Author’s response to reviews

Title: Pharmacology and Therapeutics resource session attendance and academic performance of pre-clerkship medical students in problem-based learning curricula

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Rintaro Imafuku, M.A., Ph.D.
BMC Medical Education

Our submission to BMC Medical Education - MEED-D-19-00354 - [EMID:65087fe976cfa562] Response to the Editor and reviewer’s comments

Dear Rintaro Imafuku,

Thank you very much for reviewing our above-mentioned manuscript. We believe that editor and reviewers valuable comments have helped us to revise the manuscript. Please be informed that the following major amendments have been made:

a) The introduction has been extended by inserting 5 new references (15-19) and shifting Cortright et al (Ref#39) in old version to reference 21 in the revised version of the manuscript.

b) Adding a new co-author (Ahmed Jaradat), who has revised the manuscript concerning the statistical analysis with construction a new table (Table 6) that shows the association between students’ performance in pharmacology & the percent of attendance, and students’ gender using Chi-square test.
c) All amendments (additions, responses to editor and reviewers, language editing correction…..etc.) are marked with font in red color.

d) Extensive language editing has been done.

e) All responses to editor and reviewers comments point-by-point are attached.

We hope that we have responded to the comments adequately and the revised version now meets the requirements for publication in BMC Medical Education.

Kind regards.

Yours Sincerely,

Professor Khalid A. Jassim Al Khaja
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Editor comments

Editor comment: Introduction is a bit short to identify the research gap and aim(s). Please elaborate them further.

Authors` response: Agree and it is done. Please see line 59 to 62 and line 67 to 73 in the revised version of the manuscript with insertion of 5 new references (15-19).

Editor comment: As reviewers suggested, it would be better to clearly indicate what implications you intend to provide based on both the results in your study and the findings of the relevant previous studies.

Authors` response: Based on our data and the findings of previous studies, we concluded that student’s attendance of didactic lectures, irrespective of gender, is correlated with their academic performance in pharmacology and therapeutics.

Editor comment: It needs an extensive language editing. Please be careful of grammar, typos and punctuation in your manuscript.

Authors` response: We agree with the reviewer. Extensive English language editing has been performed as part of correcting this manuscript.
Reviewer 1 comments

Reviewer 1 comment: The gender differences noted in the study are interesting and warrant more attention, though the cause cannot be determined in this study.

Authors` response: We agree with the reviewer.

The retrospective design of the study does not allow the investigators to determine the cause for gender-based difference in respect to lecture attendance. A qualitative approach such as focus group discussion would help but this is not possible since the students who were enrolled to this study have already graduated.

Reviewer 1 comment: Overall, the manuscript is interesting though lengthy. Specifically, the pre-clerkship test and assessment section is too long. The discussion repeats too many of the results. The manuscript needs editing for length and for grammar and punctuation.

Authors` response: We agree with the reviewer.

Unnecessary repetition of the results in the discussion section has been deleted and the assessment section shortened. The results in the discussion section are revisited to a minimal extent.

Reviewer 2 comments

Reviewer 2 comment: (Hybrid) resource lectures refer, in the text, to both non-compulsory and compulsory extensive group classroom sessions as well as other classroom activities specifically related to pharmacology and therapeutics during the pre-clerkship years (phase II; 3 years). The reviewer suggests to better specify/differentiate the compulsory / non-compulsory component of the activities and tutorials within the Methods and Results section.

Authors` response: We thank the reviewer for seeking this clarification.

The resource sessions are large-group didactic lectures that are optional for students to attend. The attendance data that had been collected as part of this study were for this part of the educational activities of the program. Please see the revised version of the manuscript line 93-97 and Table 2. Attendance in all other activities such as small group tutorials, professional skills and community health is compulsory.

Reviewer 2 comment: The investigators correlated the students' attendance to resource lectures with:
-Test scores in pharmacology & therapeutics. As the authors stated, the "number of test items and weight for these two subjects in each end-unit exam (phase III, clerkship; 2 years) was proportional to the input [of the same subjects] in the curriculum", i.e., estimated around 15% of the total.

-Students' gender. Although significantly more female students attended the resource lectures than male ones, "no [other] significant gender-related differences were found concerning the mean score or top grades achieved." It also needs to be specified that the majority of participants (n=812 out of n=1,404) were female.

Authors` response: We agree with the reviewer that the majority (57.4%) of the participants were females. It has been stated under result section of the revised version of the manuscript, line 157-158, and in Tables 5 & 6.

Reviewer 2 comments: The cross-sectional study was carried out with n= 1,404 students over three years, following them from phase I (pre-medical) to phase II and III.

Results showed an overall consistent decrease of students' attendance to lectures over phase II and III (pre-clerkship and clerkship). The authors found "a significant but weakly positive correlation between class attendance and achievement in the pharmacology tests" (correlation coefficient value of r=0.280; p<0.0001).

Authors` response: We thank the reviewer for this summary of the most significant findings of our study. However, we would like to clarify that this study followed the student's attendance only through phase II (pre-clerkship phase). No follow-up was performed on phase III (clerkship phase) students since the instructional method and setting differ. Phase III is mostly hospital/health center-based clinical training involving rotations in clinical specialities.

