Using Standardized Differences to Measure Covariate Balance

- Standardized Differences are appropriate summaries of Covariate Balance for both Continuous and Categorical Variables

$$d = \frac{100\left(\bar{x}_{Treatment} - \bar{x}_{Control}\right)}{\sqrt{\frac{s^2_{Treatment} + s^2_{Control}}{2}}}$$ for continuous variables

$$d = \frac{100\left(p_{Treatment} - p_{Control}\right)}{\sqrt{\frac{p_T\left(1-p_T\right) + p_C\left(1-p_C\right)}{2}}}$$ for binary variables

|Standardized Differences| > 10% Indicate Serious Imbalance

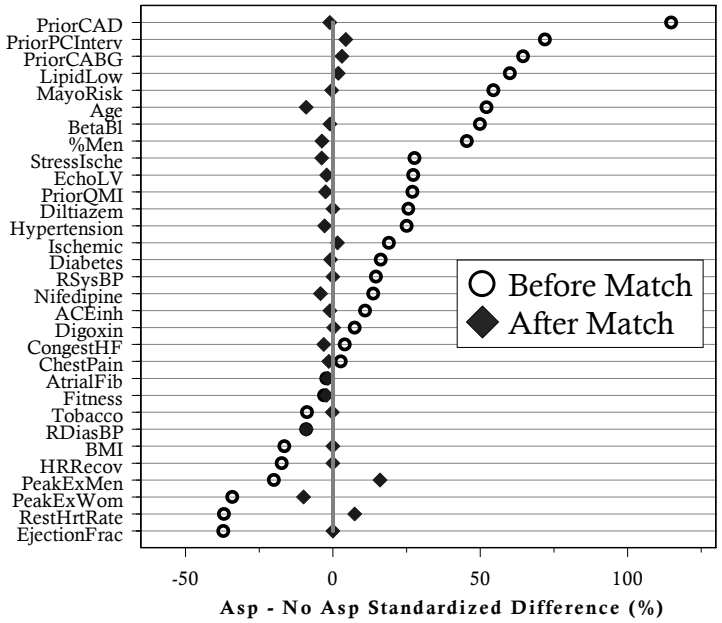
Before Match:

- 811/2310 (35.1%) Aspirin users used β-blockers
- 550/3864 (14.2%) non-Aspirin users used β-blockers
- Standardized Difference is 49.9%
- P value for difference is < .001

After Match:

- 352/1351 (26.1%) Aspirin users used β-blockers
- 358/1351 (26.5%) non-Aspirin users used β-blockers
- Standardized Difference is –1.0%
- P value for difference is .79

Covariate Balance for Aspirin Study



Absolute Standardized Differences