1 Mountain Plots

2 Mountain Plot

Krouwer and Monti have proposed a folded empirical cumulative distribution plot, otherwise known as a Mountain plot.

They argue that it is suitable for detecting large, infrequent errors. This is a non-parametric method that can be used as a complement with the Bland Altman plot. Mountain plots are created by computing a percentile for each ranked difference between a new method and a reference method. (Folded plots are so called because of the following transformation is performed for all percentiles above 50: percentile = 100 - percentile.) These percentiles are then plotted against the differences between the two methods.

Krouwer and Monti argue that the mountain plot offers some following advantages. It is easier to find the central 95% of the data, even when the data are not normally distributed. Also, comparison on different distributions can be performed with ease.

A mountain plot (or "folded empirical cumulative distribution plot") is created by computing a percentile for each ranked difference between a new method and a reference method. To get a folded plot, the following transformation is performed for all percentiles above 50: percentile = 100 - percentile. These percentiles are then plotted against the differences between the two methods (Krouwer and Monti, 1995).

The mountain plot is a useful complementary plot to the Bland and Altman plot. In particular, the mountain plot offers the following advantages: It is easier to find the central 95% *of the data, even when the data are not Normally distributed. Different distributions can be compared more easily.*

The folded cumulative distribution function for a random variable can be easily obtained by folding down the upper half of the cumulative distribution function (CDF). It is a simple graphical method for summarising distributions, and has been used for the evaluation of laboratory assays, clinical trials and quality control (Monti, 1995; Krouwer and Monti, 1995).

A mountain plot (or "folded empirical cumulative distribution plot") is created by computing a percentile for each ranked difference between a new method and a reference method.

To get a folded plot, the following transformation is performed for all percentiles above 50: percentile = 100 − percentile. These percentiles are then plotted against the differences between the two methods (Krouwer & Monti, 1995). The calculations and plots are simple enough to perform in a spreadsheet.

The mountain plot is a useful complementary plot to the Bland & Altman plot. In particular, the mountain plot offers the following advantages:

- It is easier to find the central 95% of the data, even when the data are not Normally distributed.
- Different distributions can be compared more easily.
- Unlike a histogram, the plot shape is not a function of the intervals.
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Compared with the Bland-Altman difference plot, the folded CDF stresses more the median and tails of the difference. If the two assays are 'unbiased' 98 with each other (Krouwer and Monti, 1995), the median would be close to zero.

Bland-Altman and mountain plots each provide complementary perspectives on the data, and the authors recommend both plots.