21 January, 2015

To

The Reviewers

Pharmacy Practice

Dear Reviewers,

We are thankful to you for your constructive comments on our manuscript tilted ‘Comparison of knowledge and attitudes about antibiotics and resistance, and antibiotics self-practicing between Bachelor of Pharmacy and Doctor of Pharmacy students in Southern India.’ We have made changes to the manuscript (highlighted with blue colour) to improve the quality of the manuscripts in light of your comments. Also, please see over for point by point explanation of our response to your comments

We thank you for your time to review our manuscript.

Yours truly,

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**Authors’ Response to Reviewer A**

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| **Reviewer’s comments** | **Authors’ response** |
| This paper is written using grammatically very poor English. Grammer should be checked before submission and consideration by reviewers since it is very difficult to understand the meaning of many sentences | The manuscript is now reviewed by professional proof reader and the grammatical mistakes were identified and corrected subsequently. |

**Authors’ Response to Reviewer B**

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| **Reviewer’s comments** | **Authors’ response** |
| The research article deals with the knowledge, attitude and practice of BPharm and PharmD students about usage and resistance of antibiotics in Southern India. In this era of rapid antibiotic resistance, there is a need for such a study from all regions of the developing world.   The abstract and the article are quite well written. The background gives a very elaborate and good justification of investigating research outcomes. The comparisons with other pertinent studies are well executed in the discussion. The references are also up-  to-date and apt. | We are thankful to the reviewer for these encouraging comments. |
| Abstract Lines 33-34: Instead of the actual duration (July to Sept), the duration in months (2 months) seems more appropriate. | Changed as per suggested |
| The differences in the curriculum between the two programs need to be elaborated. Are the admission criteria the same for the two programs in the Indian context? To my knowledge, there are two different Pharm D entry criteria in India itself: one post school and the other after BPharm.  What is the duration of program of the two groups of population selected? The entry criteria, the duration of the program and the curriculum would have a significant impact on the knowledge level of the students of the two programs | We are thankful to the reviewer for raising this point as this would help the international reader to get an idea of pharmacy education in India. The details about BPharm and PharmD program in India are now added in the 3rd paragraph of the introduction section. Authors have incorporated all the points raised by the reviewer. |
| Though the methodology with the details of the questionnaire, the validity and reliability of the questionnaire was excellently explained, the analysis of the attitude is not clearly explained (line 148-149). I presume (from the results) that the Mean was used. However, for analysis of the responses either the percentage responses or the medians/ranges should be used (rather than mean and standard deviation) because of the use of Likert scale (an ordinal scale) to grade the statements. | The elaboration of this explanation is added in 4th paragraph of methodology section. The results of attitudes questions are presented in percentages as encouraged by the reviewers, however, to give the reader better understanding of the difference, an overall Mean±SD was calculated for BPharm and PharmD students. Although, we have also come across some references who do not suggest the use mean±SD, its use is adopted by many researchers to express the results of Likert scale data.  Spivey, C. A., Chisholm-Burns, M. A., Murphy, J. E., Rice, L., & Morelli, C. (2009). Assessment of and recommendations to improve pharmacy faculty satisfaction and retention. American Journal of Health-System Pharmacy, 66(1), 54-64.  Adkins, D. M., Mayhew, S. L., Gavaza, P., & Rahman, S. (2012). Pharmacy students’ attitudes toward geriatric nursing home patients. American journal of pharmaceutical education, 76(5).  Loquias, M. M., & Sana, E. A. (2013). Job Satisfaction among Faculty Members in the Colleges of Pharmacy in Metro Manila, Philippines. International Journal of pharmacy teaching and practices, 4(4), 787-792. |
| Moreover, a more detailed description of the fourth part exploring the self-antibiotic practices between BPharm and PharmD students (Lines 136-137) will be welcomed with a brief description of the type of statements(open or closed ended), more so as the questionnaire has not been included in the article. If both closed and open ended statements were used, specify the sections for each type of statement. | The description about fourth part of the study (self-medication practices) is now added in the 4th paragraph of methodology section. |
| What about the operational definition of self- medication in the questionnaire? Were all the students (participants) clear about what constitutes self-medication?  Were the antibiotics specified by trade name or generic names? The prevalence of self-medication practices can be calculated and the period during which the use of antibiotics was enquired about should be mentioned. | WHO definition of self-medication was used. Students were also informed about this operational definition. This information is added in 1st paragraph of methodology section.  Antibiotics were specified by generic names. The prevalence of self-medication practices is presented in Table 4 (first statement). The use of antibiotics was enquired from the time of their enrolment at pharmacy school as mentioned in the last 2 lines of the 4th paragraph of methodology section. |
| The details about the approval from Institutional Ethics committee are missing. Was the participation voluntary? | There is no existence of any formal Institutional Ethics committee in the studied universities. All the research projects are evaluated by dean and other senior professors, for ethical and other relevant issues. This study was approved by dean as presented in the methodology section.  Participation was voluntary as mentioned in 1st paragraph of methodology section. The information is also added in the last paragraph of methodology section. |
| The criteria for knowledge are different in the methodology and the Table1. The authors should decide which are the right criteria: Lines 145 -146 & Lines 417 & 419 | Correction has been made in the methodology section. |
| It’s my opinion that a positive attitude suggests that the population is supporting the issue: in this case the possibility of increased use of antibiotics (there are many references in support but one is: James H, Handu SS, Al Khaja KAJ, Sequeira RP. Influence of medical training on self-medication by students .Int.J.Clin.Pharm.&Ther. 2008; 46(1):23-9.).It is therefore recommended that the abstract and text be changed to reflect the fact that Pharm D students were not in favor of the use of antibiotics. | We respect reviewer’s opinion. The given reference has been cited and amendments has been made in the results section of the abstract and in the discussion (3rd last paragraph) |
| The tables should be self-explanatory and so the total sample (n) can be indicated for Tables 2,3,4. | Added as suggested |
| Table 4: “Drugs directory” is the source of procurement of the drug or the source of knowledge about it? | Sources like CIMS and MIMS are used for both purposes in India. |
| Some typographical errors can be corrected: Line 159:Lectures or Lecturers?? Line 96: Comma after “PharmD” instead of full stop. Line 219: Case-based and outcome-based | Corrected. |

