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**Summary**

I think that you should move a few parts of your data to different locations in your paper to help it flow better. I am not sure that your hypothesis is evolutionary, I do find it interesting, but I feel like it is testing the effectiveness of a vaccine rather than any evolutionary process. I personally would remove the data analysis section and mention which tests were used in the methods section and then put the results that were found in the results section. Then in the discussion talk about what the results mean and how it supports or does not support your hypothesis and how it makes it evolutionary.

**General Comments**

Try to avoid first person writing, so avoid “I”, “myself”, etc. (I think this was just once in the introduction- you said “I will discuss…”)

It says that you are discussing 4 variants of hepatitis, but then says that you are focusing on rates in Hep B and Hep C, this just sounds contradictory esp since its so close together in the paragraph. I am not sure you need to discuss the different types of Hepatitis if you aren’t testing them, so keep the info regarding Hep B and Hep C, but you can remove the Hep A and Hep D info in the introduction.

What does the high mutation rates indicate? Are they specific types of mutations/how does it affect the strain? How is this evolutionary?

I would move all of the actual results down into the results section instead of having them in the data analysis section. In my opinion the data analysis would be more of what test was preformed, but not what was found in the test.

In the discussion I would also talk about the results and what they mean/how they support or do not support your hypothesis. If the hypothesis is that there are more mutations in Hep B than in Hep C due to Hep C not having a vaccine, then what about this makes it evolutionary? I am not sure if mutations are exactly evolutionary because they occur randomly. I also am not sure that saying the vaccine for Hep B is ineffective is accurate. If it undergoes a higher mutation rate then it would change quickly and the vaccine may not be as effective in treating it, but I don’t think that having a vaccine makes it less effective. I am not sure if this is exactly what you are trying to say but that is how I took it when I read it.

I also am not sure if the figures showing death rates are necessary. I think it helps to see how frequently people contract the strains, but you aren’t looking at the death rate you are just looking at the mutation rate so I am not sure these figures are necessary.

I personally am confused on the phylogeny that you entered, is it a tree showing the lineages of the mutations? I just do not quite understand this, but I don’t exactly know if you need to change it or explain it any differently I just am a little confused trying to understand it.

When interpreting the data the first p-value was 0.632 and you said that there was not a big difference, this makes sense since it is higher than 0.05 and would therefore not have a significant difference. However, the second p-value is even higher being 0.922 which should indicate that there is an even less significant difference, but you said that there was a difference. I am not sure if I am misinterpreting what you found or not but this is how it comes across to me. Also, for the cor value, a value of 1 means a perfect positive correlation, while -1 is a perfect negative correlation, this means that a value of 0.015 would be almost no correlation at all, right? I am not sure if that is correct, but if there is that little of a correlation I feel like it is important to mention it and what it means for what you were testing.

**Specific Comments**

In the introduction of Hep B, citations are incorrect. Cite Hepatitis B- Faqs, Statistics, Data, & Guidelines, 2023 at the end of the sentence instead of in the middle in parenthesis. The (cdc.gov) is also not correct, it should be authors name or cited at the end of the sentence and reworded. Or could also put “According to the Center of Disease Control (CDC)….”

Same for Hep C, if you use “According to…” I would use the authors name or the title of the article instead of citing it like this. Also in the last sentence in this paragraph I think there should be a comma between B and C, or one needs to be removed.

In the last paragraph in the intro for Hep D, the sentence that talks about Hep B I feel like is a little confusing because you are discussing Hep D, but then talk about Hep B. I get that they are connected so this isn’t bad, but I would try to reword it and connect it to Hep D if possible. Also the citation at the end of this paragraph the period should be after the parentheses instead of before them.

In the methods section the first sentence needs a “.” To end the sentence. Then the second sentence I feel like would fit better in the discussion section rather than the methods.

In the data analysis section I would put the actual results that were found in the results section instead of this section. I would just have what tests were performed and why they were chosen/what they are testing in this section. I also would include the phylogeny in the data analysis section or the methods section instead of breaking it off on its own.

In Figure 1, I would put phylogenetic tree instead of phylogeny tree. The second sentence talking about figure two is a little hard to comprehend because it jumps from figure 2 to 3 so I would maybe reword this.

You also have two figure 3’s in the paper so make sure you renumber them and change anywhere you cited them.

Does figure 5 include the purple states and the orange? Or are these supposed to be two separate figures?

There also is no description of Figure 7 and I feel like you could explain it or state some of its results at least a little.

In the discussion I personally do not like the question in it, I would rephrase and just state what I found, but this is personal preference.