Pursuing a PhD in Biostatistics is the next essential step in expanding my expertise and preparing for an independent public health researcher as a faculty member. The Biostatistics - Doctor of Philosophy program at Michigan State University aligns perfectly with my goals of deepening my health research knowledge, contributing to innovative research, and advancing the field of public health. **My intended area of specialization in the graduate program in the Department of Epidemiology and Biostatistics at Michigan State University will be in Biostatistics.** Additionally, my research interests primarily focus on community health, maternal and child health, and environmental health, with publications in these areas.

My research journey in Biostatistics and Epidemiology began with my degree in Statistics from Shahjalal University of Science and Technology, Bangladesh, with an undergraduate project on "Cesarean Delivery and Early Childhood Diseases in Bangladesh", which was later published in *PLoS One.* This foundation equipped me with applied knowledge through hands-on research, underscoring my passion for biostatistics and epidemiology as vital tools for addressing public health challenges. Currently, I focus on research on rabies control, dengue outbreaks, and maternal and child health.

Given my academic and professional goals, I believe the Doctoral Program in Biostatistics at Michigan State University is ideal for those seeking advanced training. The PhD in Biostatistics will give me the statistical and analytical skills to develop and apply innovative methods for analyzing biomedical data. This program will prepare me to design studies and analyze data across clinical and biomedical research areas. The required courses in statistical inference, study design, and data analysis align with my academic experience over the years. Additionally, my focus on machine learning, bioinformatics, and statistical genomics will be further enhanced through topics like longitudinal data analysis and advanced machine learning. I am also eager to take interdisciplinary courses in epidemiology, psychology, and human biology to strengthen collaborations with researchers from diverse disciplines.

I am excited about the opportunity to collaborate with distinguished faculty, particularly Dr. Honglei Chen, whose research on the environmental causes of neurodegenerative diseases, especially Parkinson's, aligns closely with my interests. His work on the environmental triggers of neurodegeneration, including airborne pollutants and pesticides, strongly reinforces my belief that Michigan State University is the ideal place for my PhD. I have also studied the link between indoor fuel use and children's acute respiratory infections, publishing an article on this topic. Additionally, I am keen to contribute to Dr. Chen’s ongoing projects, including the study of environmental triggers for Parkinson’s through the olfactory system and the role of olfaction in neurodegeneration. I am also interested in working with Dr. Claire Margerison, whose research on racial, ethnic, and socioeconomic inequities in women’s health, particularly around pregnancy, resonates with my background. My recent research on breast cancer diagnosis delays, cervical cancer in Bangladesh, urban-rural disparities in maternal healthcare, and COVID-19 vaccination disparities all reflect my commitment to addressing health disparities and align well with Dr. Margerison’s work. I am eager to contribute to meaningful research under their mentorship during my PhD.

My commitment to public health is driven by merging innovative methodologies with statistical tools in large data, deep learning, and machine learning. I want to be an expert in the methods of research in public health and be running a leading lab that advances statistical methodologies while mentoring future researchers. Taking into consideration such critical health issues as infectious diseases and maternal health, I want to contribute to the translation of evidence-based practices to improve health outcomes within my community and beyond. Following my PhD, I envision heading a research laboratory at the forefront of academia focused on addressing global health challenges and look forward to the exchange with academia at Michigan State University.