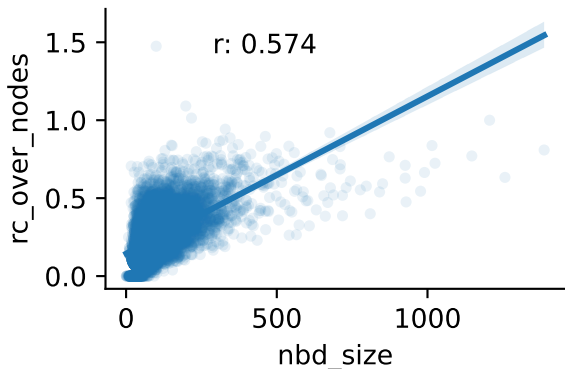original graph