

**ABSTRACT FOR JOINT STATISTICAL MEETINGS
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**DISPLAYING COVARIATE BALANCE AFTER
ADJUSTMENT FOR SELECTION BIAS**

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Abstract:

In observational studies, we frequently need to apply some sort of adjustment for the possible effects of selection bias. It is often necessary to display the success of this adjustment in presenting the results of the study. In essence, we must show that we are comparing subjects who looked comparable prior to treatment. If, for instance, we decide to match treated and control patients through the use of a propensity score or other method, we must then justify any claim that baseline covariates are now balanced. Many papers in the health care literature attack this problem through lengthy tables displaying the quality of the match, using any of a number of summary statistics. Here, we assess the problem of displaying covariate balance graphically, with a focus on what methods would be most effective at illustrating the impact of a match on the quantities we are interested in estimating. In particular, we discuss the impact of choice of summary statistic, suggest several possible plots, and give recommendations for studies where selection bias adjustments are applied without matching of subjects.

Keywords:

Propensity score, Observational studies, Graphics, Matching.