Yuejen Zhao, J Biomet Biostat 2013, 4:4
http://dx.doi.org/10.4172/2155-6180.S1.019

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference and Exhibition on
Biometrics & Biostatistics
June 10-12, 2013 Hilton Chicago/Northbrook, USA

Revisiting the concentration curves and indices as useful tools for assessing relative and attributable risks

Yuejen Zhao
Charles Darwin University, Australia

Accurate assessment of the association between exposure and response is central to identifying causality in medical research. The concentration index has been commonly used to study income inequality and socioeconomic related health inequality. This study generalizes applications of the concentration index to measure the relative and attributable risks for describing exposure-response relationships in medical research. Based on cumulative distribution functions, a new measure of correlation is proposed to quantify the association between exposure and response. The connection between the new and existing measures is discussed. The method enables the semi-parametric analysis of overall association and disparity by risk factors. Both grouped and continuous data situations are considered with two applications. The first example illustrates the relationships between the concentration index, relative and attributable risks. The second example demonstrates how the concentration index can assist in evaluating the association between the radiation dose and the incidence of leukaemia. Logistic regression based decomposition is compared with the new approach. We found the concentration index analysis useful not only for examining socioeconomic determinants of health, but also for assessing quantitative relations between exposures to health risks and ill-health outcomes.

Biography

Yuejen Zhao is the Principal Health Economist of Department of Health, Northern Territory, Australia. He is an adjunct senior research fellow at Charles Darwin University and Flinders University. He has a bachelor degree of medicine, a master degree of biostatistics and a Ph.D. in mathematics. His research interests are in medical statistics, epidemiology and health economics.

Yuejen.Zhao@nt.gov.au