

Propensity Score Method to Adjust for Confounding in Observational Research: Progression, Challenges, and Opportunities

Zhong Yuan

Janssen Research & Development

E-mail: zyuan6@its.jnj.com

Abstract: Randomized clinical trial (RCT) remains as a gold standard research design to establish the benefits and risks of an intervention (e.g., drug or device), because randomization controls for measured and unmeasured confounding factors. However, the limitations associated with RCTs are also well recognized, including (but not limited to) economic issue, limited sample size, relatively short treatment duration, extensive inclusion and exclusion criteria, and underrepresentation of certain patient population. With increasingly available data sources in routine clinical practice, observational research offers a unique opportunity to evaluate effectiveness and safety of interventional therapies in the real-world setting, where the patient population may be much broader than what have been studied in clinical trials. Because bias and confounding are perceived as inherent limitations for this type of research, propensity score (PS) method is increasingly used to minimize such issues. In the current presentation, we will discuss that not all PS methodologies are created equal and highlight a couple of examples how PS method is applied in our observational research.