**Authors’ Response to Reviewer C**

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| **Reviewer’s comments** | **Authors’ response** |
| This is a well written manuscript for a well-designed comparison of bachelor and doctorate pharmacy students in Southern whose pharmacy curricula have different focuses (bachelor-industry oriented, doctorate-patient oriented).  The authors hypothesized differences in knowledge, attitudes, and self-prescribing of antibiotics may exist between bachelor and doctorate students related to different curricular content.  They found doctorate students to be more knowledgeable and have better attitudes about antibiotics and resistance compared with bachelor students.  About 20% of both student groups self-prescribed antibiotics.  The context of the problem of antibiotic overuse and increasing resistance is well described in the background and similarly, the discussion provides additional meaning and significance to the investigation’s findings.  Relatively minor changes and clarifications of the results are needed. | We appreciate reviewer’s comments on our manuscript |
| Suggest including southern India in title • Suggest clarifying practice, which is meant to represent the students’ practice of self-prescribing• Suggested new title, “ Comparison of knowledge and attitudes about antibiotics and resistance, and antibiotic self-prescribing between Bachelor of Pharmacy and Doctor of Pharmacy Students in southern India,” or something similar that incorporates the suggested clarifications | Modification in title has been made as suggested |
| Objective• Lines 28 to 30 – suggest more clearly describing intent to compare the two samples (i.e. The aim of this study was to compare the knowledge…) | Modified in the objective of the abstract |
| Results• Line 41 – comparison should only have one p-value. Please clarify, is this a mean or median represented? | Required amendments has been made in the results section of abstract |
| Line 43 – again, please indicate which measure of centrality was used.  Is there a p-value for the comparison?   Line 43 to 44 – instead of reporting the most commonly self-prescribed antibiotic, the number of overall participants and differences between the groups of who self-prescribes antibiotics (vs. not self-prescribing) seems of greater importance | Mean score was used as is now added in the results section of abstract  Modification has been made and the suggested information is now added in the abstract |
| Results• General comment – suggest commenting on areas of difference in knowledge and attitudes in a general fashion to avoid duplicative statements of results with Tables 1 and 2• For example, consider changing, “The results showed significant difference between BPharm and PharmD student regarding their knowledge on antibiotic use (5.09 vs 6.18, p<0.01),” to “PharmD students demonstrated greater overall knowledge of antibiotic use than BPharm students.” | Changes have been made as per suggestion |
| Table 2 – add column for p values for comparisons across each row since this was the primary goal of the manuscript (as done in Table 1 and Table 3) | p-values has been added in table 2 as recommended |
| Table 3 – responses to attitude questions were provided in 3-point likert score but this score is not reported for each question.  The likert score seems to be the more accurate way to report attitudes in Table 3.  Consider revising table to include likert scores for each item and corresponding p-values. | Likert scale scores are now added in table 3 as proposed by reviewer |
| Lines 169 to 171 – the difference here is small and may not actually exist; consider omitting comment on gender difference and add a statement of no difference to statement in lines 171-173. | The sentence about gender is removed. The words ‘not statistically different’ is also added in the next sentence. |
| Lines 173 to 176 – suggest omitting commentary on results (i.e. low scores reflecting poor/weak knowledge), which should be included in discussion. Additionally, as in the above comment, this difference is small, and may not be significant even if statistical significance was reached. Suggest omitting. | The highlighted points have been removed from the results section |
| Line 180 – replace “substandard” with “low,” because substandard offers commentary which should be reserved for the discussion.  Include % of PharmD students who answered the superbug/NDM-1 question correctly | Replaced as suggested |
| Line 182 – replace “wrongly” with “incorrectly” | Replaced as suggested |
| Lines 189 to 192 – change to, “…in all the attitude related questions, except for one question concerning skipping of doses and its effect on resistance. | Changed as suggested |
| Figure 1- Y axis values should be %. Also, suggest adding \* to reflect significant p-values for comparisons across antibiotic classes.  Are PharmD students more knowledgeable about antibiotics and is that why they self-prescribed different classes (more PCNs, less macrolides, and more of the other category)?  May be worth comment in discussion. | As the title of the vertical axis suggests, the values are percentages in fig 1. Although we appreciate the point that reviewer has highlighted, but since no significant difference was observed, we did not discuss the implication of these findings. The information about non-significant difference is presented in second last paragraph of results section. |