Reviewer’s report

Title: Patient, clinician and logistic barriers to blood pressure control among adult hypertensives in rural district hospitals in Rwanda: a cross-sectional study.

Version: 0 Date: 29 Mar 2019

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses a testable research question(s) (brief or other article types: is there a clear objective)?
No - there are major issues

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?
No - there are major issues

EXECUTION - Are the experiments and analyses performed with technical rigor to allow confidence in the results?
No - there are major issues

STATISTICS - Is the use of statistics in the manuscript appropriate?
Yes - appropriate statistical analyses have been used in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?
No - there are major issues

OVERALL MANUSCRIPT POTENTIAL - Is the current version of this work technically sound? If not, can revisions be made to make the work technically sound?
Maybe - with major revisions
PEER REVIEWER COMMENTS:

GENERAL COMMENTS: REVIEW OF THE MANUSCRIPT TITLED BARRIERS TO OPTIMAL HYPERTENSION MANAGEMENT IN RURAL DISTRICT HOSPITALS IN RWANDA: A CROSS-SECTIONAL STUDY.

Thanks for the opportunity to review this manuscript for Research Square

REQUESTED REVISIONS:

GENERAL/SPECIFIC COMMENTS

1. The title of the study should be re-cast for clarity and focused the study appropriately

2. References are inadequate for the study on BARRIERS TO OPTIMAL HYPERTENSION MANAGEMENT IN RURAL DISTRICT HOSPITALS IN RWANDA: A CROSS-SECTIONAL STUDY. Some references are inappropriate/secondary references.

3. Authors should focus the study on a cross-sectional design. Authors should delete all information related to patients' record/file/folder review. Cross-sectional studies are snap-shot studies; BP must be measured at contact from the patients and not from record/folder/file record, other patients' biometric information must be obtained at contact from the patients.

PLEASE READ THIS FROM ABSTRACT AND TEXTUAL BODY…Blood pressure measurements and other clinical data were collected from patient files………………

4. There is need for authors to use medical words in tandem with current medical lexicon appropriately. For example

   -Drugs should be medications

   -Compliance should be adherence

   -Audit: This is not an pharmacy audit study. Kindly use appropriate words to describe the pharmacy anti-hypertensive medications stock of the district hospitals designated as A, B, C and D

PLEASE READ THIS FROM ABSTRACT AND TEXTUAL BODY…………Drug availability and cost at hospital pharmacies were audited…………………………………..

-ETC

TITLE SECTION:

i. The title of the study should be re-cast to reflect the contents of the manuscript. The study has DYADIC population to barriers to medication adherence

   -Patient-related factors

   -Clinician-related factors

   ii. The study didn't involve pharmacists but review of pharmacy anti-hypertensive medications stock of the district hospitals designated as A, B, C and D.

   iii. The study is not all inclusive of the components of hypertension management in hospital settings. Authors should focus the title on what they studied appropriately. Management of hypertension is a broad topic.
iv. What constitutes 'optimal' in the management of hypertension is vague and inappropriate
v. The study is on selected patients and clinicians-related barriers to medication adherence[using MMAS-8] and outcome of hypertension medication adherence-blood pressure control[using JNC 8]

THE SUGGESTED TITLE:

PATIENTS AND CLINICIANS-RELATED BARRIERS TO MEDICATION ADHERENCE AND BLOOD PRESSURE CONTROL AMONG ADULT HYPERTENSIVES IN RURAL DISTRICT HOSPITALS IN RWANDA: A CROSS-SECTIONAL STUDY.

GRAMMATICAL STRUCTURE

1. The manuscript is punctured with some grammatical inappropriateness and authors should proof-read the manuscript to improve grammatical correctness
2. Authors should write in active voice appropriately

ABSTRACT SECTION:

1. Write Abstract section under Background; Aim or Objective(s); Patients and Methods; Results; Conclusion; keywords.
2. Provide a clear statement on the sub-section on background.
3. Re-cast the aim/objective(s) to reflect the suggested title
4. Provide a subsection on Patients and methods: This section should be re-written to contain study design, study patients, study period, sampling technique, methods(MMAS-8, BP control etc] and operational definition of BP control, etc.
5. Results
   i. Start result section with age and sex distribution of the study participants and any other relevant bio-demographic determinants of medication adherence and BP control among the study subjects.
   ii. Recast this sentence…………… No patient characteristics were associated with poor …………………………………
   iii. Include the results of test of association of patients characteristics with medication adherence[MMAS-8][SEE TABLE 1]. Include also their p-values
   -Education(p=)
   -Literacy(p=)
   -Hospital(p=)
   -Patient received Last Medication(p=)
   -Last Pharmacy Location(p=)
   -History of Anti--Hypertension Medication Side Effects(p=)
iv. Attach quantitative values to the results on participating pharmacies

6. Conclusion
   i. Conclusions should be conclusion
   ii. Please provide conclusion to reflect the title/aim/objectives of the study.

