

Non communicable diseases in Burundi, Hypertension and its associated predictive risk factors: high blood pressure control approach

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Abstract:

This study deals in general with no communicable diseases and in particular with hypertension and its predictive risk factors in Burundi. A sample of 353 selected randomly from a population of 4,380 patients admitted in 2019 in a military hospital and University teaching hospital of Kamenge. The predictive risk factors have been carried out by fixed-effect logistic regression. The result shows that more than 15% of the patients were hypertensive. Hypertension's associated risk factors founded are advanced age, chronic kidney failure, overweight, educational level, smoking, and familial history of hypertension. The coexistence of risk factors on the same patients increases at least 2 times the probability of having permanent high blood pressure, therefore becoming hypertensive. The highest probabilities are observed to patients who are at the same time smokers, overweight, with chronic kidney failure, burnt in the hypertensive family with secondary or university as the highest educational level. The probabilities, more than 60 % are observed to people with more than 40 years old, with the presence of all other risk factors with probabilities between 85.0 % and 99.9%. In this study, only 15 patients had zero risks of cardiovascular diseases. More than 1/3 had low risk (<0.15), 25 had moderate risk between 0.15 and 0.20, 126 patients a high risk of less than 0.30, and 35 patients had very high risk of more than 30%. This study has the particularity to study cardiovascular risk of hypertensive and normotensive people at the same time, to combine descriptive and inferential statistic, to build the ROC curve and complexities parameters using a decision tree, to estimate the area under the curve, and build bootstrap AUC interval confidence using the Bootstrap method, to analyze model's residuals using Welsh-Kuh's distance and predict probabilities of becoming hypertensive risk factors being known.

Keywords: High blood pressure, logistic regression, Hoaglin criterion, Welsh-Kuh distance.

Biography:

Ingenior in Statistics from Tanganyika Lake University and second Doctorate year in Medicine at Burundi University. Public health stand committee member, Member of Federation of African Medical Student Associations (FAMSA) as stand Committee on Health and Environment's Country officer. I'm also the international campus ambassador FMSA GA 2020 in Nairobi. Young independent researcher, I have one publication on Determinant of glycemic control in Burundi, published in an international journal (Africa Science journal) with others in progress: one on Geospatial and Temporal analysis of Malaria incidence rate in Burundi is already submitted; I attended and presented many presentations at national and international conferences like The Third Royal Society of Tropical Medicine Hygiene and the East African Research in Progress meeting in Tanzania, September 2019. Poster presenter in InCision Global Surgery Symposium 2019 in Rwanda and accepted poster presenter for Molecular Approach Malaria 2020 conference in Australia (Lorne). Accepted for 4 presentations in the international student congress ISC 2020 in Austria.

Speaker Publications:

1. "Predictive Risk Factors of Hypertension in Sub-Saharan Africa: A Fixed Effect Modelling Study in Burundi", May 2020
DOI: 10.21203/rs.3.rs-27871/v1
2. "Non communicable diseases in Burundi, Hypertension and its associated predictive risk factors: high blood pressure control approach", 2020

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