Decision letter

**Note: I have agreed with all but one of the reviewer comments. This is, however, a major disagreement as you will see below. All other comments were quite helpful and appropriate revisions and additions have been made.**

Dear Stephen D. Simon,

Your manuscript entitled: “Experimentation without randomized controls” has been reviewed by two experts within the field.

Overall, the referees find your manuscript interesting, but have noted several points that require major revision before a final decision can be made.

The referees have made the following comments on your manuscript:

Referee: 1

Comments to the Author

I enjoyed reading this manuscript. My only suggestion is that matching on extraneous factors as well as matching on propensity scores should also be discussed as options when randomization is not possible.

**Done**

Referee: 2

Comments to the Author

Thank you very much for submitting this review article on the use of quasi-experimental designs and their applications to dental research.

The paper was written well and clearly. The choice of a rather informal and conversational tone is interesting. Some examples of phrasing include:

* “Wait three years and count the number of dead bodies”
* “Skip all that stuff and you can get a larger sample size”
* “You are used to giving advice about oral health in an assured voice”

This can be helpful for creating an approachable story. However, it might also make assumptions about the readers or be offputting to some of them.

**I cannot make these revisions. It is indeed the only way I can write. The informal and conversational tone is baked into every nook and cranny of this paper. To remove it would take forever and it would suck all the life out of the writing. The reviewer, for example, dislikes the use of the pronoun “you” in the third suggestion. There are over a hundred sentences in the manuscript that include this pronoun. I talk directly to the reader and this is what gives the paper life. I do not wish to replace “you” with “one” and I do not wish to convert all my sentences to passive voice. I also disagree with the reviewer’s suggestion that I take a humorous quip about dead bodies out of the paper. While I recognize the humor can be misunderstood by some, the careful use of it is vital when talking about a rather dry and technical topic.**

**I do have an anecdote that I would like to share with you. You may find it amusing or you may find it horrifying. But I promise to not put in anything so risky into this particular paper. Back about 20 years ago, I was asked to write a paper similar to this one on randomization. You can’t talk about randomization without talking about blinding. So I included a quip that sometimes blinding is impossible. I said something along the lines that you can’t blind a study if one of the treatment arms is a bilateral orchiectomy because sooner or later the patient notices that something is missing. I did check with the editor about that and he said that it wasn’t a problem.**

**Now, if your journal wants to maintain a reserved and dignified tone, that is something I can respect. I could tone things down a little bit, but only a little. Just let me know.**

With that said, Section 2’s approach to describing each method of research design and then including a case example was outstanding in its presentation.

Likewise, some of the assertions presented here might benefit from citations, such as: “Most researchers sneer at historical control designs.”

**Done.**

Some other messages could be a bit more careful:

* “Randomization prevents covariate imbalance, both among measured and unmeasured covariates.” Probabilistically, this is true, but in practice, we get one outcome of a random process. Randomization reduces the likelihood of sizable imbalances and often performs better than other techniques for constructing treatment groups.

**Done**

* “When you randomize, you lose this level of assurance and admit that you are leaving their treatment choice up to the flip of a coin.” This is true of all research. If we knew the answer, we would not have to perform a study. It is fair to say that this might impact a doctor’s manner of describing the treatment plan, but it should not impact the validity of conducting the research itself.

**Done**

One of the drawbacks of individual randomization involves the potential for influence and crossover among subjects. It is difficult to randomly assign different textbooks to students in the same class because they study together and might pick up the second textbook if there’s a benefit. It may be worthwhile to include this in some way.

**Done**

The study of poor compliance with clear aligner therapy involves a shift in treatments from late 2019 to the second half of 2020 (with the onset of the COVID-19 pandemic in between). It might be worthwhile to point out this issue in interpreting the results.

**Done**

Figure 2 could create a sharper contrast between the scenarios of good and bad news. While I get the point (that sharper increases convey more evidence in favor of the new treatment), the jumps are small. Zooming out, and considering the possibility of some noise, it seems like both the good and bad news scenarios go to the same place, with only small variations between them.

**Done**

The author guidelines (https://onlinelibrary.wiley.com/page/journal/13652842/homepage/forauthors.html) limits the article to no more than 6 figures. This paper has 8. So you may have to remove 2 or find a way to consolidate them (e.g. Figures 6-8 into a single figure).

**Done**

Some typos:

Page 4, line 10: Figure 1 shows “to” possible “outcomes”. Switch to “two” and “results”.

**Done**

Page 6, line 41: “The masks gave the a fair degree of anonymity”. Substitute “the a” with “a”.

**Done**

Page 9, lines 14-15: “where a qualifying variable is used to decide controls who gets the intervention.” Perhaps you meant to say, “in which a qualifying variable is used by the researchers to decide who gets the intervention.”

**Done**

Page 11, line 30: “the the”

**Done**

Additional comments from the editor in an email dated 2025-01-24.

1. Please provide Declaration statements like data availability, conflict of interest, Ethical Statement in the main document.

**Done, done, and done**

1. Please provide Graphical Abstract that should be visible in the main document, and it should be contain Title of the manuscript, author list along with some captions.

**Done**

1. Please provide the abstract in structured form by adding subheadings like objective, method, result and conclusion along with key words.

**Done**