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 shouldbe checked before submission and consideration by reviewers since it is verydifficult 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 ofBPharm and PharmD students about usage and resistance of antibiotics inSouthern India. In this era of rapid antibiotic resistance, there is a needfor such a study from all regions of the developing world. The abstract and the article are quite well written. The background gives avery elaborate and good justification of investigating research outcomes.The comparisons with other pertinent studies are well executed in thediscussion. 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), theduration in months (2 months) seems more appropriate. | Changed as per suggested |
| The differences in the curriculum between the two programs need to beelaborated. Are the admission criteria the same for the two programs in theIndian context? To my knowledge, there are two different Pharm D entrycriteria 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 wouldhave 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 validityand reliability of the questionnaire was excellently explained, the analysisof the attitude is not clearly explained (line 148-149). I presume (from theresults) that the Mean was used. However, for analysis of the responseseither the percentage responses or the medians/ranges should be used (ratherthan mean and standard deviation) because of the use of Likert scale (anordinal 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) willbe welcomed with a brief description of the type of statements(open orclosed ended), more so as the questionnaire has not been included in thearticle. If both closed and open ended statements were used, specify thesections 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 thequestionnaire? Were all the students (participants) clear about whatconstitutes self-medication?  Were the antibiotics specified by trade nameor generic names? The prevalence of self-medication practices can becalculated and the period during which the use of antibiotics was enquiredabout 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 aremissing. 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 issupporting the issue: in this case the possibility of increased use ofantibiotics (there are many references in support but one is: James H, HanduSS, Al Khaja KAJ, Sequeira RP. Influence of medical training onself-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 reflectthe 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 beindicated for Tables 2,3,4. | Added as suggested |
| Table 4: “Drugs directory” is the source of procurement of the drug orthe 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 bachelorand doctorate pharmacy students in Southern whose pharmacy curricula havedifferent focuses (bachelor-industry oriented, doctorate-patientoriented).  The authors hypothesized differences in knowledge, attitudes,and self-prescribing of antibiotics may exist between bachelor and doctoratestudents related to different curricular content.  They found doctoratestudents to be more knowledgeable and have better attitudes aboutantibiotics and resistance compared with bachelor students.  About 20% ofboth student groups self-prescribed antibiotics.  The context of theproblem of antibiotic overuse and increasing resistance is well described inthe background and similarly, the discussion provides additional meaning andsignificance to the investigation’s findings.  Relatively minor changesand 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 ofknowledge and attitudes about antibiotics and resistance, and antibioticself-prescribing between Bachelor of Pharmacy and Doctor of PharmacyStudents in southern India,” or something similar that incorporates thesuggested clarifications | Modification in title has been made as suggested |
|  Objective• Lines 28 to 30 – suggest more clearly describing intentto compare the two samples (i.e. The aim of this study was to compare theknowledge…) | Modified in the objective of the abstract |
| Results• Line 41 – comparison should only have one p-value. Pleaseclarify, 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 wasused.  Is there a p-value for the comparison? Line 43 to 44 – instead of reporting the most commonly self-prescribedantibiotic, the number of overall participants and differences between thegroups of who self-prescribes antibiotics (vs. not self-prescribing) seemsof greater importance | Mean score was used as is now added in the results section of abstractModification has been made and the suggested information is now added in the abstract |
| Results• General comment – suggest commenting on areas of differencein knowledge and attitudes in a general fashion to avoid duplicativestatements of results with Tables 1 and 2• For example, consider changing,“The results showed significant difference between BPharm and PharmDstudent regarding their knowledge on antibiotic use (5.09 vs 6.18,p<0.01),” to “PharmD students demonstrated greater overall knowledge ofantibiotic use than BPharm students.” | Changes have been made as per suggestion |
| Table 2 – add column for p values for comparisons across each rowsince this was the primary goal of the manuscript (as done in Table 1 andTable 3) | p-values has been added in table 2 as recommended  |
| Table 3 – responses to attitude questions were provided in 3-pointlikert score but this score is not reported for each question.  The likertscore seems to be the more accurate way to report attitudes in Table 3. Consider revising table to include likert scores for each item andcorresponding 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 actuallyexist; consider omitting comment on gender difference and add a statement ofno 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. lowscores reflecting poor/weak knowledge), which should be included indiscussion. 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,” becausesubstandard offers commentary which should be reserved for the discussion. Include % of PharmD students who answered the superbug/NDM-1 questioncorrectly | Replaced as suggested |
| Line 182 – replace “wrongly” with “incorrectly” | Replaced as suggested |
| Lines 189 to 192 – change to, “…in all the attitude relatedquestions, except for one question concerning skipping of doses and itseffect on resistance. | Changed as suggested |
| Figure 1- Y axis values should be %. Also, suggest adding \* to reflectsignificant p-values for comparisons across antibiotic classes.  Are PharmDstudents more knowledgeable about antibiotics and is that why theyself-prescribed different classes (more PCNs, less macrolides, and more ofthe 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. |