

Peer Review File

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Review Comments

General notes

The manuscript brings forward the results of a cross-sectional study investigating the correlation between knowledge of, benefit perception of and frequency of skin lightening products (SLPs) use and depression, anxiety and stress. The target population is represented by young Filipino adults. The study has many merits in the analyses conducted, in the selection of the population and in the findings, specifically regarding depression when related to SLPs. That said, there is room for improvement and I hope my comments will provide some suggestions from the reader's perspective. As is, the manuscript is presented to the reader as a stats paper, assuming the reader is well versed in all the calculations and their interpretation. I do believe however that this paper can be made appealing to a wider audience by providing more in-depth interpretations and by presenting the results in a more clear manner. I see that at least one of the authors works for the Department of Psychology, Concordia University, Canada. I highly encourage the authors to discuss from a physiological perspective the differences between depression, stress and anxiety that may explain their results being impactful in a beneficial way on reducing depression through frequent use of SLPs.

Response: Thank you very much for your wonderful comments for our paper.

Specific notes

- The manuscript indicates the level of knowledge the participants in the study had regarding the SLPs, their composition, etc. How did the participants gain that knowledge? From the products' labels, from using the internet or from what sources? Was that knowledge already there when the participants were enrolled in the study or they started to investigate the products they normally use for this study in particular?

Response: The knowledge question about SLP use is about the knowledge of knowing the active ingredient of the products they are using. The questionnaire on skin lightening was adapted from a previous study conducted in Southeast Asia (Peltzer & Pengpid, 2017). The knowledge was already there when the participants enrolled in the study.

- The SLPs are relatively expensive products. Would the authors be able to provide a range of the products prices?

Response: The prices of SLPs are relatively different depending on the product they are using. In the Philippines, some products are not registered. These SLPs are the most affordable with the risk of harming their skin. Those products registered in the Philippine FDA may range from USD 5.00 to 500.00, depending on the volume and the active ingredient.

- Also, would the authors be willing or able to share the products the participants used? Are they products manufactured locally or by global manufacturers? This line of inquiry has a meaning in that in Table 1, 81.6% of the participants do not work. Given the general high prices of the SLPs, how can the

participants actually afford to purchase them and use them with high frequency? The SLPs are generally used for long term to have any effects on pigmentation, therefore there is a financial commitment to the treatment which turns out relatively pricy in the end. Do the authors know the rate of the participants that at one point or another dropped off the treatment on financial reasons and maybe returned later to it, when they afforded it again?

Response: Thank you very much for your comments. The names of the products they used are not included in the questionnaire. We have attached the questionnaire as a supplemental file for the readers of our article to know the scope of the survey we used. As indicated in the previous response, some products are not registered hence, these SLPs are the most affordable with the risk of harming their skin. Those products registered in the Philippine FDA may range from USD 5.00 to 500.00, depending on the volume and the active ingredient. That is why the participants can afford to buy SLP because of the wide price range of the SLPs. We have also added a statement in the discussion to give a background on the SLP market in the Philippines. We added a statement under the “What is already known” section of the discussion:

“Moreover, the use of SLP in the Philippines has been discussed before in which the author accentuated the fact that regardless of the socio-demographic characteristics of the Filipinos, there was an unfaltering trust in manufacturers and distributors of SLP (Mendoza, 2014). This trust thereby increased the frequency of SLP use even among the Filipinos with low SES.”

- Could the results indicating increased level of anxiety be related to the concern of not being able to continue the treatment because of the price of the products rather than to other factors? I am basically questioning here the sustainability of long-term SLPs use from a financial standpoint and the implications on the philological distress conditions investigated.

Response: Thank you very much for your comment. We do not know for certain if the increased level of anxiety comes from the discontinued use of SLP or not being able to achieve the desired skin tone. Future follow-up research may be done to give an in-depth understanding of this phenomenon. (discuss the unmeasured confounding factors angle).

- As a side note: depending on the mechanisms of action of the active ingredients in SLPs, their effects are reversible (unless the melanocytes, the cells producing melanin are destroyed by the toxicity of the products – for example containing hydroquinone which is banned at certain levels in certain countries). Therefore, if a participant sees beneficial effects of a product but cannot continue because the treatment is not financially sustainable, the participant will also see the reversibility of the condition (also depending on the condition – melasma can be associated with pregnancy but it’s not limited to it, for example). Therefore, when the condition reappears, the stress levels might also be elevated.

Response: Thank you very much for your side note. However, we cannot know for sure about this information as a cross-sectional survey was the study design. We have updated the recommendation part to include more in-depth research about this phenomenon.

- Results section, page 9, discussion about Table 2: the text presents the data as of x out of y participants while the Table itself presents the data in % values. This back and forth between presentations of the same data could be very confusing.

Response: We are very sorry for the confusion this may have caused. We have made the text in the results section consistent with what the table is presenting.

- Results section, page 9, discussion about Table 3: this entire paragraph was extremely difficult to follow not because of the many, many values presented but because the authors go back and forth many times between the frequency of use of SPLs. At one point the frequency is once a week, then it's once a week/month, then they refer to ever-users which I'm not sure what it means (likely frequent users, maybe more than once a day?), etc. I highly encourage them to present the data in more organized way. Table 3 truly gets into the impact of the frequency of the products on psychological conditions. Maybe presenting the data gradually would help: once a day, once a week, once a month, etc.

Response: Thank you very much for your comment. We have revised this section of the text to make it easier to understand.

- Overall, the reader is to understand that use of SLPs once a week or once a day reduces primarily depression and stress (the stress reduction is briefly mentioned but not discussed enough). This is presented relatively well in the introduction and conclusion but throughout the paper it is really difficult to extract this information. Some clarity would help the manuscript overall.

Response: We have updated the discussion to elaborate more on the points you have emphasized.

References:

- Mendoza, R. L. (2014). The skin whitening industry in the Philippines. *Journal of Public Health Policy*, 35(2), 219-238.
- Peltzer, K., & Pengpid, S. (2017). Knowledge about, attitude toward, and practice of skin lightening products use and its social correlates among university students in five Association of Southeast Asian Nations (ASEAN) countries. *International journal of dermatology*, 56(3), 277-283.