Author’s response to reviews

Title: The relationship of body composition with physical fitness in the 14 years adolescents residing within the Tlokwe municipality, South Africa: The PAHL-Study

Authors:

Makama A Monyeki (andries.monyeki@nwu.ac.za)
Rik Neetens (rikneetens@gmail.com)
Sarah J Moss (hanlie.moss@nwu.ac.za)
Jos WR Twisk (jwr.twisk@vumc.nl)

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Author’s response to reviews: see over
RESPONSE TO REVIEWER 1# (RIMKE VOS)

MS: 1961608540623743, The relationship of body composition with physical fitness in the 14 years adolescents residing within the Tlokwe Local Municipality, South Africa: The PAHL-Study

In addressing the reviewer’s comments we have allocated a number to each comment as such each comment is followed by a response from the reviewer’s comments notes, and are presented as follows:

Comment 1: It adresses an important public health issue of our modern society. Of interest are the studied participants. Up till know, most published study addressing the effect of body composition on health, were based on data of children or adolescents from developed countries. However, there are several aspects that need to be revised before the manuscript can be published.

Response: We would like to thank the review regarding a positive comments about the importance of our study that it addresses an important issue of our modern society.

Comment 2: In general, it is recommended to rewrite some parts of the article. For example the last sentence of the ‘subjects and methods’ section; the last part of the ‘Procedures’ section [Prior the study….., the participating school]; several sentences of ‘Discussion’; page 7 [the results show….., were less strong]; page 8 [however, because overweight adolescents…..]; page 9 [nevertheless, this cross-sectional study…]; page 9 ‘Conclusion’ [Girls were more….].

Response: In our revised manuscript we have restructured the methods section in line with the BMC Public health journal, by the following subsections: study area, sample, measurements and statistical analyses. As such, the methods section has been thoroughly revised and been aligned to the reviewer’s comments.

Comment 3: Background; I agree with the authors this study is relevant because it presents the results of the South African adolescents. Only it was not clear to me why especially Tlokwe municipality of South Africa if of particular interest. I think this should be mentioned in the background section. In addition, if this particularly target population is special, it is strange that the studied participants’ may not be considered to be representative of the adolescents’ population either of Tlokwe municipality or South Africa in general.

Response: In our revised manuscript with regard to background we have clearly outlined the rationale of doing this study. In the last paragraph of the introduction before the purpose of the study we have indicated that scanty information regarding the relationship between body composition and physical fitness in the 14 years high school adolescents attending high schools in town and township within Tlokwe Local Municipality of South Africa exists, besides other mentioned rationale in latter paragraphs.

Comment 4: Results; in the results section it is presented that a strong significant positive relationship is found between physical fitness and BMI for underweight girls with high physical fitness scores. The 95% CI interval is large have the authors any thought on the reason?

Response: We would like to thank the reviewer for this comments, in our revised manuscript we have acknowledged large CI as a limitation of the study, since it is known that when a confidence interval is very wide like this one, it is an indication of an inadequate sample size.

Comment 5: Discussion; I advice the authors to critically read their discussion. The results of the PAHL-Study are compare with previously found results, however little is mentioned of the current findings difficult. Also the primary aim of the study was to analyse the relationship between body composition and physical fitness. Although %BF is calcualted based on the sum of 2 skinfolds, the BMI is used in the analyses to answer the primary aim. BMI is a common used measure to determine underweight, normal weight and overweight, it is however not simila to body composition. I would recommend, either to present the results of the relationship between %BF and physical fitness or to use the term BMI instead of body
composition in the discussion when referring to the results of the multinominal logistic regression analyses.

Response: This comments is appreciated, but we would also like to bring this to the editor’s attention that BMI is worldwide validated as a screening indexes for the assessment of body fatness in children and adolescents by many researchers as such why we also used it in our study besides is positively associated with %BF

Comment 6: Table 1: I would prefer if the upper part of table 1 also mention which part represent the results of the boys and which part the results of the girls.
Response: Based on the reviewer’s comments table 1, in our revised manuscript this is been taken care of and we have also included data for the total sample as well as the p-values of differences.

Comment 7: In the print I received the columns are shift.
Response: We hope that in our revised manuscript this is been taken care of.

