**3. Visualization**

**3.1 Appropriate Plot for the Research Question**

The following visuals were created to investigate the correlation between ball possession and the number of goals scored during the 2018 FIFA World Cup.

**1. Scatterplot with Linear Trendline**

To illustrate the correlation between the independent variable and the dependent variable, a scatterplot was created. A horizontal trend line and widely scattered scores indicate no correlation, suggesting that changes in ball possession do not affect scoring. This lack of trend guides the selection of appropriate statistical methods for further analysis.

A graph of a football goal

Description automatically generated

**2. Histogram with Normal Curve Overlay**

The histogram shows the frequency distribution of the dependent variable and the red curve overlay. The data is strongly skewed to the right, and the poor fit of the normal curve suggests that the data is not normally distributed, suggesting non-parametric tests such as Spearman's correlation for analysis.

A graph with a red line

Description automatically generated

**3.2 Useful information for the data understanding**

The scatterplot shows no clear trend, with a minimal slope in the trendline, indicating a weak or non-existent linear relationship between the two variables. The histogram reveals that the distribution of goals scored deviates from the normal curve, justifying the use of Spearman’s test for correlation analysis due to the data's non-normality.