

Logistic Quantile Regression to Evaluate Bounded Outcomes

Vivi Wong*

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Abstract

Lower urinary tract symptoms in men are common when men get older, and these symptoms can be measured with I-PSS (International Prostate Symptom Score), a scale between 0-35. The density function of the bounded outcome variable, I-PSS, is highly skewed to the right. It can therefore be difficult to analyze this type of variables with standard regression methods such as OLS, since these methods give us the effect of the explanatory variables on the mean of the response variable.

Epidemiological studies commonly study how lifestyle and several other factors affect health-related problems. We will therefore study the effect physical activity has on lower urinary tract symptoms by using logistic quantile regression, which is an appropriate method to use when we have bounded outcomes. The method works well because instead of the mean, it focuses on quantiles and it takes the bounded interval into account.

The results show a negative relationship between total physical activity and lower urinary tract symptoms, so men who are more physical active will more likely have lower and milder symptoms.

*Postal address: Mathematical Statistics, Stockholm University, SE-106 91, Sweden.
E-mail: viviwong.96@gmail.com. Supervisor: Ola Hössjer Disa Hansson.