

Correlation coefficients are a standard measure of the relationship between two random variables. In this paper, we will present various methods for constructing a  $(1 - \alpha)$  level confidence interval for Pearson and Kendall correlation coefficients. We focus on Fisher's z-transformation method and two methods based on empirical likelihood for the Pearson correlation coefficient. For the Kendall correlation coefficient, we will present two methods based on the properties of the influence function for the Kendall correlation coefficient, one of which is also based on empirical likelihood. The added value of the methods based on empirical likelihood is their suitability even for the unknown bivariate distributions. Finally, we conduct a simulation study where we compare the discussed methods in terms of coverage probabilities and average length of confidence intervals for finite ranges.