

BİL 395

22295336 Arda Çimen

1. Introduction

a. Title, author(s), and publication year:

Title: Descriptive Statistics and Normality Tests for Statistical Data

Authors: Prabhaker Mishra, Chandra M. Pandey, Uttam Singh, Anshul Gupta, Chinmoy Sahu, Amit Keshri

Year: 2019

b. Journal, conference, or platform:

Published in: Annals of Cardiac Anaesthesia

Publisher: Wolters Kluwer - Medknow

c. General topic and the problem the article addresses:

The article discusses the use of descriptive statistics and normality tests in biomedical research. It focuses on the importance of testing normality in continuous data to choose the correct statistical analysis method.

d. Purpose of the study and key research question:

The study aims to explain summary measures and the methods used to test data normality.

Key question: Which statistical and visual methods can be used to test whether data is normally distributed?

e. Reference usage:

Total references used: 15

2. Content and Methodology of the Article

a. Data set used and data collection method:

Example dataset: Mean Arterial Pressure (MAP) values from 15 patients, including gender.

Data is synthetic and used for demonstration purposes.

b. Analysis techniques applied:

- Descriptive statistics: Mean, Median, Mode, SD, Variance, Quartiles, IQR, Percentiles, CV, Range

- Normality tests: Shapiro-Wilk, Kolmogorov-Smirnov, Skewness, Kurtosis, Z-score

- Visual methods: Histogram, Box Plot, Q-Q Plot, P-P Plot

- Software: SPSS

c. How the results were evaluated:

Normality assessed with Shapiro-Wilk test ($p = 0.454$), skewness/kurtosis Z-values within ± 1.96 , supported by visualizations. Conclusion: data is normally distributed.

3. Findings and Conclusions

a. Key findings and insights obtained:

The data set showed normal distribution characteristics. Shapiro-Wilk and Kolmogorov-Smirnov tests confirmed this. Visual and numerical methods aligned.

b. Conclusions drawn by the authors and their recommendations:

Proper testing for normality is essential. Shapiro-Wilk is preferred for small samples. A combination of numerical and visual methods is recommended.

c. In your opinion, what are the aspects of the study that could be improved?

- Data set is small and lacks real-world diversity
- More variables could be included for a comprehensive analysis