Author's response to reviews

Title: Prevalence of Hypertension and Associated Cardiovascular Risk Factors in an Urban Slum in Nairobi, Kenya. A population-based survey

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Version: 2  Date: 3 June 2014

Author's response to reviews: see over
To The Editor BMC Public Health

RE: Revised Manuscript

Title: Prevalence of Hypertension and Associated Cardiovascular Risk Factors in an Urban Slum in Nairobi, Kenya. A population-based survey

I hereby submit our revised manuscript following the suggestions and comments from reviewers.

We have provided hereunder, a point-by-point response indicated italicized, red bold Calibri font, immediately after the individual reviewer's specific concerns. The indicated changes have been in the resubmitted manuscript. In keeping with the reviewers concern for the number of tables, we have included “additional files” consisting of tables. A section on acknowledgements had been included.

We hope that that meets with your approval.

Sincerely,
Mark D Joshi

Reviewer's report:
Original article, reporting the prevalence of an important issue in NCD, with a very interesting reporting of age standardized prevalence. A well written article, with optimal length of the different chapters.

Minor Essential Revisions:
The authors have not reported whether any patient consent was taken. Consent has been reported under the Ethical Consideration subtitle section.

Level of interest: An article of importance in its field
Quality of written English: Acceptable

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

Reviewers report
Title: Prevalence of Hypertension and Associated Cardiovascular Risk Factors in an Urban Slum in Nairobi, Kenya. A population-based survey

Version: 1

Date: 16 April 2014

Reviewer: Olarinde Ogunmola

Reviewer's report:
Title: Prevalence of Hypertension and Associated Cardiovascular Risk Factors in an Urban Slum in Nairobi, Kenya. A population-based survey

Reviewer: Dr Ogunmola O.J.

Reviewer's report:

Major Compulsory Revisions

Text

Introduction:
1. A major weakness in this section is its lack of clarity in its research question(s), purpose and rationale. In my view, research questions would have set the direction of the argument(s), including findings and discussion in the Paper. As it stands, the Paper is not focused. This section need to end with a brief statement of what is being reported in the article. I assumed you assessed the followings:

a) The prevalence of high blood pressure (hypertension) in adults in different age groups and sex in the slum
b) Demographic and behavioural risk factors across age and sex groups
c) Age and gender specific anthropometry and blood pressure
d) High blood pressure (hypertension) and its risk factors correlate

If you agree with a-d or any additions; your results, discussion, conclusion, and recommendation should focus on them.

As suggested by the reviewer, the introduction section has been rewritten to better reflect the problem and our study’s objectives. A statement of what is being reported in the article has also been included.

Methods:
We cannot know how representative is the sample. The authors’ were too brief on sampling technique, as it stands, it will be difficult to replicate the study. There is need to expatiate on how they arrived at the sample studied. Authors should also clearly state the number of villages in the slum, how many were chosen? By what criteria were they chosen? In addition, what were the yardsticks for including villages in each cluster? What were the projected populations of each village? State the number of household in each cluster, the average population in each household, and the response rate per household/cluster. These are important issues that determine the probability rather than arbitrary selection.

There is no statement about the consideration of power and sample. Because of these flaws, it is difficult to exclude the random effect.

The authors use random walk sampling (paragraph 1, line 10), this do not meet
the conditions of probability sampling and are not recommended for household survey (see ref 11). Therefore, I suggest you acknowledge this as a limitation.

We acknowledge that quota sampling is a non-probability sampling methodology. Quota sampling is often used in combination with the random walk method (Ref 11). Our sampling methodology did not, at any stage, include quota sampling. We have acknowledged this as a limitation in our household sampling methodology.

Please, can you provide a ref that scientifically justify three months stated in Paragraph 1, line 13, otherwise please, acknowledge as weakness or limitation. The environmental/life style influence of old habitat on new inhabitants of four months old can still influence some of the CVD risk factors being assessed.

We utilized the de jure, 3 months residency as a sampling selection methodology to define household membership. On the contrary, use of the de facto method could have led to the inclusion of individuals who were not usual resident of the study community.

Since the researchers said this is among the first published urban slum NCD survey report from Kenya, the study still should not be published with major flaws without applying the suggested modifications.

