Title: Data-Driven Statistical Modeling and Analysis of the Survival Times of Multiple Myeloma (MM) Cancer.

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Abstract

Multiple Myeloma (MM) cancer has been and continues to be the subject of many research studies. The main goal is to improve the therapeutic/treatment process of the survival of MM patients. It is imperative to research MM cancer considering the growing number of cases and deaths. In the present study, we proposed a data-driven statistical model for the survival time of 48 patients diagnosed with multiple myeloma as a function of 16 attributable risk factors. We are interested to know the causes of MM and the life span of MM patients given the risk factors associated with it. We identified 9 attributable risk factors and one interaction to be significantly contributing to the survival time. They are **Bence Jone protein in urine**, **blood urea nitrogen (BUN)/serum creatinine**, **infections**, **% myeloid cells in peripheral blood**, **fractures**, **serum calcium**, **gender**, **platelets, and age**, and **white blood cells & total serum protein** an interaction term. The proposed model satisfied all the model assumptions, passes the residual analysis test, and has very high prediction accuracy. Thus, it passes the goodness-of-fit test and the qualities of a good model. The identified significant attributable risk factors and the interaction has been ranked based on the percent contribution to the survival time. The proposed model was evaluated and compared with other existing models of survival of multiple myeloma. Our model is very accurate and also identifies some new significant risk factors of MM. The study offers an improved strategy for the therapeutic/treatment process of multiple myeloma cancer. (Up to 250 words)

Speaker Biography:

Mr. Mamudu is a Doctoral Candidate and an instructor of records in the Department of Mathematics and Statistics at the University of South Florida, graduating in May 2021, and a member of Rotary International, District 6890. Mr. Mamudu is a young emerging and very exciting Researcher, Statistician, Data Scientist & Analyst. He is passionate about improving the wellbeing of people through his research works. His research studies are data-driven and focused on interdisciplinary fields of Health, Economics, Finance, and Cybersecurity. He has two recently published interesting articles on multiple myeloma cancer and has served as a reviewer to some reputable journals. (Up to 100 words)

Abstract Citation:

[World Congress on Cancer and Diagnostics](#)
Frankfurt, Germany- June 15-16, 2020