PLEASE This sentence is not conclusion but recommendation. Kindly delete or provide a subsection on recommendation.

PLEASE READ…………….. Improving clinicians' knowledge of preferred medications, their availability and cost, and provision of more patient-centred care could improve hypertension management…………………..

KEYWORDS:
   i. Inappropriate
   ii. Please recast to reflect the suggested title or Re-cast based on journal specification
   iii. You may use MeSH guideline

INTRODUCTION SECTION
1. This is inadequate to focus the study on patients and clinicians-related barriers to medication adherence and blood pressure control among adult hypertensives What are the patients and clinicians-related barriers medication adherence and BP control on treated adult hypertensive patients from studies in developed countries[rural and/or urban hospitals], developing countries[rural and/or urban hospitals], and then Rwanda[rural and/or urban hospitals]?  
2. Provide conceptual and/or operational definition of adherence to medications. Justify your choice of MMAS-8 for hypertensive patients?
3. Provide conceptual and/or operational definition of BP control. Justify your choice of JNC 8 guideline
4. There is an absence of studies on the relevant patients and clinicians-related barriers to medication adherence and BP control among hypertensive patients in rural settings.
5. Statement of the problem that necessitated the study is sparsely stated by the authors. The statement of the problem and problem analysis should be provided in order to focus the study appropriately and dovetail into suggested aim/objective(s).
6. Please in text insertion of references should be done as recommended by the journal
7. Use standard abbreviation. Provide explanation of the abbreviation at first use.

PATIENTS AND METHODS SECTION
1. Methods should be 'Patients and Methods'.
2. Re-write this section in subsection or paragraphed prose with clear emphasis on
   i. Study Design
ii. Study setting
iii. Study patients
iv. Study period
v. SAMPLE SIZE DETERMINATION:
   a. Provide details and the sample size formula used in determination of sample size of 112 hypertensive participants used in the study considering the primary outcome of the study
   b. Provide details and the sample size formula used in determination of sample size of 30 CLINICIANS for the study
   c. What was the sample size used for hypertensive patients from each of the four district hospitals: Gitwe? Kabgayi?, Kabutare?, Ruhango?
   d. What was the sample size used for clinicians from each of the four district hospitals: Gitwe? Kabgayi?, Kabutare?, Ruhango?

vi. SAMPLING METHOD:
   a. Provide the details of how a sample of 112 hypertensive patients was selected from each of the four district hospitals: Gitwe? Kabgayi?, Kabutare?, Ruhango?
   b. Provide the details of how a sample of 30 clinicians was selected from each of the four district hospitals: Gitwe? Kabgayi?, Kabutare?, Ruhango?

vii. SELECTION CRITERIA:
   a. Inclusion criteria:
      -Provide clear inclusion criteria.
      -Provide clear definition of adults based on JNC 8 criteria you used in defining BP control
      JUSTIFY YOUR USE OF PATIENTS AGED 16, and 17 YEARS? What is the minimum age used in JNC 8?
      PLEASE READ THIS….. Patients aged greater than 15 years, with known hypertension that was managed in an outpatient setting, and………………
      -Was the study on treatment-naïve hypertensives or treated hypertensive
      -If the study was on treated hypertensives, how many visits must the patients record to merit inclusiveness for the purpose of determining medication adherence using MMAS-8, BP CONTROL and other parameters of the study?
   b. Exclusion criteria:
      --Please provide clear exclusion criteria to minimize confounders.
      -Was the study on only patients with hypertension without any co-morbidities and/or complications? Did you include hypertensive patients with co-morbidities? What were the common co-morbidities among the hypertensive study participants?
vi. STUDY PROCEDURE AND CRITERIA
a. Provide statements on BP measurement as you did for weight and height?
b. How did you classify adiposity by BMI categories? Provide reference?
c. How did you define BP control for the elderly hypertensives aged ≥ 60 years? Provide reference?
d. How did you define BP control for the teenage hypertensives aged 15, 16, and 17 years? Provide reference?
e. How did you define BP control for the special population group of hypertensive sag diabetic hypertensives, etc? Provide reference?

