

Review of: "Assessment of Quality of drinking waterbased on the water quality index method in Hawassa Zuria Woreda, Sidama Regional State, Ethiopia"

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Potential competing interests: No potential competing interests to declare.

The research is doing too much with too little. You are testing 23 samples for many different things, but the statistical analysis is not appropriate for such a small sample size. What you can do is compare your findings to health recommendations - no statistical analysis is needed for this size. I would suggest re-structuring some of the paper - there's currently too much information in the discussion that should have been in the introduction. A proof read is needed, and the writing should be less vague. Good work, but I think it can be presented better.

Specific comments

It's a pretty small sample size.

"So that" does not need a comma after it.

The introduction to water is quite broad "without it, there would be no life on earth." Firstly, the readers know this. Secondly, we would like to hear more about your specific context. I would remove the introductory text that is broader than the discussion about human need for clean water.

"one among which is Ethiopia" is very wordy. Say it more concisely.

"Ethiopia has the lowest water supply and sanitation coverage" – among who? African nations? Also, we already addressed some of this information in the last paragraph. I would re-organize to present the text about Ethiopia's water problems together.

"Facing most of the common challenges" – vague. What if we have different ideas of what constitutes a "common challenge"? Specify the challenges you're referring to here.

In general, the writing is vague. Make it tighter and more informative.

Watch out for grammar: "nationally 13 percent of the population is considered using safely managed services" – that sentence doesn't really make sense. Avoid using passive voice ("is considered") because that contributes to vague writing.

"heavy metals...have drawn a lot of attention" – what does that mean, a lot of attention? From who? What is "a lot?" See if you can quantify it, even if just by saying "17 reports from WHO" or something like that.

A proof read is needed: there's inconsistent punctuation, capitalization, and some grammar errors.

Was there a reason that all samples were collected in the morning? Do you think this choice influenced the findings?

The description of the methodology is thorough but sometimes confusing. For example “the growth pads were frequently inserted into the bottom of Petri plates using a sterilised pad dispenser, which caused the growth pads to become saturated with Lauryl Sulphate Broth.” Why is the word “frequently” in this sentence. I would assume this was always done.

I'm not a statistical expert, but it doesn't seem like ANOVA is right tool to use for this analysis. See summary here (you don't seem to have an independent variable – is it the sample sites? Wouldn't you have to take a lot of samples at each site to do that?). <https://www.scribbr.com/statistics/one-way-anova/>

What does “water sources” mean in this sentence: “The average temperature values of water sources were found to be significantly lower ($p < 0.05$) than those of reservoirs, tap water, and end users.” I think you mean to differentiate between where water is gathered, and where customers have it in their homes? I'm not really sure.

Why would iron content vary between source and end-users. Is the implication that more iron is getting introduced into the water?

What are dental caries?

“Manganese was found in 9 samples of potable water, while it was undetectable in 6 other samples.” This doesn't add up to 23 samples. This is true of the lead text as well, and cobalt, and nickel.

Define your acronyms the first time you use them. HPI HEI.

“A highly significant difference ($p 0.01$) was found between the manganese concentration found in the samples gathered and the WHO's recommended values.” I don't think this is a correct application of the p-value.

I don't think it's necessary to tell us why manganese is bad if you've already demonstrated that the manganese levels aren't harmful. Alternatively, you could put the information about consequences earlier in the paper, to explain why you're testing for these water quality indicators. This info doesn't belong in the discussion, not for manganese or any other indicator.

“which were higher than those reported by(Solana et al., 2020)” – formatting. Only “2020” should be in parentheses. Also the spacing with the parentheses is missing (proof read needed – I'm not listing every issue I see).

“The formation of ferric precipitates makes drinking water objectionable.” This is vague. What does objectionable mean? Bad tasting? Deadly? Be explicit.

Wouldn't you expect HPI and HEI to be correlated?