Results:
Tables are so many hence, boring; some are poorly titled. The followings are my suggestions:

- **The number of tables have been reduced with some placed in the supplementary files. The title to tables has been improved and in particular that to Table 2 has been shortened.**

Tables 3, 4 and 5 should be merged, and titled “Prevalence of Hypertension, Distribution of Categories of BMI, WC and WHR according to age and sex”. The subtitle in rows 2 and 3 are wrong. Row 2 should be blood pressure classification or categories – hypertensive, normotensive; row 3 should also be blood pressure classification or categories – Normal, pre-hypertensive, hypertensive (stage 1 and stage 2).

- **Table 3&5 have not been merged as suggested, but Table 4 has been converted to a graph. Subtitles in rows 2&3 of Table 5 have been amended to clarify the point. Table 5 Row 2 subtitle of Hypertension has been retained however the categories of are altered to now read as Hypertension ‘Yes’ or ‘No’ Subtitle of row 3 has been amended to read as ‘Blood Pressure Categories’. A footnote has been added to Table 5 to clarify that the Blood Pressure categories exclude subjects (n=53) who were known hypertension cases on treatment at time of the survey.**

Table 6 is confusing. I don’t understand the group you regarded to as high blood
pressure. By convention, everyone you assessed does not meet the diagnostic rule of being tagged hypertensive based on your single BP measurement even though, you stated this as a limitation in your study. Therefore, accepting the fact that in your study, anyone with higher than normal BP is hypertensive or pre-hypertensive bearing in mind that your BP classification is according to JNC 7 hence, I do not expect any category as high BP to exist. Based on these, I suggest you remove the category “high BP” from the Table except you can convincingly defend what the group stands for, and obviously not acceptable to be called “high BP”.

Table 6 admittedly required clarification. ‘High Blood Pressure’ refers to those subjects who were classified as having high BP on basis of the screening BP and excludes those classified as such on basis on of ‘use of hypertension medication’. From the 2045 subjects screened only 205 were classified as High BP and 258 a shaving Hypertension. A foot note to Table 5 & 6 has been included to clarify this point.

I don’t understand the difference between tables 6 and 7. Even though, Table 7’s title is confusing and not acceptable, it appears Table 7 is a repetition of part of Table 6. I don’t know the value of Table 7. I suggest you remove Table 7.

Table 7 has been excluded.

Discussion:
Please, the discussion is too shallow. More time should be spent in the discussion about the local relevance of these data and in the context of data from other neighboring areas or previous research in this area. The CVD risk factors are well researched in the western world, and a lot has been done recently in other parts of Africa, but the relevance of this subject to the developing world is interesting. For example, in paragraph 1 and 2, authors' were just reporting findings as noted in the results, but did not interpret or give peculiar explanation for their findings.

Our main findings have been restated in Paragraph 1 & 2. These two paragraphs have now been merged.

The implication and local relevance of these main finding has been discussed in paragraph 4. Namely: 1) early social transition even in this urban poor population; (2) need for primary prevention strategies through lifestyle changes and 3) need for increased awareness among the population at large and health care providers, so as to contribute towards detection treatment and control of hypertension.

Conclusion:
Authors’ abstract conclusion had more points that are missing in the main text conclusion, please revise. This has been revised.

Minor Essential Revisions

Title page:
Authors did not follow the journal formatting style please, correct as follows:
1) Full names are required, some of the names contain initials, please correct it. Done
2) No telephone number requested, please delete. Tel number removed

3) Keywords should follow abstract, not in the title page. It is advisable to use words outside those found in the title. Some of the words you provided did not occur as in Mesh eg “Hypertension/epidemiology” were found as separate words “hypertension, epidemiology”; some of the words do not even exist eg “hypertension correlates”. Please review your keywords as found in Mesh terms, and separate with coma rather than semicolon.

Key words have been amended as suggested and appropriately placed in manuscript.

Abstract:
Please define abbreviations first before subsequent use.

Abbreviations have defined as suggested.

Results – 1) Line 1, ….2061 adults (not adult) Corrected.
2) Line 7, I suggest “waist circumference” should replace” waist line” if that is your intention. Waist circumference accepted.

Text:
Background: Please, change “introduction” to “background” according to the journal formatting style. Changed as suggested to comply with journal style.

Methods: 1) Paragraph 2, line 14, please what do you mean by “at the point of normal expiration”? State clearly whether early, mid, or end-expiration, or was it at any point? This has been corrected to read end-expiration.

2) Please, state clearly your inclusion and exclusion criteria. Authors included those already on treatment for hypertension and diabetics. These will under report associated CVD risk factors, since it is expected that treatment in this individuals will include associated CVD risk factors. Therefore, I suggest that authors acknowledge this as limitations. Inclusion &Exclusion criteria included.
For our purpose of determining prevalence of hypertension we included those subjects with known hypertension. To exclude them would lead to an under estimate of the prevalence. Including known hypertensive (n=53 in our opinion would lead to a non-differential estimate of associated risk factors. However, if including known hypertensive indeed leads to a differential estimate, this would in our opinion, lead to an over estimate of risk factors.

