

Supplementary Materials for ”Estimating the Causal Effect of Embryo Transfer Day on Clinical In Vitro Fertilization Outcomes using Propensity Score Matching”

by

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0.1 Formula and Derivation of Propensity Score

We formed the following logistic model:

$$\log \frac{P(Y_i = 1 | X_{1i}, \dots, X_{Ji})}{1 - P(Y_i = 1 | X_{1i}, \dots, X_{Ji})} = \beta_0 + \sum_{j=1}^J \beta_j X_{ji}, \quad (1)$$

where Y_i is subject i receives Day 5 transfer and 0 if receiving Day 3 transfer, and X_{ji} is the covariate j for subject i .

The propensity score (PS) of subject i is constructed as:

$$PS_i = \hat{P}(Y_i = 1 | X_{1i}, \dots, X_{Ji}) = \frac{\exp(\hat{\beta}_0 + \sum_{j=1}^J \hat{\beta}_j X_{ji})}{1 + \exp(\hat{\beta}_0 + \sum_{j=1}^J \hat{\beta}_j X_{ji})}, \quad (2)$$

where $(\hat{\beta}_0, \hat{\beta}_1, \dots, \hat{\beta}_J)$ are the estimates of $(\beta_0, \beta_1, \dots, \beta_J)$ obtained from fitting the above regression model.