vii. ADMINISTRATION OF THE RESEARCH TOOL:
a. Justify your dual(2) methods of administration of questionnaire by interviewer administered and self-administered? What is the implication of this?
b. What measures did you take to ensure that all items on the study tool are completely filled especially for the self-administration?
c. What measures did you take to ensure response consistency in the administration of the tool to the study participants who are illiterate?
d. Provide details of translation of the questionnaire [as attached by authors which is in English Language] to Kinyarwanda? How was subsequent back-translation done to ensure response consistency? [Type 3 and 4 errors]

PLEASE READ THIS………. Study data were collected via self-reported questionnaires in Kinyarwanda, completed by patients or by study staff for illiterate patients. A study investigator was always available to explain questions to patients when needed in order to ensure the accuracy and precision of answers………………...

viii. STUDY TOOL: MMAS-8,
-a. What version of the MMAS-8 did you use? Generic or modified version? You provided 3 references for the MMAS-8?[References 14, 15 and 16}
-Kindly provide primary reference for appropriate version of MMAS-8 you used
- Was this dichotomization into high and low-moderate for generic MMAS-8 or modified classification?
-PROVIDE DETAILS OF THE SCORING AND INTERPRETATIONS OF THE APPROPRIATE MMAS-8 YOU USED?

PROVIDE OPERATIONAL DEFINITION OF
a. Antihypertensive medication adherence

TREATMENT GUIDELINES
a. Do you have treatment guidelines for hypertensive patients in Rwanda, ether national guideline
or institutional guideline?

b. Provide reference for this sentence…………………. PLEASE READ….. A list of six antihypertensive drug prescriptions commonly used in Rwanda (nifedipine 20 mg BID, hydrochlorothiazide 50 mg OD, furosemide 20 mg BID, captopril 25 mg TID, atenolol 50 mg OD, and aldosterone 25 mg OD)……………………………..

ix. Ethical consideration:
   i. Provide approval date and ethics number for the study.

x. Data analysis:
   a. Provide statement of p-value for the rejection or acceptance of null hypothesis

RESULTS SECTIONS
   i. The use of the words 'majority' 'most' etc are inappropriate. Please state the actual values of the results obtained.
      ii. Remove reference citation from the results section[Please delete reference 8]

TABLE 1
   i. Recast the title of the table. The table contains associational statistics
   ii. Use appropriate symbol for more than or less than?

   iii. Age <60 is not specific/please provide the lowest range of value
   iii. Age >/=60 is not specific. Please provide the uppermost range of value

   iv. Locate BMI appropriately. It is a clinical characteristic NOT socio-demographic characteristics. WHAT IS THE BASIS FOR CATEGORIZING BMI INTO LESS THAN 25 AND 25 AND MORE THAN 25. PROVIDE THIS IN THE METHOD SECTION AS EARLIER COMMENTED BY THIS REVIEWER

   v. Indicate also the level of significance at the foot of the table
   vi. Use this table format. Note that the frequency table format should be in accord with journal of submission either with multiple lines or only 2 horizontal lines.
   vii. KINDLY INTERPRET THE CHI-SQUARE TEST APPROPRIATELY.

TABLE 2
   i. Accepted.

TABLE 3
   i. Provide scoring and interpretations of MMAS-8 in the appropriate section of the methods as indicated earlier?
ii. What is the score for 'YES' response?
iii. What is the score for 'NO' response?
iv. What score qualified a participant for High adherence? Low-moderate adherence?
v. Provide in the methods section appropriate reference for the MMAS-8 USED.

**TABLE 4**

1. No information on potassium sparing eg spironolactone

Please read this……… Captopril, furosemide, nifedipine, spironolactone, methyldopa and propranolol were available at all hospitals throughout the study period. In addition, hydrochlorothiazide was available at hospital C, and atenolol was available at hospitals A and B………………

**DISCUSSION**

1. The first paragraph of this section is rhetorical and should be move to appropriate sections of the manuscript or deleted from the manuscript.

2. Focus discussion on objectives of the study

3. There is a paucity of similar journals for international comparison and discussion.

4. Move the section on strengths of the study to a paragraph before limitations of the study

**LIMITATIONS**

a. Make the limitations brief and concise'

b. n

**CONCLUSIONS**

iii. Conclusions should be conclusion

iv. Please provide conclusion to reflect the title/aim/objectives of the study.

**PROVIDE SUB-SECTION ON**

a. RECOMMENDATION(S)

**REFERENCES**

1. References are inadequate

2. Some references are incomplete

3. Most references are not related to the title

4. Provide more international references for global readership
5. Authors should re-write based on journal recommendation

Note: This reviewer report can be downloaded - see attached pdf file.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

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3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

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5. Do you have any other financial competing interests?

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If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

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