SPSS, please acknowledge the producer in parentheses. This has been done.

Results:
1) Please, reconstruct Paragraph 1, lines 3-4, it appears to be confusing:
   a) Authors provided information only on males and completely silent on females. I suggest you provide for both gender or only total (excluding gender parameters).
      a) The sentence construction was misleading suggesting that the data was only for males. This has been amended to make it clear that data subsequent to the reported proportion of males in fact data for the entire sample.

   b) Check punctuations, and the sequence of the age range should be in ascending or descending order (please, apply this in reporting other data eg BMI)

2) Waist circ: Lines 1 and 2, please adopt male/female and not male/women. This has been amended as suggested to male/female.

3) P in P-values should be capitalized and in italics. P has been capitalized but not italicized as per Statistical and Mathematical Presentation, The Cochrane Collaboration.

4) I expect Table 2a to be 2, since there is no 2b. Please, check the title punctuations or you add “for” after each “(95% CI)”. Add BP to the title since you have it in the Table. Done

5) No legend provided for some abbreviations in many of the Tables, starting from Table 1, please do. Done

6) Table 9, in the title, body mass should be body mass index. Changed to Body Mass Indices.

7) I suggest you merge tables 11 and 12. These have been placed in supplementary appendix.

Discussion:
1. Paragraph 1, line 4, “…. low overall awareness of hypertension” should be “….low overall awareness of need for regular BP measurement” This has not been changed.

2. Please provide ref for the statement in paragraph 1, lines 5-6. This has not been done.
3. Paragraph 4, line 1, correct the grammatical error. Corrected to read ‘one out of every seven hypertensive was found to be diabetic’

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I declare that I have no competing interests.
Reviewer's report
Title: Prevalence of Hypertension and Associated Cardiovascular Risk Factors in an Urban Slum in Nairobi, Kenya. A population-based survey
Version: 1 Date: 16 April 2014

Reviewer: Andre Pascal A Kengne

Reviewer's report:
Prevalence of hypertension and associated cardiovascular risk factors in an urban slum in Nairobi, Kenya: A population-based survey
In this manuscript, Joshi and co-workers have screened a large urban community in Nairobi for hypertension and other CVD risk factors, and reported findings mostly corroborating previous reports across Africa showing high and growing prevalence of hypertension in this setting, against a background of low awareness, detection, treatment and control.

Major comments
The manuscript as currently presented is excessively long. Clearly the key message of this paper is about the prevalence rate for hypertension, the detection, treatment and control gaps; their possible determinants and how they connect in the context of the country. Anything else is repetition of what is already know and the time of the readers could be saved by trimming down the paper substantially.

We set out to determine the prevalence and correlates of hypertension in this slum community. To this end we employed the SPTEPS WHO instrument, a screening tool for NCD risk factors. It is not designed to capture data on hypertension detection, treatment or control.

Our key message in this paper is the prevalence, screening rates and correlates of hypertension. Furthermore only 141 study subjects were detected to have hypertension and only 53 subjects had been prescribed anti-hypertensive medications.

a) The linear regressions to determine the predictor of SBP and DBP levels (Table 9-11) are sincerely adding nothing to the manuscript and should be left out.

In line with this suggestion, tables 10,11&12 have been placed as supplementary files. However, Table 9 has been retained to depict the behavioral and physiological risk factors/associations and magnitude of association. This data could serve as useful hypertension/CVD screening targets and public health interventions targets, even in this population of slum residents.

b) Similarly, the over-focus on other risk factors in Tables 2, 6, 7 and 9 could be avoided. Univariable and multivariable logistic regressions solve the issue of predictors of hypertension in a single table and should be the preferred approach.
As mentioned our study focus was indeed the epidemiology of CVD risk factors in this unstudied segment of the population. Table 2 depicts the age and sex specific behavioral factors (body mass indices and physical activity) in our sample. BP data is also included. We have opted to retain this table but placed it in the supplementary section.

Table 3 depicts the sex specific body mass indices. We have opted to retain the table in the main body of the manuscript.

Table 6 & 7 depict the prevalence of High blood pressure (this, in contradistinction to Hypertension in Table 4) and Isolated forms of Hypertension. To reduce the number of tables, Table 7 has been excluded.

