Post hoc analysis

In the design and analysis of experiments, post hoc analysis (from Latin post hoc, “after this”) consists of looking at the data—after the experiment has concluded—for patterns that were not specified a priori. It is sometimes called by critics data dredging to evoke the sense that the more one looks the more likely something will be found. More subtly, each time a pattern in the data is considered, a statistical test is effectively performed. This greatly inflates the total number of statistical tests and necessitates the use of multiple testing procedures to compensate. However, this is difficult to do precisely and in fact most results of post hoc analyses are reported as they are with unadjusted p-values. These p-values must be interpreted in light of the fact that they are a small and selected subset of a potentially large group of p-values. Results of post hoc analyses should be explicitly labeled as such in reports and publications to avoid misleading readers.