease and climate datasets, harmonize geographic and temporal identifiers, and support data integration, quality assurance, and analytical readiness for forecasting.
- Evaluate count-data and nonlinear forecasting approaches, including negative-binomial GAMs, seasonality, autoregressive case terms, and delayed weather-disease associations; investigate comparative and ensemble approaches for predictive performance.
- Contribute to the assessment and interpretation of model outputs, including forecast accuracy, uncertainty, and practical relevance for epidemic preparedness; probabilistic deep-learning/GAN-related modeling is an area to describe more precisely after contribution verification.
- Prepare weekly dengue surveillance reports and national updates, including coordination with the Public Health Emergency Operations Centre (PHEOC).
- Coordinate technical teams, workshops, trainings, stakeholder consultations, and system demonstrations to support sustainability, implementation, and continuous improvement.
- Prepare technical proposals, support letters, briefing materials, and official communications; liaise with IEDCR, Bangladesh Meteorological Department (BMD), government bodies, and partner organizations on data sharing and evidence-informed policy.

Statistical Officer | International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) | Dec 2023 - Nov 2024

- Managed health-facility and survey data workflows for National Institute for Health Research (NIHR)-linked work, including data entry, cleaning, validation, quality assurance, and analysis readiness.
- Applied linear, logistic, and multilevel regression, sensitivity analysis, and spatial analysis to survey and health research data; prepared statistical summaries, manuscripts, reports, and presentations.
- Integrated GPS information with QGIS to generate maps and communicate geographic patterns in research findings.
- Coordinated with the Data Management and Statistical Analysis team and collaborators; trained field teams in data collection tools and quality procedures.

Statistical Analyst | BBC Media Action Bangladesh | May 2023 - Nov 2023

- Cleaned and analyzed large research datasets, maintained data quality, collaborated with researchers on interpretation, and communicated findings to stakeholders.

Research Assistant | International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) | Nov 2021 - Jan 2023

- Supported research protocols, survey tools, fieldwork, data management, quality assurance, statistical analysis, reports, action plans, and coordination with national and international collaborators.

Research Assistant | Management Information System (MIS), Directorate General of Health Services (DGHS) | Jul 2021 - Oct 2021

- Supported statistical analysis and manuscript preparation across research projects; contributed to COVID-19 dashboard data accuracy and quality control.

SELECTED RESEARCH AND IMPLEMENTATION PROJECTS

- GFATM Climate Change and Health Project; **Bangladesh's 1st climate-sensitive disease EWARS**; Climate-informed surveillance and forecasting for dengue, malaria, and AWD; disease-weather-population data integration, statistical model assessment, early warning reporting, and multi-stakeholder implementation.
- Formative research on drinking-water salinity and NCD services in coastal Bangladesh; Research examining approaches to mitigate drinking-water salinity and strengthen noncommunicable disease services for selected coastal populations.
- Effectiveness of water-salinity adaptation for hypertension control; Research on environmental exposure, adaptation strategies, and hypertension outcomes in coastal Bangladesh.
- Pediatric NCD service model; Design and piloting of a primary-healthcare service model for children and adolescents with noncommunicable diseases in Bangladesh.
- Dementia prevalence in Bangladesh; Population health research on dementia among older adults in urban and rural communities.
- Community-based randomized controlled trial baseline; Baseline research for a trial assessing unconditional cash transfers and mobile behavior-change communications in two subdistricts of Bangladesh.
- Digitalization for noncommunicable disease services; Research and implementation work related to digital approaches for NCD service delivery.
- ProNurse Project; Empowering Women through the Professionalization of the Nursing Sector in Bangladesh.

CONFERENCE PRESENTATIONS

- **Tabassum, A**., et al. (2026). Evaluating the linkage between disease forecasts, alerts, and public health action in Bangladesh's Climate-Informed Early Warning System (CI-EWS). Poster, 2nd Bangladesh FETP Conference, IEDCR, Dhaka. Abstract ID: 66.
- **Tabassum, A.,** et al. (2026). Operationalizing climate-informed disease forecasting: A probabilistic deep learning early warning system at national scale. CEDAAH 2026, IWFM-BUET, Dhaka. Abstract ID: A2026032.
- Sarker, M. F. R., **Tabassum, A.,** Sarkar, S., Chowdhury, M. S. R., Mahmood, A. S., & Shirin, T. (2025). Signals to safety: EWARS for health emergencies—present realities and future directions. Accepted poster, Annual Epidemiological Conference 2025, IEDCR (conference not held).

MANUSCRIPT UNDER REVIEW

- Sarker, M. F. R., Akter, R., Rahman, W., Juyee, N. A., **Tabassum, A**., Mazhar, I., Nigar, I., & Sattar, A. N. I. (2026). A multimethod analysis of antifungal susceptibility among pediatric ICU patients in Bangladesh. Submitted to International Journal of Infectious Diseases (not yet published).