Table 9 as earlier mentioned, we have opted to retain.

c) A simple narrative report of findings in Table 3 would be enough, while extra columns could be added to Table 1 to capture the information in Table 8. Table 3 has been retained. Tables 1 & 8 have been merged and P values provided for the sex comparisons.

Furthermore Table 1 should include the p-values for comparing men and women. Tables 1 & 8 have been merged and P values provided for the sex comparisons in original Table 1.

d) Data in Table 4 are often best presented as figures, to better illustrate the changing trend with aging. Table 4 has been presented as a bar chart as suggested.

e) In the narrative section of the results, the authors should really consider: A) presenting the general profile of the population (including men vs. women comparisons); B) Presenting the BP data including prevalence of hypertension, detection and control; C) investigating the determinants of hypertension. Most of the details currently presented are not helping.

The narrative section of hypertension results has been reorganized to begin with prevalence of hypertension and the portion that was screened detected. As mentioned earlier we do not by design have reliable data on control or treatment. Data on proportion of subjects with Pre Hypertension, with Stages 1&2 hypertension and prevalence of Isolated forms of Hypertension have been retained. Lastly we report on the determinants of hypertension.

f) In the discussion, the speculation on known facts is useless (paragraph 3 and 4 for instance). What one would like to know is what in the study context explain the observed pattern of hypertension and how data from this study can be used to address the prevention; and the current manuscript fails by large on those points. For instance there is no discussion of the countries policy on NCDs (including hypertension) and how the current study could relate to existing policy.
The authors are encouraged to move beyond a purely epidemiological exercise.

*Paragraph 3 has been retained as it discusses the correlates and thus risk factors for hypertension in this slum population. These factors, we believe, explain some of the “observed pattern” of hypertension. These finding have import implication for prevention and non-pharmacological control of hypertension, which we have discussed for the benefit of the reader.*

*Given the dirt of data on prevalence of hypertension in Kenya, we have chosen in this manuscript to limit ourselves to the epidemiological aspects.*

*As suggested Paragraph 4 has been omitted.*

g) Statistical analysis – There no indication of how the authors accounted for the clustering both at the community level and at the household level in their analysis.

*We adjusted for clustering effect by increasing the sample size to using a design effect of 2, which would effectively reduce the size of the standard errors in the estimations at analysis. See methods section.*

**Minor comments**

a) The conclusion of the abstract is not informed by the data in the result section of the abstract. *This has been revised.*

b) Throughout the method section, the authors should give the name and manufacturers of the instruments they used for data collection. *Done*

c) In the method section on page 6 (last paragraph), the methods for checking the accuracy of the instruments look strange. One would expect that for weight scale for instance, the investigator should use a weight of known mass, not of a person. The weight of a person can vary significantly across weeks; the BP machines would be checked by comparing values against those of a standard device which is not been used for the survey etc… *Noted*

d) Please, instead give a link to the STEP instrument online in lieu of submitting it as your study related material, it is not. *Done*

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing

**Reviewer's report**

**Title:** Prevalence of Hypertension and Associated Cardiovascular Risk Factors in an Urban Slum in Nairobi, Kenya. A population-based survey

**Version:** 1  **Date:** 22 April 2014
Reviewer: Mekoya Mengistu

Reviewer's report:
Reviewer's report
Title: Prevalence of Hypertension and Associated Cardiovascular Risk Factors in an Urban Slum in Nairobi, Kenya. A population-based survey
Version: I
Date: 1 April 19 2014

Reviewer: Mekoya Mengistu
The findings are not novel but very important and interesting as they expand on the limited knowledge regarding the prevalence of hypertension in developing countries and associated cardiovascular risk factors.

Major compulsory revisions

1. Abstract
a. Result section: …we enrolled 2061 adult…. But the total number of subjects indicated in your demographic data (table 1) and other data like table 5 is different.
   The discrepancy is on account of missing data at analysis and has been explained by adding a sentence to this effect in the main body of the results. ‘At analysis complete data was available in 2045 subjects’.

   This requests serious attention.
b. Rewrite the result section of your abstract as it lacks clarity.
   This has been rewritten.

2. Introduction Corrected.
a. Change the heading to background to conform the format of the journal. This has been corrected
b. Give brief background information regarding the prevalence of hypertension in Kenya/the region and Nairobi/urban areas in particular.
   This has been done pointing the paucity of such data and quoting the two studies that had been published at the time of our survey.

