

## Peer Review Report

# Review Report on Different Patterns of Social Media Use and Their Association with Body Image Among

Original Article, Int J Public Health

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### EVALUATION

#### **Q 1** Please summarize the main findings of the study.

The study found that different kinds of social media use (SMU), differing in intensity and/or problematic use, are related to adolescents' body image (body satisfaction and congruence with weight status by BMI). Associations were more pronounced in girls than boys in a large international sample.

#### **Q 2** Please highlight the limitations and strengths.

Without any doubt, a major strength of the study is the large international sample with the possibility to compare adolescents from different countries and control for variation in results between countries. One major limitation which is also mentioned by the authors is the use of self-report data. I see that the data collection via questionnaires may be the only feasible way in such a large and international study. However, it is known that weight and height are not precisely estimated by adolescents, and resulting BMI values tend to be biased. Moreover, bias clearly seems related to body image. This limitation should be discussed more elaborately. Overall, the quality of the used measurements is barely thematised by the authors and references are mainly lacking.

Another limitation is the high (possible) percentage of missing values (up to 40%) in some weight-related measures. The exact number is not reported but could make a huge difference in results. Addressing this limitation by the authors is much-needed. How many values are in fact missing? How does this number differ between countries and with which consequences? Are there any differences between youth with missing versus non-missing values?

#### **Q 3** Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

Overall the study is described in a clear and concise way and contributes valuable information on the potential impact of social media use on adolescents' body image based on a huge international sample from the HBSC study. Nevertheless, I have some major criticisms that need to be addressed in a revision before getting published.

Major points:

Introduction:

- Terminology is not always consistent. While body image is defined on page 3, the term self-image or even body self-image is sometimes used later. Please ensure that the different concepts are named consistently. If different terms are used for related concepts, the relationships between the constructs should be explained (e.g., body image as a facet of self-image).
- BWC is first described as a measure of self-perceived weight and then (in the section on the current study) as the correspondence between perceived weight and actual weight status. In the methods section, subjective body weight is used for "self-perceived body image" and BWC is used for the agreement between subjective weight and BMI. It may be clearer to use "body image" as an overarching concept, with body

dissatisfaction/perceived weight and BWC being two aspects of this complex concept, both of which are dependent variables in your models.

Methods:

- Some points on the statistical models are not clear to me.
- Two-level hierarchical multinomial models are described with the two levels school and country. In my understanding, "pupils" should represent the lowest level. Or were all data aggregated at school level? If so, the analysis of gender differences would make no sense.
- The tables list coefficients for levels 1 and 2. What effects do these coefficients quantify? Are these measures of random effects? Do they measure variation between schools and countries? This information is an important aspect of the results that is not discussed at all.
- Overall, the quality criteria of the used measures are hardly discussed. The somewhat dubious reliability of the data on 'objective' weight or BMI seems problematic to me (btw., this could also be named a subjective weight measure, a further reason to overthink terminology). It is well known that adolescents often misjudge themselves here, and biases are related to body image. This should definitely be taken up as a limitation in the discussion. How meaningful is the BWC measure?
- Another clear limitation is the potentially very high number of missing values in the body image-related items. It is stated as an inclusion criterion that the proportion of missing values must be below 40%. But how high was this proportion actually for the different countries? This is not shown and should be added to the results. If such a large proportion of values is missing, it cannot be assumed that data on prevalence are still unbiased or relate to representative samples. I would clearly assume that the lack of weight-related data is not independent of weight and body image. This should definitely also be included and discussed as limitation in the Discussion section.

Discussion:

- The discussion should be revised. The argumentation is not always clear: Which statements exactly do you want to make? And how do these relate to your own results?
- For example, I don't quite understand what statement the second paragraph is trying to make. Wouldn't it be simpler and more obvious to explain that intensive use is associated with greater social well-being simply because it is a form of contact? Besides, the paragraph is first about social well-being, but then talks about body image.
- There are also ambiguities in the other paragraphs (see also specific points below)
- As described above, I think there are also important points missing in the discussion especially concerning limitations of the study.

Minor/specific points:

Abstract:

- Body weight congruence is mentioned in the conclusions although no results are reported in the AB
- In objectives: I would prefer "negative" to "low" body image
- SMU seems to relate to "Users" instead of "Use" here - this should be consistent throughout the text

Contribution to field:

- The term self-image is used repeatedly although the used measures relate to body image. This is a bit confusing (see above)

Ethics statements:

In my understanding, a survey is also a human study, and ethical approval is correctly reported in the text.

Introduction:

- Various functions and types of SMU are named. What is meant by self-documentation and self-presentation? Are they the same thing? I also think that self-objectifying SMU may not be clear to all readers. What kind of self-presentation or social media use is meant by this?

Methods:

- The abbreviation GSEM should be briefly explained, it seems unfamiliar to me.
- Please also shortly introduce the meaning of level 1 and 2 coefficients (shown in tables)
- As mentioned above, the listing of weight measures seems a bit confusing. It would be clearer if Body image would be a category consisting of body dissatisfaction/self-perceived weight and BWC

Results:

- In the first paragraph the term "body congruence" instead of "body weight congruence" is used. Although clear, terminology should be consistent throughout the text

- Page 13: "...higher socio-economic status seem to play a protective role..." would be more correct
- Page 13: "...than active users, while non-active girls (but not boys)" would be more clear
- P 14: last sentence before table 3 is odd

Discussion:

- First paragraph: You write that the pattern of associations expands across European countries. Are there associations for the specific countries reported in the supplementary results? Otherwise you refer to the mean results here
- "We find it interesting..." - This phrase should be reworded
- §5: "may be less susceptible..." --> do you mean "less exposed" because you talk about non-active users here. I think the mention on digital editing tools is also misplaced here. Last sentence of paragraph: The "desire to emulate these standards" was not measured in this study
- page 18: §1: "non-users group" - should be "non-active users"
- Reverse causation could be discussed additionally: Body image issues may also lead to more frequent or even problematic SMU
- Last paragraph: I think you cannot conclude from your data to what extent "increased vulnerability to social feedback" contributes to a healthy self-image

#### PLEASE COMMENT

**Q 4** Is the title appropriate, concise, attractive?

yes

**Q 5** Are the keywords appropriate?

yes

**Q 6** Is the English language of sufficient quality?

OK. Some sentences seemed a bit odd to me. However, I am no native speaker. Throughout the discussion section, lack of clarity in the argumentation could be due to language problems

**Q 7** Is the quality of the figures and tables satisfactory?

Yes.

**Q 8** Does the reference list cover the relevant literature adequately and in an unbiased manner?)

yes

#### QUALITY ASSESSMENT

**Q 9** Originality



**Q 10** Rigor



**Q 11** Significance to the field



**Q 12** Interest to a general audience



**Q 13** Quality of the writing



**Q 14** Overall scientific quality of the study



REVISION LEVEL

**Q 15** Please make a recommendation based on your comments:

Major revisions.