PUBLICATIONS

- Rahman, A., **Tabassum, A**., Tabassum, N., & Akter, M. (2024). Identifying factors of spatial heterogeneity in COVID-19 incidence for Dhaka Division, Bangladesh. Jahangirnagar University Journal of Science, 44(1), 47-66.

- Rotulo, A., Kondilis, E., Thwe, T., Gautam, S., Torcu, Ö., Vera-Montoya, M., et al., including **Tabassum, A**. (2023). Mind the gap: Data availability, accessibility, transparency, and credibility during the COVID-19 pandemic, an international comparative appraisal. PLOS Global Public Health, 3(4), e0001148. DOI: 10.1371/journal.pgph.0001148.
- Sultana, N., Asaduzzaman, M., Siddique, A. B., **Tabassum, A**., et al. (2022). Job insecurity and mental health related outcomes among the humanitarian workers during COVID-19 pandemic: A cross-sectional study. BMC Psychology, 10, 265. DOI: 10.1186/s40359-022-00974-7.
- Rahman, A., **Tabassum, A**., & Akter, M. (2021). Fitting spatial joint model for U.S. regional influenza-like illness (ILINet) data set. Pure and Applied Mathematics Journal, 10(6), 127–138. DOI: 10.11648/j.pamj.20211006.12.
- Rahman, A., **Tabassum, A**., & Akter, M. (2021). Impact of gender and parent advice on longitudinal change in children's mental health condition. International Journal of Statistics and Economics, 22(2), 56-67.
- Rahman, A., & **Tabassum, A**. (2020). Model to assess the factors of 10-year future risk of coronary heart disease (CHD) among people of Framingham, Massachusetts. International Journal of Public Health Science, 9(3), 259-266.

TEACHING, ACADEMIC APPOINTMENTS AND INTERNSHIPS

- Adjunct Lecturer in Biostatistics, Ad-din Women's Medical College, Maghbazar, Dhaka | **Nov - Dec 2025, Nov-Present**.
- Research Intern (Statistics), Binary Data Lab, Dhaka | Apr - Jun 2021.
- Research Assistant to Prof. Dr. Azizur Rahman, Department of Statistics and Data Science, Jahangirnagar University | May 2019 - Feb 2021.

PROFESSIONAL APPOINTMENTS AND MEMBERSHIPS

- Focal Person, Data Management and Statistical Analysis, NIHR Project, The George Institute for Global Health.
- Member, NIHR Project, The George Institute for Global Health.
- Member, The Global Health Network (TGHN).

PROFESSIONAL TRAINING

- Fundamentals of Economic Evaluation | The George Institute for Global Health | Jul - Oct 2024.
- Introduction to Research Ethics and Protocol Development | NRD, icddr,b | 7 Oct 2024.
- Exploratory Data Analysis | NIHR / The George Institute for Global Health | Apr - Jul 2024.
- Understanding the Bangladesh Health Facility Survey and Merging and Mapping with the BDHS | Data for Impact | 4 - 8 Dec 2022.
- Introduction to Longitudinal Data Analysis | Data for Impact | 31 Jul - 4 Aug 2022.
- Understanding Bangladesh Demographic and Health Survey (BDHS) Data | Data for Impact | 8 - 12 May 2022.

WORKSHOPS AND CONFERENCES

- 2nd Bangladesh Field Epidemiology Training Program Conference | IEDCR, Dhaka | 20 - 21 Sep 2026.
- International Conference on Climate Extremes, Disasters, Anticipatory Action and Human Health (CEDAAH 2026) | IWFM-BUET and Save the Children Bangladesh | 8 - 9 Apr 2026.
- Sustainable Health Summer School | University of Groningen.
- International Conference on Science and Technology for Celebrating the Birth Centenary of Bangabandhu (ICSTB 2021) | BCSIR, Dhaka | 11 - 13 Mar 2021.
- Statistics Fiesta International Conference | Statistics LEAD Club, Jahangirnagar University | Oct 2017.

LEADERSHIP AND COMMUNITY ENGAGEMENT

- Women Affairs Secretary, Bangladesh Data Science Society (BDSS).
- Founding Member, Statistics LEAD Club, Department of Statistics and Data Science, Jahangirnagar University.
- Former Vice President (2017 - 2018), Anandan Cultural Organization, Jahangirnagar University.
- Volunteer, Green Survivors Bangladesh, supporting education for underprivileged children.

ACADEMIC REFEREES

Dr. Md. Forhad Hossain | Professor, Jahangirnagar University, Bangladesh | mfhossain@juniv.edu

Dr. Azizur Rahman | Associate Professor, Jahangirnagar University, Bangladesh | azizur@juniv.edu