3. Methods
a. Paragraph 2:
   i. How did you measure the hip circumference (eg. At the widest level over the greater trochanter). Done.
   ii. BMI, waist circumference, and waist to hip ratio classifications need to be cited properly This has been done. See methodology section.
   b. Paragraph 4: Research assistants underwent training on completion of the STEPS questionnaire and on anthropometric and blood pressure measurements to ensure standardization. Does this mean the training was given after the completion of
the experiment? If so, why? Normally common training program should be given for data collectors on how to get reproducible measurements beforehand.

*Training of research assistants was undertaken prior to data collection.* “Research assistants underwent training on completion of the STEPS questionnaire” has been amended to read "on how to complete the questionnaire”.

c. You did not indicate how you measured ISBP and IDBP. *ISBP & ISBP were not measurement outcomes but that of classification of BP as specified in the methodology definitions.*

d. Have you used any exclusion criteria? Eg. For measuring waist circumference…A sentence specifying exclusion in the methodology section has been included.

4. Result
a. Rewrite paragraph 1 as the percentage (figures) is not consistent with data in the demographic data. *This has been addressed by clarification on number of study subjects with incomplete data and thus not included in the analysis. This is in the 1st paragraph of the results section.*

b. Physical activity: rewrite the first paragraph as it very protracted. *The sentences in this paragraph have been shortened to improve on clarity as suggested.*

c. BMI is written under physical activity. But you can give it a separate heading. *BMI has been accorded a separate subtitle as suggested.*

d. The p-values should be written properly and consistently throughout the manuscript (Eg. P=0.001 or p<0.05). *Done*

e. Blood pressure section
i. Rewrite the first and fourth paragraphs as they lack clarity. *The first paragraph reports on the proportion of persons screened for HTN (by BP measurement) and the outcomes thereof. The interventions offered or advise given including lifestyle measures, and the alternative therapies sort by subjects. As screening, detection and treatment are central to dealing with the problem of hypertension, we have retained this section unaltered.*

Paragraph four has been rewritten clarifying that this section is classifying BP among those not know to be hypertensive or on treatment for hypertension, but have a JNC defined non-optimal BP recording.

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ii. Paragraph four should be merged with paragraph three. *These have been merged.*

iii. Paragraph six should be merged with paragraph five and should be refined. *Paragraph five and six have been rewritten for clarity and merged as recommended.*

iv. The preferred sequence of putting your findings of blood pressure:
1. Fist data related to prevalence of hypertension
2. Then data related to awareness of being hypertensive
3. Data related to SBP and DBP in the study population

*This advice has been heeded as best we could.*

5. Discussion
a. Your discussion on prevalence of hypertension is not adequate. You need to


We were aware of these two publications and had reviewed them. The Jenson 2011 report was not undertaken in an urban slum population, but was in Old Town Mombasa utilizing a clustered sampling technique. It reported an adjusted hypertension prevalence of 32%.

The study by Ongeti was undertaken in the urban slum of Kibera Nairobi, as was our study however the sampling methodology was non-probabilistic, consisting of volunteers. It is not stated how the volunteers were solicited. They report an unadjusted prevalence of hypertension 13%. Furthermore the publishers of this paper have been listed as predatory in the Beall’s list available in Scholarly Open Acess at scholarlyao.com. We had thus chose not to reference this paper.

However, we have since compared and contrasted these studies finding with ours, even though that by Jenson was not an urban slum population.

b. Your discussion on cardiovascular risk factors (PA, smoking, alcohol consumption…..) is very scanty. You need to discuss the effects of cardiovascular risk factors on hypertension and changes in blood pressure. In our humble opinion the effects of risk factor on changes in blood pressure and hypertension was not feasible in a cross sectional nature of our study design. You also need to compare the current findings with similar previous studies.

We have compared our finding to other SSA reports and to the other reputable Kenyan slum community study, pointing that the findings were the same. See discussion section statement: “These associations are well established and has been described in SSA [21] and in particular was similarly demonstrated in a recent Nairobi slum survey report [23].”

6. Limitation
a. Level of education, socioeconomic variation amongst the slum dwellers, and lipid profile were not included in your study. Therefore can be included as limitation.

We agree and have included as a limitation the absence of socioeconomic and lipid data however, data on literacy level was collected and has been reported on.