Reviewer 2 comments: Possible study limitations, besides the ones pointed out by the authors, include the time of the inception and conduct of the study (2013-14). The authors should at least clarify the delay in submitting this research. Furthermore, considering the swift development of online medical tools and constant change in learning patterns among medical students, they shall be able to argue whether the four or five years since the end of this study may or may not have affected their results and, if so, in what way, and why readers might still be interested in reading them.

Authors` response: We thank the reviewer for these valid comments.

The amount of collected data for this study was huge. Indeed, we had retrospectively correlated the attendance data to the performance in the pharmacology and therapeutics component of each exam. The extraction of the student's performance in the pharmacology component was a very lengthy process given the large number of students who were followed-up and test scores at the
end of nine units. These factors explain the delay in preparing and submitting the manuscript for publishing. We believe that the findings are relevant despite this delay.

We thank the reviewer for his comment on the possible role of changes that have taken place due to the availability of various online learning sources. However, we doubt that these have had any significant role in our setting since similar online sources were assessable when this study was conducted.

Reviewer 2 comments: Moreover, authors tried to make sense of absenteeism in their medical institutions and among the studied population by suggesting possible motives. Their observations were based upon the obtained results. Nonetheless, the lack of qualitative investigation (e.g., interviews or surveys) made the discussion one-sided and somewhat speculative. It follows that parameters including motivation, learning style preferences and self-regulated learning behaviour in PBL curricula should be granted further attention, as also pointed out by the investigators.

Therefore, the reviewer suggests to delete objective b) from this research for the moment, as it does not appear to have been adequately/thoroughly investigated.

Authors’ response: We agree with the reviewer on these valid comments.

The reasons for absenteeism cannot be established with our study design. A new sentence has been inserted under limitations section on this comments (line 277-281) suggesting the need for qualitative approaches to address this issue.

Reviewer 2 comment: Therefore, the reviewer suggests to delete objective b) from this research for the moment, as it does not appear to have been adequately/thoroughly investigated.

Authors’ response: Notwithstanding the reviewer’s comments we consider that deleting objective (b) is unwarranted since this issue has been stated under study limitations. Lines 277-281.

Reviewer 2 comments: Finally, since the study seems to focus much on gender and alleged gender differences in the correlation between attendance and performance, further evaluation (both statistically and qualitatively) may also be needed to frame the topic fully. In fact, as the authors clearly state, the results collected so far do not offer a rational explanation for such a correlation.

Authors’ response: In principle, we partly agree with the reviewer on the validity of these comments. Firstly, robust statistical analysis in our study has already shown no gender difference in the correlation between attendance and performance. Secondly, a qualitative study is not feasible since the cohort of students who were followed up in this study have already graduated.
Reviewer 2 comments: Further notes: subject missing in line 28 page 5.

Authors` response:

We thank the reviewer for picking up this unintended error. The sentence has been corrected as follows: Since its inception in early 1980’s, the CMMS at AGU has adopted a student-centered PBL medical curriculum and this sentence has been shifted to introduction section of revised version of manuscript line 70-73.

Reviewer 3 comments

Reviewer 3 comment: The relationship between absenteeism and academic performance is worthy of study. Therefore, this study is interesting and the manuscript is well structured.

Authors` response: we thank the reviewer for the compliment.

Reviewer 3 comment: The writing of English should be extensively edited.

Authors` response: We agree with the reviewer.

Extensive English language editing has been performed as part of correcting this manuscript.

Reviewer 3 comment: The introduction section may be too short. Consider providing more information on existing studies and contributions of the study, stating the research question(s) and hypotheses. If the third research aim will be kept, it is necessary to state why it is important to study the relationship between gender and performance. Some contents of the Methods section (e.g. setting, activities) could be moved to the Background section.

Authors` response: We thank the reviewer for these constructive comments.

We agree with the reviewer that the introduction should be expanded (see the revised version of the manuscript line 59-62, and line 67-73 with insertion of 5 new references# 15-19). We have moved the “setting and activities” subsections from methods to introduction section, (please see the revised version of the manuscript line 70-73). We believe that studying the potential relationship between gender and performance is an important part of the study. Several previous studies have addressed this issue and few of them found significant difference. A sentence has been inserted to introduction “the effect of class attendance of examination scores for male and female medical students is debatable” (Cortright et al 2011), please see line 68-69 of the revised manuscript. We believe that this sentence will render the introduction more balanced.

We aimed to compare our finding with those of others in relation to student’s gender.
We thank the reviewer for suggesting moving part of the methods to the introduction section.

Reviewer 3 comments: Consider adopting a multivariate approach (e.g. an OLS model) in the data analysis because correlation coefficient is not sufficient to determine whether one variable is associated with another.

Authors’ response: We agree with the reviewer. Further statistical analysis was performed to analyse association, if any, between students’ performance and percentage attendance and gender. Please see the revised version of the manuscript line 241-243 and Table 6.

Reviewer 3 comments: In the Discussion section, avoid repeating research results that should be in the Result section.

Authors’ response: We agree with the reviewer. Unnecessary repetition of the results in the discussion section deleted.