Public Health Section

Correspondence: Can Menstrual Cycle Length Predict Cardiovascular Risk in Healthy Indian Females?

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Dear Editor,

We read with great interest the article entitled "Can Menstrual Cycle Length Predict Cardiovascular Risk in Healthy Indian Females? A cross-sectional Study" by Shilpi Vashishta et al., published in your esteemed journal (Journal of Clinical and Diagnostic Research) 2024;18(6):CC22-CC25. We would like to share a few of our thoughts regarding this study, mainly about the sampling and statistical techniques used. Although it was worthwhile research, the sampling technique was not properly chosen. It is impossible to conduct quality research without adequate sampling. There are two main varieties: probability sampling and non probability sampling. Convenient non random sampling was incorrectly referred to as simple random sampling in the article. The sampling technique should be stratified instead of relying on convenient sampling. Stratified sampling is used to separate the population into smaller groups that may differ significantly from one another. Ensuring that each subgroup is fairly represented in the sample allows for more precise conclusions [1].

Before selecting a statistical method, it is necessary to check whether the population is normally distributed. In the study, the authors did not declare this. After determining the frequency of a particular feature in the population, if a comparison between two or more groups is necessary, the predicted sample size should be modified to account for the different statistical tests that will be used in the comparison. By doing this, the ultimate sample size will undoubtedly be suitable for the primary objective of the study [2]. The sample size affects statistical power, and statistical power influences the significance of statistical tests; thus, the sample size is crucial [3].

A One-way Analysis of Variance (ANOVA) is generally regarded as robust against violations of the equal variance assumption if the sample sizes of each group are identical. While conducting a One-way ANOVA with unequal sample sizes is certainly feasible, we should be mindful that doing so will decrease the power of the One-way ANOVA. It has been demonstrated that the statistical power of an ANOVA decreases with increasing disparities in sample sizes between groups. Because of this, researchers usually aim for equivalent sample sizes to increase their power and, consequently, their chances of finding real differences. If we have various sample sizes and differing variances between the groups, it might be difficult to trust the results of the One-way ANOVA. It is advised to choose a minimum of 30 as the sample size for each group [4].

Additionally, it is important to note that a One-way ANOVA is designed to assess the effect of a single factor on a response variable. In contrast, the Two-way ANOVA is used to examine the impact of two factors on a response variable and to determine if the two factors interact with the response variable [5]. Therefore, the authors may consider conducting further research along these lines, keeping in mind the previously mentioned criteria for statistical approaches, to gain a deeper understanding of the findings.

Thanks

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