7. Reference
a. Rewrite your references according the format of the journal
b. References should also contain all named authors, regardless of the number. The terms ‘et al.’ should not be used. Hence correct you reference number 2, 13, 17…

Reference formatting and listing of all authors has been corrected as pointed out.
Minor corrections: all these minor correction have been amended as pointed out
1. Abstract
   a. Method section: 8th line: …random capillary blood sugar>11; the author should have unit of measurement. **Units have been included.**
2. Introduction/Background
   a. Paragraph 2, line 4: …mortality. [5] should be …mortality[5]. **Corrected.**
   b. Paragraph 2, line 5: …hypertension organ damage should be ….hypertensive organ damage **Corrected.**
   c. Paragraph 3, line 4: …urban area[7], needs full stop at the end **Corrected.**
   d. Paragraph 3, line 6: ….. Risk factor[8] should be ….. Risk factor[8]. **Corrected.**
   e. Paragraph 3, line 9: …50.1 percent should be …50.1% (consider consistency) **Corrected.**
   f. Paragraph 4, line 5: …75% of urban… Should be Furthermore, 75% of urban… **Corrected.**
3. Methods
   a. Paragraph 1, line 1: The urban slum of Kibera in Nairobi, the capital of Kenya was …should be The urban slum of Kibera in Nairobi, the capital of Kenya, was…. The suggested correction is not evident to us.
   b. Paragraph 1, line 12: … all consenting adults 18 years … should be … all consenting adults of 18 years **Corrected.**
   c. Paragraph 1, line 15: … WHO STEPS-wise instrument approach… should be .. WHO STEPS-wise approach… **Corrected.**
   d. Paragraph 2, line 4: … medical assistants teams should be….. medical assistant teams **Corrected.**
   e. Paragraph 2, line 10: ...... light clothing and without shoes. Should have the nearest weight measurement accuracy (Eg. to the nearest 0.1 kg or 0.5kg) **Done**
   f. Paragraph 2, line 12: … at the level midpoint of the superior border of the iliac crest and the inferior margin of the last rib mid-axillary plane, should read as …. at the level of midpoint between superior border of the iliac crest and the inferior margin of the last rib mid-axillary plane. **Corrected as appropriately suggested.**
   g. Paragraph 2, line 14:.....recording was at the point of normal expiration. Should be ……recording was at the end of normal expiration. **Corrected.**
   h. Paragraph 3, line 4: indicate the nearest measurement accuracy of BP(Eg. to the nearest 2mmHg)
   i. Paragraph 3, line 6: unit for RCBS >11… **Corrected.**
   j. Paragraph 3, line 8:… should be 5ml… **Corrected.**
   k. Paragraph 5, line 6:… >/= should be ….# (use consistently) **Corrected.**
   l. Paragraph 6, line 3:… remove the space before [5]. **Corrected.**
m. Paragraph 6, line 8: remove the comma before with 95% CIs **Corrected.**
4. Result
a. Paragraph 1, line 4: 28.3 % were under 24 years...should be... 28.3 % were und 25 years. **Corrected.**

b. Physical activity; paragraph 2, line 4: ... among females. (Table 1) should be ... among females (Table 1). **Corrected.**

c. Waist circumference; line 3: in women. (Table 2) should be ...in women (Table 2). **Corrected.**

d. WHR; line 7: ... with age (p 0.269). (Tables 2 & 3) should be ... with age (p 0.269). **Corrected.**

(Tables 2 & 3).

e. Blood pressure

a. Paragraph 1, line 2: Health worker should be ... health workers **Done**

b. Paragraph 1, line 5: The proportions advised on non-pharmacological measures... Should be The proportions advised nonpharmacological measures... **Noted**

c. Paragraph 1, line 6: ... Was... should be replaced by... were... **Corrected.**

d. Paragraph 1, line 9: ... herbal or traditional remedies for raised BP. Should ne ... herbal or traditional remedies for the treatment of raised BP. **Corrected.**

e. Paragraph 2, line 4: (76.2, 77.5) respectively. (Table 2) should be ... (76.2, 77.5), respectively (Table 2). **Corrected.**

f. Paragraph 3, line 5: The new WHO World Standard population... should be The new WHO Standard population **Corrected.**

g. Paragraph 4, line 2: ... (BP > 120/80) ... should be ... (BP < 120/80) .... **This has not been amended as is correct as stated.**

h. Paragraph 4, line 3: ... Hypertension. (Table 5) should be ... Hypertension (Table 5). **Corrected.**

i. Paragraph 6, line 3: ... ISH (p 0.042). (Table 7) should be ... ISH (p 0.042) (Table 7). **Corrected.**

