A random sample of 100 patients from the hospital episodes database was linked to the vital statistics for the assessment of patients vital status. Researchers wanted to study the extent to which patients body mass index at the date of the hospitalization was associated with an increased risk of mortality 7.5 years after the admission to the hospital.

QUESTIONS

1. Stset the data. [1]
2. Plot the Nelson-Aelen estimated of the cumulative hazard function by gender.[2]
3. Using sts generate save the values for the Nelson-Aelen estimated function and the Kaplan-Meier survival estimate. Using the Kaplan-Meier values, estimate the cumulative hazard function. Plot this function and the Nelson-Aelen estimate function. Compare the two plots and comment. [5]
4. Using as template the tables from the article provided in the exercise, investigate, report and discuss the extent to which patients body mass index was associated with an increase on mortality risk 7.5 years after the admission to the hospital. Adjust for confounding appropriately (based on background knowledge we assume that patients' age, gender and the length of the stay are associated with both, the admission and the outcome (mortality) but they are not in causal pathway between the exposure (admission to he hospital) and the outcome (mortality). [10] 5. Depict your structural framework (relationship between variables) based on the previous question using a Direct Acyclic Graph. [2]

References

Hosmer, D. W., Lemeshow, S. and May, S. (2008) Introduction to Regression Modeling of Survival Data, in Applied Survival Analysis: Regression Modeling of Time-to-Event Data, Second Edition, John Wiley Sons, Inc., Hoboken, NJ, USA. doi: 10.1002/9780470258019.