

To the editor: probiotic *Lactobacillus paracasei* effect on cariogenic bacterial flora

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To the Editor:

I enjoyed reading the manuscript entitled “Probiotic *Lactobacillus paracasei* effect on cariogenic bacterial flora” written by Chuang et al. [1]. The authors of this manuscript presented interesting idea to assess the effect of probiotics on *Streptococcus mutans* pathogens; though some technical and inter-putative issues should be noticed.

In this study as a double-blinded, randomized, placebo-controlled survey, the authors used Wilcoxon signed-rank test to compare intra-group in three different stages (T1, T2, and T3). The fact is that in these cases, Friedman test should be first used in order to compare all three stages/time intervals. Subsequently, Wilcoxon signed-rank test might be beneficial for the pair-wise comparisons using Bonferroni correction to adjust the type I error [2].

Assuming the used statistical methods (Mann–Whitney *U* test, Friedman, and Wilcoxon signed-rank test) are appro-

priate, the effect of time has been ignored through comparing the two experimental and placebo groups; in other words, the interaction between two independent variables (time and group) is being neglected. Considering the dependency of data over time is highly recommended for longitudinal studies. For this purpose, Generalized Estimating Equations (GEE) is the most common method. In GEE model, with respect to the distribution of the dependent variables, the effect of multiple independent variables and their interactions might be assessed [3]. It would be expected that using the appropriate statistical models might change the statistical findings. Last but not least, the 80 volunteers are unequal in the two placebo and experimental groups. However, by using computer-generated blocked randomization, the equal sample size would be expected.

References

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