Comment 8: Level of interest; An article whose findings are important to those with closely related research interests.
Response: We would like to thank the review for this positive comment about the manuscript and it is highly appreciated.

Comment 9: Quality of written English: Need some language corrections before being published.
Response: Thank you for the comments, in our revised manuscript language editing was been taken care of by a professional language editor (English language specialists).

Comment 10: Statistical review: No, the manuscript does not need to be seen by a statistician.
Response: We are very much pleased with the reviewer’s comments regarding our statistical analyses done in our manuscript.
RESPONSE TO REVIEWER 2# (AMINA KHAMBALIA)

MS: 1961608540623743, The relationship of body composition with physical fitness in the 14 years adolescents residing within the Tlokwe Local Municipality, South Africa: The PAHL-Study

In addressing the reviewer’s comments we have allocated a number to each comment as such each comment is followed by a response from the reviewer’s comments notes, and are presented as follows:

Minor Essential Revisions

Comment 1: The research question posed by the authors could be better defined and more specific. Perhaps the investigators could state the objective as twofold: to determine the prevalence of underweight, normal weight and overweight adolescents aged 14 year old in the Tlokwe municipality and to assess the association between physical fitness and body composition separately for boys and girls adjusting for race and locality. The paper’s reporting of results should be organised into these sections (see comments later in this regards to results section).

Response: In our revised manuscript we have incorporated the reviewers valuable comments regarding the objectives, they are now presented in twofold as it can be read in the revised manuscript. Additionally, the results were also reported in line with the objectives notwithstanding the discussion. We thank the reviewers such valuable comments.

Comment 2: The background could be better organised to improve flow of ideas and rationale for doing the study. The case for doing this study is not made strong enough and needs to be more convincing. Suggestions would be start with some epidemiological data reporting the prevalence of underweight and overweight adolescents using the National DHS in 2002. Are results provided for adolescents? Currently the authors report findings from DHS on women and men. It would be more appropriate for the study to report findings on adolescents. If the DHS does not sample children and adolescents, the this could be a case for providing data for this study – while not a national and population-based sample, it at least give some insight.

Response: In our revised manuscript we have better organised the background so as to improve the flow of the ideas and rationale for doing the study. As such, in our opening paragraph the problem of the study been the coexistence of both underweight and obesity in developed and developing countries as well as their magnitudes are presented. Further, the level of the problem in South Africa generally and for studied area are also been presented. In the 2nd paragraph of the study we have indicated the rationale why studies like this one are needed as well as highlighted the consequences associated with both underweight and obesity. In the last paragraph we have indicated the “gap” why this study was of important by stating that scanty information investigating the relationship between body composition and physical fitness in the 14 years adolescents attending high schools in town and township areas within the Tlokwe Local Municipality exists, and subsequently the purpose of the study.

Comment 3: Table 2 is fine but it makes me question why BMI was the outcome for physical fitness predictor rather than %body fat?

Response: In the introduction of our revised manuscript, we have provided the rationale from the literature that BMI is a useful surrogate for %BF, as such our analyses.

Comment 4: The authors do not provide information in Table 2 on the confounders – race and locality?

Response: In Table 3, we have presented the crude model and adjusted models (indicated by * in the footnote of the table and within the table itself) for race and locality.
Major Compulsory Revision

Comment 1: For the methods, it might be better to start with the study design – “This study is part of an observational multidisciplinary longitudinal study on Physical Activity and Health Longitudinal Study (PAHLS) that started in 2010 and to be continued for a period of five years.” Then that this study reports base line.
Response: In our revised manuscript we have restructured the methods section based on the reviewer’s comments, in essence the the methods is presented according the following subsections: study area, sample, measurements and statistical analyses. We thank the reviewer for such valuable comments.

Comment 2: Please provide response rate and report any differences between respondents and non-respondents. Did 2 of the eight schools refuse to participate? Any reasons provided? How does this affect the findings? Limitations in response from schools and students should be addressed in the discussion section.
Response: In our revised manuscript under subheading “sample” we have stated that the participating schools covered the low and high socio-economic status, as been categorized by the Department of Basic Education (2003). With regard to whether the reasons why the two schools refused to participate, it is also mentioned in the revised manuscript that no the schools refused because they were not interested. As such given the fact that the included schools covered both the low and high socio-economic no drastic effect could be made from that.

