Sir,

A correlational study recently reported that impulsivity, cognitive flexibility (CF), and cognitive resilience (CR) were linked in a sample of 270 people who attempted suicide. The authors, however, have erroneously mentioned regression analysis as correlation. Nowhere in the text does one find correlation coefficients ($r$); on the contrary, regression coefficients ($\beta$), calculated through multiple regression analysis, have been described as equivalent to correlation coefficients, even when there are several independent variables (IVs) in the regression model. This flaw is reflected all over the text, which does not give an accurate interpretation of the analysis results. Moreover, the results in Tables 2-4 consist of many biased and questionable values, which puts the validity of the research under serious doubt.

In a simple linear regression with only one IV, the value of $\beta$ is equal to the value of $r$ between the two variables. Table 4 has $\beta = 1.00$, which implies that CF and CR are perfectly correlated. Even the standard error is also shown to be 0, which is only theoretically possible, this is impossible on practical grounds because errors in measurements are likely to be there due to known or unknown sources. However, the authors have defended these results in their text, which seems unreasonable. On the contrary, the authors should have looked into this error more carefully as the two variables of CF and CR do not seem to share an absolute relationship theoretically or empirically. These two variables are reported with contradictory relationships based on unstandardized coefficient ($B$) (10% variance in CR by CF) and $\beta$ values, along with the unlikely value of $R^2 = 1.00$, which can range between 0 and 1.0 only. Standardized coefficient ($\beta$) is interpreted to account for the variance in the dependent variable (DV) by the IV, which as the study indicates is 100%, but that is impossible because there is only one IV. It is possible to get significant $\beta$ values greater than 1, but such values are comprehensible when there are multiple IVs.

The most surprising findings are perceived in Tables 2 and 3. The values of all parameters are the same, except in the column of unstandardized values, which in Table 3 are 10 times the values in Table 2. Even the values of $R^2$ and $F$ are similar for both regression models with different DVs. Do the authors mean to imply that in their study CR and CF are the same variables? And if they have the same values by chance, as indicated by their perfect association in Table 4, how come it is even remotely possible that these two distinct variables came out to be exactly the same? The mean values of the two scales measuring CR and CF are 4.49 and 44.93, respectively, which again represent a 10-fold difference between the two scores. The same pattern is observed for standard deviations of the two variables. These results require further exploration. How come the distributions of CR and CF appear to be so similar in this study that is unlikely to occur in any research? The variance and other statistical values for these two variables should be different enough such that the actual variation in the data is reflected in the table values.

It is also not clear why the authors have put CR and CF as DVs. Regression analysis is meant to predict the variation in DV by an IV or a set of IVs, not to measure correlation. $\beta$ weights determine relative variances (amount of explained variation) in the DV by different IVs, and are not limited to any range, unlike $r$, which can range between $-1.0$ and 1.0 only. Correlation, on the other hand, measures covariation or the extent of dependency between only two variables. $R^2$ is the variation in DV explained by the model which includes some set of IVs, where some variation in DV is left unexplained by this model making the value of $R^2$ less than 1. The whole rationale behind the application of statistical tests seems unreasonable and unclear in this study. Why didn’t the authors simply use Pearson’s product-moment correlation method? If the study is correlational then using the Pearson method is sufficient to find the underlying relationships among variables. Regression analysis could have been used if they had to statistically control some variable(s) in order to understand the hierarchical relationships among variables.

Research quality is greatly affected by the inaccurate interpretation of statistical analyses and results. Wrong
or unclear findings in studies mislead the readers and future researchers. Researchers may take the help of statisticians to give them guidance for proper analysis and interpretation of data. Expert statisticians can also be consulted to verify the inferences drawn from the results. Insufficient analysis reduces its validity and the readers may not show any interest in the aforementioned implications of the study. In this study, the results look spurious and extremely theoretical, with no practical validity. The authors should have used appropriate tests to make conclusions from their data because various errors have been overlooked, which reduces the utility of this study.

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**Conflicts of interest**
There are no conflicts of interest.

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