

Review of: "Decoding the Correlation Coefficient: A Window into Association, Fit, and Prediction in Linear Bivariate Relationships"

Sayed Mohammed Zeeshan

Potential competing interests: No potential competing interests to declare.

1. The article explores the relationship between the correlation coefficient (r) and the regression slope (b) in linear bivariate relationships.
2. It challenges the assumption that a higher correlation coefficient always indicates a stronger correspondence in change, emphasizing the influence of standard deviations on this relationship.
3. The article highlights the significance of the correlation coefficient as a measure of fit, association, and prediction, going beyond a simple measure of fit.
4. It emphasizes the estimation of the percentage of variation in Y for a given change in X and discusses the role of the correlation coefficient in prediction.
5. The limitations of relying solely on the correlation coefficient (r) for accurate prediction are discussed, with an emphasis on considering standard deviations.
6. The article suggests that correlation alone cannot confirm causation but can provide valuable insights when examined alongside more advanced modelling methods.
7. It encourages further exploration of the multifaceted nature of the correlation coefficient in understanding causality and predictability.
8. The article draws upon the principles of linear bivariate relationships and regression analysis to support its arguments.
9. It offers scenarios and thought experiments to illustrate the relationship between the coefficient and the slope, considering different standard deviations.
10. The discussion highlights the misuse of correlation and acknowledges the need for advanced modelling methods to better understand causation.

Overall, the article presents a novel perspective on the relationship between the correlation coefficient, regression slope, and prediction in linear bivariate relationships. It challenges conventional assumptions, emphasizes the importance of standard deviations, and encourages further exploration in the field.

The author should cite Vishwakarma, G.K., Zeeshan, S.M. & Oncel Cekim, H. An Alternative Perspective on Estimators. *Lobachevskii J Math* **42**, 3297–3307 (2021). <https://doi.org/10.1134/S1995080222010243> which is very relevant to the above study.

