



PROPORTIONAL ESTIMATION OF SEQUENTIAL BAYESIAN USING ORTHOPEDIC SURGERY DATA IN NIGERIA

ADEWARA, J.A.^{1*} AND OGUNDEJI, R.K.²

¹Distance Learning Institute, University of Lagos, Lagos, Nigeria

²Department of Mathematics, Faculty of Science, University of Lagos, Lagos, Nigeria

ABSTRACT

The key difference between frequentist statisticians and Bayesian statisticians is estimation a population parameter θ . These has to do with whether a statistician thinks of a parameter as some unknown constant or as a random variable Bayesian methods provide more intuitive and meaningful inferences than likelihood-only based on inferences. In this paper, a Bayesian model called Beta-binomial conjugate model is employed using Bayesian sequential estimation method to estimate the proportion of different age groups attended to at the National Orthopaedic hospital, Igbobi, Nigeria. Over the years results show that the highest number of patients at the hospital is within the age group 15 to 44 years but with the smallest proportion of orthopaedic surgeries. Similarly, smallest the number of patients is among the age group less than one year and greater than 64 years but with highest proportion of orthopaedic surgeries. Finally, the results of the comparative analysis of the sample and Empirical Bayes (EB) proportions show that the Empirical Bayes (EB) estimators are better estimators on the basis of efficiency and consistency.

Keywords: Empirical bayes, beta-binomial model, hyperparameters, population proportion, orthopaedic surgery.

***Correspondence:** adewaraja@gmail.com; rko3000@yahoo.com