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Modelling the efficacy of antiretroviral treatment in HIV patients: The case of Dr George Mukhari Academic Hospital in Tshwane, Gauteng province of South Africa

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Background: Survival analysis is aimed at estimating the probability of survival. The primary objective of this study is to use survival analysis to evaluate the ARV treatment efficacy in HIV/AIDS patients at the Dr George Mukhari Hospital.

Methods: The Cox Proportional Hazards model was the most suitable method of data analysis as it enables us to obtain the Kaplan-Meier survival probability curves, the log-rank tests, life tables etc. Survival time was regressed on influential variables that affect survival based on the Cox Proportional Hazards model. At the 5% level of significance, significant hazard ratios were characterised by hazard ratios that are significantly different from '1', $P < 0.05$, and 95% confidence interval (CI) hazard ratios that do not contain '1'. The statistical data analysis was conducted using STATA version 11 and SPSS version 21 software packages.

Results: Of the total three hundred and eighteen (318) tested, two hundred and ninety two (292) were alive after treatment (92%) as compared to twenty six (26) that died (8%). Females were the most dominant group in this study where 217 of them made about 68.24% occurrence as compared to males with a total of 101 and about 31.76% occurrence.

Conclusion: The results showed a reduction in the number of death, after ARV treatment as most patients had survived beyond the 1800 days or 60 months. The combination of Regimen 1 and 2 of ARV's had a positive and significant impact on the lives of patients around Dr George Mukhari Hospital.

Biography

Marcus Motshwane was born in Limpopo province of South Africa. He attended Mmadikana Secondary School and later matriculated at Setotolwane High School in Pietersburg. He obtained a National Diploma in Medical Laboratory Technology from Technikon Northern Transvaal (TNG) in 1985 in the field of Clinical Pathology. He worked as a medical laboratory technologist for Ga-Rankuwa hospital from 1985 to 1987 and then joined the Medical University of Southern Africa (Medunsa) as a Veterinary Technologist. From 2001 to 2002 he lectured at Vista University. In 2003, he joined a market research company in Johannesburg as a research analyst. From 2004 he lectured at the University of Johannesburg. In January 2006 he started lecturing at Unisa's Department of Statistics, which lasted for five months. He obtained his MSc degree in Statistics in 2007. He enrolled for his doctoral studies in Statistics in the subfield of Biostatistics in 2011 in the School of Pathology and Pre-Clinical Sciences of the University of Limpopo, Medunsa campus and graduated with a PhD in May 2014. He has presented some of the outcomes of his doctoral studies at national and international conferences.

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