5. Multivariable

a. Paragraph 1, line 7: ... (ß 0.363 females; 0.186 males) should be (ß = 0.363 for females; ß = 0.186 for males) (consider consistency) **Corrected.**

b. Paragraph 1, line 9: ... females) (Table 12) should have full stop at the end. **Corrected.**

c. Paragraph 2, line 8: five fold should be fivefold **Corrected.**

6. Discussion

a. Paragraph 4, line 1: One of out every seven hypertensive was... should be One out of every seven hypertensive was..... **Corrected.**

b. Paragraph 4, line 2 & 3: ... we have reported a, predominantly screen detected, age adjusted diabetes... should be ... we have reported age adjusted diabetes ... **We do not agree with the suggested change.**

c. Consider the consistency of spacing between paragraphs (Eg. Between 4th and 5th paragraphs) **Done**

d. Paragraph 5, line 5: Further... Should be Furthermore, ..... **Corrected.**

**Discretionary Revision:**

1. All your findings are expressed in tables but you can use figures (according to the type of data) which can express some data much more clearly than tables
and more attractive. *Noted and on this basis Table 4 data has presented as a bar chart to shown trend with age.*

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests: I declare that I have no competing interests

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Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests: I declare that I have no competing interests
Reviewer’s report
Title: Prevalence of Hypertension and Associated Cardiovascular Risk Factors in an Urban Slum in Nairobi, Kenya. A population-based survey
Version: 1 Date: 25 April 2014

Reviewer: Anthony O Etyang
Reviewer’s report:

1. Abstract
   a. Abstract has acronyms that are not written out in full at first instance. E.g NCD, WHO STEPs RCBS, FBS
   This has been corrected except for WHO as we are of the opinion that his is universally acknowledged.

   b. Results: ‘From a 98% survey response’ please write this sentence in a more understandable way. 98% of subjects approached?
   This has been altered.
   Give confidence intervals for statistics mentioned e.g mean age, proportion with primary education. We have opted not to provide CI for these statistics in the abstract. They are provided in the main manuscript.
   Proportions with stage I and stage II hypertension do not add up to the overall age standardized prevalence reported. Please explain discrepancy. Classification on basis of Stages of Hypertension was only undertaken in those with elevated BP at screening ie excluding those on treatment for Hypertension.
   Qualifystatement “High levels of physical activity and harmful alcohol intake were demonstrated” by giving statistics. This has been included.

   c. Conclusions- if there were high levels of physical activity how is there a need for lifestyle interventions? This sentence is self contradictory and is not supported by the data in the study.

   Beyond physical activity, dietary measures to control body weight and restricted salt intake are recognized lifestyle interventions for the prevention and control of high BP. Our data is supports body weight as a predictor of high BP and hypertension in our study subjects.

   The conclusions section of the abstract has been rewritten based on comments by reviewers.

2. Introduction
   a. Paragraph 2. Stick to one tense. Both present and past tense are used inappropriately in sentence 2.
   Tense has been corrected

   b.
3. Methods
a. Line 1. If Kibera is 2.5km² and the total population is 300,000, the population density would be 120,000 per square km which is way higher than the stated 49,228 persons per km². Please enter the correct figure. 
*This has been revised to exclude the population density figure; however the density is correctly quoted, though we agree it does not compute.*

b. Line 7. How was the population for each of the clusters projected as part of obtaining the sample frame? Was there a baseline census that had been performed earlier? *We used population figures from the KNBS 2009 census (ref 10).*

c. Page 6, line 1. A better description of the bathroom scales that were used for taking weight is required. What was the brand name and how was quality assured? *The brand name has been included and quality assurance methodology is quoted in the narrative.*

d. Page 6, paragraph 2, line 3: Reference for AHA guidelines for measuring BP missing. *Done*

e. Page 7, paragraph 2. Not sure that the full name for SPSS is statistical products and service solutions? If indeed it is, then the vendor and city of manufacture should be mentioned to avoid confusing with the more commonly known software that has the same acronym. *With the introduction with SPSS for Windows, SPSS changed its name without changing the acronym.*

f. Page 7, para 2, line 7. Please specify the method of adjustment used for the odds ratios. Was this MH, or multi-variable logistic regression? Adjusted ORs-MH? Not stated. *This was specified on page 7 paragraph 3 as Logistic regression analysis.*

g. No description of the method used for age standardization of the prevalence of hypertension is given in the methods section.

