Reviewer's report

Title: Factors affecting diagnosis and management of hypertension in Mazowe District of Mashonaland Central Province in Zimbabwe

Version: 2
Date: 16 January 2014

Reviewer: Catharina Mels

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Major Compulsory Revisions

1. Methods
The methods are not well described. More information on the questionnaires is needed, and the apparatus and methods used to do the physical measurements have to be described in detail. Was diabetes diagnosed during this study on Random Blood Sugar measurements? What method and apparatus were used for the Random Blood Sugar measurements? All the statistics done is not described e.g. T-tests to compare men and women or hypertensive and normotensive participants. What is the significance level? Since the methods are not well described it is difficult to judge if the methods used are appropriate.

2. Results
It is difficult to evaluate if the data is sound. The results section lack some basic description of the study population in Table format indicating the total group, men and women with p-values to indicate statistical significant differences between the groups. The same should be done for comparisons between hypertensive and normotensive participants. Data such as the n amount of participants, age, gender, percentage hypertensive, treatment, controlled hypertension, blood pressures, urban or rural location, marital state, education, employment, obesity classification, BMI, smoking etcetera should be in these tables and not in the text. These new tables can replace Table 1. The order of presentation of the results is not logic, and the group of participants should be explained (men vs women or hypertensive vs normotensive).

On several occasions it is stated that a variable is higher in one group when compared to another, without giving p-values to confirm its statistical significance, e.g. on page 7: “Mean DBP was slightly higher among women and among respondents staying in urban areas”.

It is also stated on page 7 that “Hypertension was slightly more prevalent in women (p=0.27).” A p-value of p=0.27 is not statistically significant, and Hypertension is therefore NOT more prevalent in women. The same issue is relevant for “Control was better among woman (p=0.07), although it tend to be better, it is only borderline significant.

On page 7 it is stated that “The population was mostly rural (40.8%) and urban (29.9%). What about the rest of the population (29.3%)?”
On page 8 it is stated that “Knowledge level was similar between hypertensive and non-hypertensive respondents.” There should be a p-value to support this statement.

On page 8 it is stated that “Relationships between respondents and health care workers was good with no significant differences in perceptions on health services.” How was this measured and quantified? If possible also add a p-value to support this statement.

On page 9 participants were classified as overweight and obese. What measure (guideline) was used for this classification? It is stated that “The prevalence of overweight and obesity were 28.9% and 27.9% respectively.” Is this in the total group? Or in the Hypertensive group?

It is further stated on page 9 that “Forty-nine (35%) hypertensive respondents were obese with most being female (32.3% vs 19.7%)” Is this statistically significant?

On page 10 it is stated that “There were significant differences (20.7% vs 3.3%) between hypertensive and non-hypertensive respondents.” What was different?

After the first paragraph on page 10, is a reference to figure 4, but the figure does not fit with the paragraph?

It is also stated on page 10 that “Diabetic respondents were more likely to suffer from hypertension as compared to non-diabetic patients (p=0.41). BUT the p-value is not significant? And the statement therefore is not true.

On page 11 it is stated that “Risk factors associated with hypertension were age above 60 years, obesity, requiring a large cuff size.” How is cuff size a RISK factor for hypertension. The importance of using the appropriate cuff size can rather be incorporated with “Availability of Health Services”

What does the * after certain p-values indicate?
The odds ratios (stratified analysis) should be given in a figure.
The Multivariate analysis should be given in a table.
The manuscript does not adhere to relevant standards for reporting and data deposition. Please refer to the STROBE guidelines.

3. Discussion and conclusions
The discussion and conclusions is not well balanced and adequately supported by the data.

Page 14, Par 1: Interesting and it may be worth mentioning as a factor that made diagnosis of females with hypertension more likely (bias). This is therefore a limitation of your study, and should be mentioned in the limitations. BUT what is your main result? The proportion of men vs women is also not given in the results section? Is this a factor affecting diagnosis and management of hypertension in general?

Page 14, Par 2: This study design is therefore not a good design to investigate the reasons for the low prevalence of hypertension as stated in the introduction and aim of the study. It is another limitation.
Page 14, Par3: In the results it was stated that the prevalence is higher in women vs men. But the p-value (p=0.27) does not support this statement. In the article by Mufunda et al 2000, the AGE adjusted prevalence of hypertension where higher in women than in men. To compare this with your data, you should also adjust for age. This is important since in a pre-menopausal state estrogen has a cardio protective effect, but in menopause the protective effect is no longer evident. If most of you women were older (menopause) it may explain the higher prevalence. BUT statistically there was no difference in the prevalence between men and women in your study (p=0.27).

Page 14, Par 5 – Page 15: How did you determine “health seeking behaviour”?

Page 15. Par 1: “The risk of complications is high.” Compared to what? Literature? Then it should be referenced.

Page 16, Par 1: The “Rural-urban” differences with higher prevalence of hypertension in rural vs urban women” is mentioned here for the first time. It is not in the results section? To discuss this further I would recommend that you also look at data from the International PURE study.

Page 16, Par2: “Current expert recommendations” Who is the expert? It should be referenced. “Our study did not show any difference between SBP and DBP in hypertensive patients older than 50 years.” Was their SBP and DBP the same, or do you compare hypertensive patients with non-hypertensive patients? “However, hypertensive respondents younger than 50 years tended to have higher DBP than SBP.” Was their DBP higher than their SBP? This is not clear at all. The statement “DBP has been identified as a major determinant of complications that are associated with hypertension” should be referenced.

Page 16, Par3: Stress does not directly cause hypertension but can have an effect on its development.

Page 17, Par 1: This paragraph does not make sense? How did you evaluate Health Workers Knowledge? Where are the results? Figure 5 is difficult to understand and interpret.

Page 18, Par 4: “Similar findings were noted in this study.” How did you find that anti-hypertensive treatment is linked to a reduction in BP level and risk of stroke among patients?

Page 19, Par1: You did not link this paragraph to the results from your study. Various statements are being made without the appropriate references.

Page 19, Par 2: “Hence weight reduction will work in the reverse direction to cause a decline in blood pressure irrespective of changes in salt intake. You did not link this paragraph to the results from your study.

Page 19, Par 4: Various statements are made without the appropriate references.

Page 20, Par2: The corresponding results were not given in the results section?

Some of the limitations mentioned previously should be added to the list of limitations.
Discretionary Revisions

1. Results

It makes more sense to give the p-value after each variable and not all at the end of the sentence e.g. marital status (p=0.082); place of residence (p=0.174) etcetera.

The use of the term “patients” vs “respondents” is not always the same. Decide on a term and stick to it.

On page 9 the heading “Body Mass Index” should be replaced with something like “Overweight and Obesity”

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests