INFORMATION POINT:

Kendall's Tau

Kendall's tau is a measure of correlation, and so measures the strength of the relationship between two variables. We require that the two variables, X and Y, are paired observations, for example, degree of deviation from diet guidelines and degree of deviation from fluid guidelines, for each patient in the sample. Then, provided both variables are at least ordinal, it would be possible to calculate the correlation between them.

Kendall's tau, like Spearman's rank correlation (Crichton, 1999), is carried out on the ranks of the data. That is, for each variable separately the values are put in order and numbered, 1 for the lowest value, 2 for the next lowest and so on. Conover (1980) gives details of how to calculate Kendall's tau. In common with other measures of correlation Kendall's tau will take values between –1 and +1, with a positive correlation indicating that the ranks of both variables increase together whilst a negative correlation indicates that as the rank of one variable increases the other one decreases.

As with Spearman's rank correlation (Crichton, 1999) it is possible to calculate confidence intervals and carry out hypothesis tests on Kendall's tau. Spearman's rank correlation is a more widely used measure of rank correlation because it is much easier to compute than Kendall's tau. The main advantages of using Kendall's tau are that the distribution of this statistic has slightly better statistical properties and there is a direct interpretation of Kendall's tau in terms of probabilities of observing concordant and discordant pairs (Conover, 1980). In almost all situations the values of Spearman's rank correlation and Kendall's tau are very close and would invariably lead to the same conclusions.

Further reading

Conover W.J. (1980) *Practical Non-Parametric Statistics*, 2nd edn. John Wiley and Sons, New York.

Crichton N.J. (1999) Information point: Spearman's rank correlation. *Journal of Clinical Nursing* **8**, 763.

NICOLA CRICHTON