Comment 3: The methods need a short sub-section on setting. Readers unfamiliar with South Africa need some information on the Tlokwe municipality. Where in the country is this municipality – what are the general characteristics of this area and its inhabitants. Such as it a local municipality in Dr Kenneth Kaunda District Municipality, North West Province, South Africa. The total population is 128,353 in a density of 48/km2 (124.4/sq mi) and is composed primarily of Black Africans (~70%) followed by…..etc
Response: We thank the reviewer for these comments, and such in our revised manuscript the short sub-sections as setting, sample, measurements and statistics are made.

Comment 4: Why was physical fitness rather than physical activity assessed and why were measurements of physical fitness standing broad jump, bent arm hang and sit-ups. Available data on measures of strength rather than cardiovascular health is a limitation that needs to be mentioned in the discussion. The association with BMI and body composition would be different based on measures of strength rather than aerobic fitness. Muscle s heavier than fat, so it is possible that overweight participants were muscular rather than fat? This distinction given the anthropometric measurements available needs to be made.
Response: In our revised manuscript we have studied the results and adjusted the comments accordingly. Furthermore, we have also indicated that data for cardiovascular fitness is a limitation for the study and therefore we indicated that since the study is planned to be carried out over a period of time such measurement item will be incorporated.

Comment 5: The methods needs to describe how data on locality, race, and sex were collected. Was locality based on the location of the child’s home or was it school-based locality? Was a questionnaire used and were these measured reported by students?
Response: As indicated in the response for comment 3 above, we have addressed the comments accordingly.

Comment 6: Why were only 14 year olds included in the study?
Response: In our revised manuscript, in line with the literature we have highlighted that the largest percentage of variation in performance accounted for by chronological age, skeletal age and body size generally occur at age 14, in which height and weight are found to be interrelated (Malina, et al. 2004), hence the present study was conducted on 14 year adolescents.

Comment 7: Please state and clarify in statistical analysis section that analyses were performed separately for boys and girls.
Response: In our revised manuscript we have indicated that descriptive characteristics (mean, standard deviations and frequencies) were calculated for body composition and physical fitness measures separately for the total group, and for boys and girls.

Comment 8: Results – while the authors unfortunately have very little data on the demographic profile and characteristics of this population, I think TABLE 1 should be created with three columns: Entire sample, Boys, Girls, p-value comparing Boys vs Girls. Variables in the table should be sex, school, locality, race, mean values for BMI, body mass, %BF, SBJ, BAH and % underweight, normal weight, overweight.
Response: The same comment as raised by another reviewer, as such in our revised manuscript this comments on table 1 is been taken care of and we have also included data for the total sample as well as the p-values of differences.

Comment 9: The finding that the underweight group performed the best on physical fitness indicators needs to be interpreted more and contextualised within the literature. Why? Is it expected? Are underweight girls too physically active to keep on adequate weight and what is causing this physical fitness – household chores, farmwork, walking distance to school, athletics? From a public health perspective what should policy-makers in South Africa take from the results from this study in terms of designing programs and interventions? The significance of these findings is not made clear.
Response: In our revised manuscript we have address this comments using the literature and also highlighted the importance of the study to public health.

Comment 10: The confidence intervals for odds ratio are very wide indicating that a lot of confounders have not been adjusted for. Lack of information on genetics is not likely to be the sole explanation, further reasons for lack of significance and large confidence intervals need to be provided in the discussion under limitations. What about socio-economic factors and lifestyle (such as diet), etc.
Response: We would to thank the reviewer for these comments, and as such in our revised manuscript these factors are incorporated and discussed.

Comment 11: The paper would greatly benefit from further work on grammar and writing style. At times sentence are wordy, incorrect choice are used and there is unnecessary repetition.
Response: Thank you for the comments (which is similar to the other reviewer in this manuscript), in our revised manuscript language editing was been taken care of by a professional language editor (English language specialists).

Comment 12: Level of interest; an article whose findings are important to those with closely related research interest
Response: In our revised manuscript we have discussed our findings with available similar studies which could be found.

Comment 13: Quality of written English; not suitable for publication unless extensively edited
Response: See response for comment number 11 above.

Comment 14: Statistical review; No, the manuscript does not need to be seen by a statistician
Response: We would like to thank the editor for the comments regarding the statistical analyses in the manuscript.