

PROPENSITY SCORE METHODS AND THEIR APPLICATIONS IN EPIDEMIOLOGY

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Abstract

My thesis is based around an epidemiological research. Actually, my task was to perform statistical analyzes using SAS program, contributing with this to an epidemiological researcher's study. A research study was published about association of aspirin use with major bleeding, and an epidemiologist, Jennifer Lund found flaws in its' implementation. In order to get correct results, at first I did the same analysis: I performed the original study but for the Danish population. Executing the corrections step by step I reanalyzed the data in every circle to see to what extent a fault can distort the results. The conclusion of the analyses was that conditioning on future drug exposure can lead to biased measures of disease occurrence. This means that the methodological steps have important role and to that must be payed more attention. To see, why I did the things that I did, at first I give a short inside into the epidemiological studies. Then I write about the mathematical tools which were used for the creation of the appropriate database and its analysis. For this project the key was the propensity score matching. Recently, this matching procedure is more and more frequently used in the field of epidemiological researches. Before introducing the analyzes and results I describe different methods, in order that the reader can see why this propensity score method is so fit. Then I highlight the important results. The syntaxes and all the results are collected in the appendix because of their length. I finish my thesis with a summary about the conclusions of the results obtained and about the success of the project.