My strong foundation in statistics, combined with over four years of professional experience in health intervention, has not only sharpened my analytical skills but also fueled my passion for solving complex Public Health issues through data-driven research. Pursuing a PhD in Epidemiology is the next essential step in expanding my expertise and preparing for an independent researcher as a faculty member. This program at The University of Memphis aligns perfectly with my goals of deepening my Public Health knowledge, contributing to innovative health research, and through effective policy-making. In the short term, I aim to master the application of Public Health to address vital health problems, while in the long term, I aspire to lead a research lab that advances in statistical methods through different applications related to Public Health, trains future researchers, and fosters a collaborative research environment. This ambition is driven by the mentorship I have received and my commitment to continual learning and solving health issues in my community.

During my undergraduate studies, I became fascinated by various subfields of statistics. In particular, I found the Biostatistics and Epidemiology course particularly engaging due to its insightful applications, which sparked my strong interest in Public Health, included various projects, fieldwork, and progressing through multiple publications. These fields have equipped me with the tools to analyze complex real-life public health data and derive actionable conclusions to improve health outcomes. To strengthen my skills, I pursued a double major in Computer Science and Engineering. Through my double major, I gained proficiency in statistical data analysis by SAS, Stata, R, and Python. This interdisciplinary training has enhanced my ability to address pressing Public Health issues through rigorous, data-driven approaches.

To gain real-world experience, I began working with the Joint Rohingya Response Program in 2021, focusing on health projects as a Data Management and Reporting Officer. A recent initiative I led, 'Community Health, WASH, Health System Support & Health Post for Forcibly Displaced Myanmar Nationals and Host Community Population,' aims to improve healthcare access, emphasize surveillance methodologies in data collection, and reporting processes, and suggest policies to different stakeholders in Cox’s Bazar, Bangladesh. This role has expanded my understanding of the complex health challenges faced by marginalized populations during humanitarian crises and sharpened my skills in research, data analysis, and program implementation.

My research career has been distinguished by publications in prestigious journals and successful projects funded by the Government of Bangladesh. As a research assistant, I contributed to these projects at every stage, from developing research proposals to submitting reports, including supervising data collection, analyzing data, and writing the final reports. My voluntary research work primarily focuses and is published on community health, maternal and child health, and environmental health. From several publications, my recent application on rabies control employed time-series forecasting and multivariate techniques to predict future cases in Bangladesh. Additionally, I worked on global COVID-19 using various regression models, resulting in a significant publication on forecasting and pandemic preparedness. I have also worked with two decades of dengue data and the recent dengue pandemic in Bangladesh (2023), focusing on the geographical shifts in transmission and age/gender-related disparities in morbidity and mortality. This work employed various statistical models and graphical approaches, leading to a significant publication. Additionally, I utilized deep learning-based forecasting models to predict dengue outbreaks in Bangladesh. I have presented my research at several conferences, including the 2020 World One Health Congress, serving as an editorial board member and reviewer for multiple journals. Moreover, I am mentoring students in data analysis and research methodologies, particularly using SPSS, Stata, and R. Reviewing other papers has inspired me with the innovative thinking of various authors and motivated me to explore new methods in health research and mentoring others on various research projects solidified my desire to pursue an academic career.

Given my academic and professional goals, I believe the Doctoral Program in Epidemiology at The University of Memphis is ideal for those seeking advanced training. I chose this program because my previous work aligns with Environmental Health, which emphasizes collaboration across emerging infectious diseases. This Program will prepare me for advanced epidemiological methods through a comprehensive curriculum and original research with leading faculty in areas such as cardiovascular disease, smoking, cancer, and childhood obesity. In addition to environmental health, I am also preparing to work on multidisciplinary research across various fields.

I am excited about the opportunity to collaborate with esteemed faculty, particularly Dr. Chunrong Jia, whose extensive contributions to air pollution exposure and risk assessment, indoor air quality, community air monitoring, environmental epidemiology, sampling and analytical techniques for air pollutants, and environmental disparity deeply resonate with my interests. Especially, his work on Southwest Coastal Bangladesh has reinforced my belief that The University of Memphis is the best place for my PhD. I also studied the association between indoor fuel use and children's acute respiratory infections. For my MS thesis, I focused on water quality, using multivariate analysis to assess water conditions and identify clusters among different samples. Additionally, I am interested in collaborating with other program faculty, such as Dr. Meredith Ray, who specializes in Biostatistics. I believe their works align closely with my research interests and will enable me to engage in meaningful and impactful studies during my PhD program under their supervision. In the future, I aim to investigate the spread of Dengue, MPOX, or other infectious diseases, focusing on the role of environmental factors on a large scale.

With a strong background in statistics, hands-on experience in research, program implementation, and a dedication to advancing public health research, I am confident that I will be able to make meaningful contributions to both the academic and public health communities. After earning my PhD, I aim to work in academia, leading a research lab focused on advancing public health research to address global health challenges. I look forward to engaging with the vibrant academic community at The University of Memphis and contributing to research that addresses Public Health issues worldwide.