



C R Rao Advanced Institute of Mathematics, Statistics & Computer Science (AIMSCS)

University of Hyderabad Campus, Gachibowli
Prof. C R Rao Road, Hyderabad, India 500 046
Website: <http://crraoaimscs.org>

Special Lecture

on

Comparison of treatments and data-dependent allocation for circular data from a cataract surgery

by

Prof. Atanu Biswas

Indian Statistical Institute, Kolkata

Abstract:

Response-adaptive designs are used in phase III clinical trials to allocate a larger proportion of patients to the better treatment. Most of the works in this direction are done for binary responses. Some works are available for continuous responses as well, where mostly normally distributed responses are considered.

Circular data can occur in many biomedical studies, e.g. some measurements in ophthalmologic studies, degrees of rotation of hand or waist, etc. There is no available work on response-adaptive designs for circular data. In this present work we provide some response-adaptive designs where the responses are of circular nature. First we consider an ad-hoc allocation design, and then we propose an optimal design in this context. Some performance characteristics of the proposed designs are studied. Some test procedures are suggested including the Behren-Fisher type of test in the circular set up. A detailed simulation study is carried out to assess the performance characteristics of the proposed designs. The proposed designs are then illustrated by using a real data set on astigmatism induced in two types of cataract surgeries, the trial being redesigned using our response-adaptive allocation procedures.

Some key words: Circular data; Ethical allocation; Optimal allocation; Response-adaptive design; von Mises distribution.

Date and time : 11th March 2015, Wednesday at 11:30 AM

Venue: Class Room-1, Ramanujan Building, C R Rao AIMSCS

Brief Bio-Sketch



Atanu Biswas

Professor,
Applied Statistics Unit,
Indian Statistical Institute,
Kolkata

URL: www.isical.ac.in/~atanu/

Email: atanu@isical.ac.in

Education:

Ph.D. in Statistics from the Calcutta University in January 1998.

Master of Science in Statistics from Calcutta University in 1993.

Bachelor of Science (Honours in Statistics) from Calcutta University in 1991.

Research Interest:

Statistics, theoretical and applied, covering the following areas in particular:

Adaptive designs and group sequential designs in clinical trials, urn models, delayed response.

Categorical data, multivariate categorical and longitudinal regression.

Time series of discrete data.

Model selection, problems on selection and ranking.

Nonparametric inference, sequential analysis.

Survival analysis, illness-death model.

Distribution theory.

Awards:

- **National Award in Statistics (Professor C.R. Rao Award)** for 2008-09 given by the **Ministry of Statistics and Programme Implementation, Govt. of India.**
- **M. N. Murthy Award** for 2000-01 given by the **Indian Statistical Institute** for research in **Applied Statistics.**

Editorial Service:

- **Editor, *Sankhya Series B*** since the year 2012
- **Associate Editor, *Sequential Analysis*** (from June 2003 till date). [Publisher of *Sequential Analysis*: **Marcel Dekker, New York** (up to 2004), **Taylor and Francis** (from 2005 till date).]
- **Associate Editor, *Communications in Statistics*** (from January 2007 till date). Publisher of *Communications in Statistics*: **Taylor and Francis.**
- **Editorial Board member: *Calcutta Statistical Association Bulletin*** (from January 2006 till date).

Recent book:

Atkinson, A.C. and Biswas, A. (2013). Randomised response-adaptive designs in clinical trials. Chapman & Hall/CRC Press. [In Monographs on Statistics and Applied Probability Series.]