*Use of WHO World population has been specified as adirect standardisation method (for further details see in ref 15).*

4. Results
a. Physical activity. Last line-it is highly unusual for physical activity to increase with age, but the authors report that this was the case and give a p-value for trend. Given that they further report that after age 35-44 this trend was not observed, it is misleading to report this trend. They should consider reporting that there was statistical interaction observed with regard to age. If indeed there was a linear trend then they should report by how much PA increased by age category. *This misleading statement has been excluded.*

b. Page 11. Line 2. Did the authors mean to say “The combined prevalence of
ISH and IDH was 6.0%…..? As presently structured the meaning of the sentence is not clear.
This has been correct as suggested.

c. Page 11, paragraph 2: “Compared to normotensive, a larger proportion of hypertensive subjects were current smokers (17.8%; 12.5%; p 0.018), had commenced smoking at older age (21.4 yrs; 15.4 yrs; p 0.037) and had a longer duration of smoking (8.3yrs, 6.0yrs, p 0.001)”. An explanation is needed as to why despite commencing smoking at a later age, hypertensives had a longer duration of smoking than non-hypertensives
An explanation as to why hypertensives had differential smoking commencement age and smoking duration relative to normotensives would in our opinion, in this C/S study, be purely speculative. Furthermore as this was neither a study objective, nor a main finding we have refrained from doing so
d. Multivariable analysis, page 12. Paragraph 3. Please give confidence intervals for the increases in BP with age, WC etc.
These CIs are provided in the relevant Regressions Tables, and have not been repeated in the narrative.

e. Tables: although the journal has no limit on number of tables and figures, I suggest that the authors consider reducing the number of tables in the manuscript, and if necessary moving some into the supplementary appendix. For example, all of the data in table 4 is also present in table 6. Incidentally, the data presented in table 4 is different from that of same age groups in table 6.
Tables agree–the number of table have been reduce by omitting table 7, placing tables 10 to 12 in the supplementary appendix and Table 4 converted to a chart.

Please note that the data in Table 4 is on the Prevalence of Hypertension whereas that in Table 6 is on Prevalence of High BP & ISH&IHD. The High BP category includes Pre-Hypertension that is not classified as Hypertension in Table 4.

5. Discussion
a. Paragraph 3; Although there is evidence from other longitudinal studies that age and obesity are causally related to hypertension, the design of this cross sectional study does not allow the authors to make this claim. The studies that they cite (Van de Vijver et al and Hendricks et al) to strengthen this claim were also cross sectional and suffered the same limitation of not being able to establish causation.
In recognition of the fact that causality cannot be confirmed in our study design, we refer to our finding with regard to obesity and age as ‘correlates of Hypertension’ and as ‘associations’ and further state that ‘this implies that these are risk factor for hypertension’. To this end we stated this as a limitation paragraph 5th sentence which reads’
The limitations of self reported physical activity and the inherent limitation of a cross-sectional study design in prohibiting causal interpretation are acknowledged.

b. An interesting finding of the study was that there were high levels of physical activity among the participants despite the high prevalence of hypertension. The authors should consider discussing this finding including its relation to other studies.

This suggestion is welcome however to limit the length of our MS have focused our discussion towards our main finding on prevalence and correlates. We hope to make this suggestion the subject of a further publication. The only other urban slum study from Kenya does however report does similar levels of physical activity (de Vijvers).

Level of interest: An article of importance in its field
Quality of written English: Needs some language corrections before being published
Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests: I declare that I have no competing interests
Reviewer's report
Title: Prevalence of Hypertension and Associated Cardiovascular Risk Factors in an Urban Slum in Nairobi, Kenya. A population-based survey
Version: 1 Date: 30 April 2014

Reviewer: Norella Kong

Reviewer's report:
An interesting article from a poor developing country that will contribute to knowledge in this area. However, it is also obvious the author is fairly inexperienced in writing manuscripts for publication.

However it will require MAJOR COMPULSORY REVISIONS so that the objective/s are clearer as well as the definitions of various anthropometric measures, hypertension and its various stages and diabetes mellitus. The paragraphs require to be reordered so that the report 'flows' and the same subject under discussion is not all over the place eg definition of hypertension follows the blood pressure results etc.
Captions for several tables require to be more general rather than repeat all the measured parameters. Caption for Table 2 has been amended as suggested.

The data tables were excessive and the expression of confidence interval and p values require to be revised according to existing format not abbreviated. The number of table has been reduced and some placed in supplementary files. P value format have been corrected.

My detailed comments will follow in 2-3 days as there are many areas requiring attention. At the time of this resubmission, the detailed comments had not been received.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published
Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.
Declaration of competing interests:
I declare I have no competing interest.