

## Letters to the Editor\*

### Stronger methods are needed before generalizing patients' preferences

I read the interesting study by Souza–Constantino et al in the December issue (Souza–Constantino AM, Cláudia de Castro Ferreira Conti A, Capelloza Filho L, Marta SN, Rodrigues de Almeida–Pedrin R. Patients' preferences regarding age, sex, and attire of orthodontists. *Am J Orthod Dentofacial Orthop* 2018;154:829–34), and I think that some important points need clarification.

There was only 1 nonstandardized orthodontist representing each demographic population. Therefore, conclusions regarding age and sex might be questionable. Preferences of patients can be consciously or subconsciously affected by numerous factors, including (but not limited to) attractiveness of orthodontists. So when the research goal is to assess the roles of “age and sex,” any major confounding factors that can bias patients' preferences other than age or sex should be controlled for methodologically and statistically. A proper method for this purpose may be to randomly pool a reasonably large number of orthodontists (with diverse facial and body features) from each demographic population and measuring their attractiveness scores, so that esthetics can be statistically accounted for when evaluating the roles of age and sex.

It is still possible to have 1 orthodontist per demographic group. However, the authors would need to ensure that all other major characteristics of these 4 individuals (except their age and sex) have been properly standardized or statistically controlled for, so that the only major reasons for patients preferring young and female over the rest is only being young and female, not any other major uncontrolled or unknown confounders (such as beauty of the young lady).

Orthodontists should be standardized in terms of color and form of important facial features. The older man looks different from the rest; he should not have a receding hairline or dark skin and lips, a gray beard or hair, or a different T-shirt collar, all unlike others. Heads should be actual size or at the same magnification. Currently men's heads are smaller than what should be, which might advantage women. Furthermore average women are shorter than average men. Therefore, depicting women as tall as men in the same picture

implies that either the women are tall or the men are short (either way, advantaging women). Finally, orthodontists' attractiveness should have been assessed and addressed statistically, or standardized with the use of image-editing programs or by searching for similarly attractive individuals.

The small number of orthodontists per group can limit the generalizability. There were no inclusion or exclusion criteria for orthodontists (except age), therefore there was no control over appearance-related confounding factors. Even the photographic lighting was not standardized. These might considerably bias the current sex- and age-related conclusions, which could have varied completely if other orthodontists with different appearances had been recruited.

A minimum age of 25 years old (as an inclusion criterion) is too young and unrealistic for a typical orthodontist in many countries, including Brazil.

In the Methods section, a chi-square test and an unnamed test (“of multiple comparisons for proportions”) were introduced without specifying their exact use; the text implies that each test had been used for all comparisons. I would appreciate clarification of the second test's name and both tests' specific uses.

In the Results section, many details and *P* values should be elaborated; for example, post hoc pairwise comparisons performed for the first sentence should be reported together with *P* values. Moreover, the significance level should be adjusted for post hoc pairwise comparisons.

Vahid Rakhshan  
Tehran, Iran

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### Authors' response

We appreciate the careful assessment of our manuscript and thoughtful comments. Accordingly, we attempt to answer and clarify as thoroughly as possible the doubts expressed by the reader.

We agreed that preferences of patients may be consciously or subconsciously affected by several subjective factors, such as the attractiveness of orthodontists; therefore, to exclude or minimize these variables, we chose 4 people with similar characteristics. For example, both women had white skin and straight hair, and both men had beards.

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