Additional Information

**General Supplement**

**Experience and Personal Statement**

State your reasons for wanting to attend graduate school, your choice of major field of study and your future career objectives.

My strong foundation in statistics, combined with over four years of experience in health-related programs, has not only sharpened my analytical skills but also fueled my passion for solving complex public health challenges through **advanced research-focused program**. Pursuing a PhD in **Applied Health Sciences** is the next essential step in expanding my expertise and preparing for an independent researcher of **population health** as a faculty member. The **Applied Health Sciences program at Augusta University** aligns perfectly with my goals of deepening my **health services research knowledge**, contributing to innovative research, and advancing the field of public health. In the short term, I aim to master in **public health research** methods to address urgent health concerns, while in the long term, I aspire to lead a research lab that advances statistical methodologies, 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 in **Applied Health Sciences**.

The PhD program in **Applied Health Sciences** at **Augusta University** is the ideal platform for me to achieve my academic and professional aspirations. I am particularly excited about the opportunity to engage in **groundbreaking research and outstanding education - and to an embracing community, meaningful connections, and wide-ranging professional opportunities**. **The collaborative approach of this university provides students with a comprehensive educational experience, covering essential areas such as public health, epidemiology, health policy, health informatics, community health, and advanced research methodologies. As a result, we will well-prepared for dynamic roles in the rapidly changing fields of public health and healthcare.**

The chance to collaborate with esteemed faculty such as Professor **Dr. Andrew Balas**, whose work on "**The interaction between social determinants of health and cervical cancer survival: A systematic review**" has reinforced my belief that **Augusta University** is the best place for my PhD. Upon reviewing his **research papers**, I became particularly drawn to the work on **"Disparities in survival of hematologic malignancies in the context of social determinants of health: a systematic review"**. Additionally, his research on **"A review of questionnaires used for the assessment of telemedicine"**seems to offer exciting doctoral training opportunities that resonate with my prior experience working with. I am eager to join Andrew Balas's Biomedical Research Innovation Laboratory, where I aim to explore how groundbreaking discoveries emerge from leading biomedical research labs and how these advancements can enhance public health. The lab's focus on wide-ranging studies to support pre-clinical, clinical, and data science researchers—particularly principal investigators—resonates with my aspirations to contribute to reproducible and impactful results for society. Additionally, I am inspired by Dr. Biplab Datta's work on "COVID-19 Vaccination Uptake Among Individuals with Disabilities: A Kaplan-Meier Survival Analysis," which aligns closely with my interests and further motivates my desire to engage in this research environment.

With a strong background in statistics, hands-on experience in research and data analysis, and a dedication to advancing public health, 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** methods to address global health challenges. **I look forward to engaging with the vibrant academic community at Augusta University and contributing to research that addresses pressing health issues worldwide.**

Explain any academic challenges, successes, or obstacles in your life that impacted your ability to achieve your goals.

During my undergraduate studies, I became fascinated by various subfields of statistics, including data mining, biostatistics and epidemiology, time series analysis, and statistical inference. In particular, the Biostatistics and Epidemiology course was quite interesting because of Professor Dr. Jamal Uddin's insightful presentations and course projects. Biostatistics and epidemiology, in particular, captivated me due to their crucial role in addressing public health challenges. These fields have equipped me with the tools to analyze complex health data and derive actionable conclusions to improve health outcomes. To enhance my skills, I pursued a double major in Computer Science and Engineering, gaining proficiency in statistical programming languages such as SAS, Stata, R, Python, and SQL. This interdisciplinary training has enhanced my ability to address pressing public health challenges through rigorous, data-driven approaches. It has prepared me to utilize **Health Sciences** tools and combined with statistical tools for conducting experimental research, incorporating advanced statistical applications as well as big data, deep learning, and machine learning techniques in public health.

To gain real-world experience, I began working with the Joint Rohingya Response Program (JRP) in 2021, focusing on health-related 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 (FDMN) and Host Community Population,' aims to improve healthcare access 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.

List your major extracurricular interests and awards.

My research career has been distinguished by publications in prestigious journals and successful projects funded by the Government of Bangladesh and university grants. 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. Most of those projects focused on socio-economic issues, such as the Vicious Cycle of Poverty, Social Safety Nets Program, and Food Security. My work primarily focuses on infectious diseases, maternal and child health, and environmental health. Notably, my recent publication on rabies control employed time-series forecasting and multivariate techniques to project future cases in Bangladesh. Additionally, I analyzed global COVID-19 data using various regression models, resulting in a significant publication on forecasting and pandemic preparedness. I have analyzed 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, aiming to integrate AI with dengue data for more in-depth insights. We also plan to expand our research to examine the global dengue situation, which is increasingly concerning. I have presented my research at several conferences, including the 2020 World One Health Congress, and serve as an editorial board member and reviewer for several journals. Moreover, I teach and mentor students in data analysis and research methodologies, particularly using SPSS and R. Reviewing other papers has inspired me with the innovative thinking of various authors and motivated me to explore new methods in public health research. I also found great joy in mentoring students on their research projects, which solidified my desire to pursue a career in academia.