Reviewer's report

Title: Current status on health sciences research productivity pertaining to Angola up to 2014

Version: 2
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Reviewer: Steve Makkar

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Reviews

I believe this publication makes a valuable contribution to the literature by highlighting the current state of published research in health within Angola. It emphasises the importance of strengthening research capacity in this and other African countries, especially in light of infectious diseases and rising non-communicable disease in the continent.

The question posed by the authors is novel, important, and well-defined in the introduction; however, I believe a stronger rationale is needed as to why the authors are concentrating on the health research output of Angola. For example, are health policy and decision making processes ineffective or inefficient at present, because of a general lack of locally relevant research? There needs to be a stronger rationale as to why Angola is the focus and the implications that the present study can provide for improving research and decision making in Angola.

Some aspects of the method are appropriate and well-described, while other aspects require greater detail and rationale, and these are highlighted in the major compulsory revisions below. In particular, the decision to use the BVS and Medline and PubMed and not other popular databases needs further explanation, even if it is because of resource constraints.

The figures are clear and accurate and coincide with the discussion in the paper. The manuscript, overall, adheres to the relevant standards for reporting and data deposition, although there is one section where multivariate and univariate analyses are referred to, although nowhere in the document are such analyses described, or any sort of statistics reported. Also there is some confusion on the use of “significant” to report results, although no actual significance tests are performed – which is understandable since the study is primarily descriptive.

The title and abstract do convey the main results and conclusions of the paper, although there are some issues with the clarity of the sentences used in the abstract and I have highlighted those below.

The writing is overall, acceptable, although I have had to slightly paraphrase a number of the sentences to help with the overall flow of arguments. I am aware of language issues and possible difficulties translating into English and hope you will consider my paraphrasing of sentences (if correct). I do however, believe, the writing needs to be improved so sentences are grammatically correct and fluid to convey the important conclusions of this paper clearly.
I highlight a number of key concerns below and refer to the pages and paragraphs they are on.

Major compulsory revisions

Abstract

1) Page 2, background: This first sentence in the abstract is unclear. Are you saying that health research driven by the healthcare demands of the population can provide an informative evidence base to support decision-making processes?

Also what decision making processes are you referring to? Decision making processes about health? Health policy? Practice decisions? Both?

Introduction

2) Page 3, bottom paragraph: In this paragraph you need to cite evidence that demonstrates that the production of health or scientific research in general is particularly low in developing countries as opposed to developed countries. Cite this evidence after the first sentence “e.g., in particular, evidence shows that the research output in developing countries is considerably less than in developed countries”. This provides the basis of your study, and a rationale as to why you are examining the level of research production in Angola. It also will provide a better lead into the next sentence where you say it is crucial to obtain an accurate picture of the landscape of research in developing countries.

3) Para 2 page 4: “The concern with the production of scientific knowledge in health care is universal, being documented with either bibliometric studies of research as a whole, in Africa and other continents and motivated studies of research chronological progression in Africa [9-17]” This sentence is unclear and needs to be rephrased. I believe what you’re trying to say here is that there is, in general, a concern about the (lack of? Or under?) production of scientific knowledge in health care. “There have been documented bibliometric studies of research production in Africa, as a whole, as well as in other continents. This then motivated studies of the chronological progression of research within individual African countries.”

4) I rephrased the sentence because you need to provide a rationale or reason as to why you are now focusing specifically on analysing the research output of one country (in your case, Angola). As how I’ve stated above, research has been done in Africa as a whole, but not individual countries.

5) This is an important point (para 2 page 4): You need a stronger rationale as to why you are focusing on the HEALTH research output of Angola. Are current health policy or decision making processes in Angola ineffective or not evidence based? Is the research that is currently available only relevant to developed countries and therefore cannot be applied to the Angolan context?

More context about the state of Angolan research production/research skills and current decision making needs to be provided to provide a firm rationale as to why you are documenting the research output of this country.
6) Also, You need to emphasise more the importance of potentially documenting the research output on Angola – do you hope this will stimulate more research in the country? Does this, in part, account for the inefficient decision making within the country. You do state this in the final paragraph of the introduction, but I think you need to provide more focus on why you are concentrating on Angola. The benefits you listed in the last paragraph could easily be applied to any country. How will these findings be relevant and essential to improving Angolan health decision making in particular?

METHOD
7) Page 5, top para: Although you have stated that this is NOT a systematic review, I think it is important to say why you used BVS to search for these publications?
Also why did you search PubMed and Medline after? You say so in the results, but may be better to say it here.

8) You need a stronger rationale as to why you have selected these databases because, as you have mentioned in the discussion, has clear implications on what you find – in particular, the under-reporting of publications produced by Angolan researchers. Why have you not chosen to look at other databases or even databases that utilise the OVID platform which Medline uses?

9) Page 5: para 2 (exclusion criteria): A key methodological issue is how you have chosen to define HEALTH
Regarding your exclusion criteria about “Did not concern human health” – you need to provide more detail by what you are referring here as human health – how broad or how narrow? Physical and mental health? Anything related to health? How did you know or tell that a particular article was about health?

RESULTS AND DISCUSSION
10) Page 6: para on publication rate: The use of the word “ancient” is not appropriate here. Publications cannot be considered ancient unless they were written in ancient times. Perhaps the use of the word “dated” is more appropriate and then to describe what you mean by this.

11) Page 7, para 2 “In the present study, we found in the same period five publications of Angolan institutions, but this did not change significantly the position of Angola in scientific production, in the context of the African region. “ Are you saying that you found Five publications “produced” by Angolan institutions? Five publications including researchers that were affiliated with Angolan institutions?

Further, I would caution against using the word “significantly” in any part of the results section since you did not do any significance tests and your findings are primarily descriptive.

12) Page 8 – top para: “The number of patients with HIV infection was one of the variables that remained statistically associated with the scientific production, both
in the multivariate and univariate analysis, and South Africa was the country with the largest number of publications.”

This section is unclear. What are these multivariate analyses? You have not referred to any multivariate analysis anywhere until now, or in the methods section.

13) Page 9 para 3: I am uncertain as to why you have included this sentence “However, in MEDLINE/PubMed, we remark a study on 32 OECD countries from 1980#2010 suggesting that the GDP per capita growth rate, the Gini Index and health expenditure had a consistent significant relationship with the Health Index [27].”

How does it relate to the fact that Angolan publications were less about the social determinants of health, and health systems etc.?

Although the majority of publications may be in English, does PUBMED actually limit displaying articles that are in English? If so, then yes, this would be a serious limitation and a publication selection bias would be operating.

14) Page 10 para 3 first limitation: “The fact that Angola is a Portuguese speaking country and the majority of the journals indexed by MEDLINE/PubMed are in English may have introduced a selection bias, due to idiom barriers. Though MEDLINE/PubMed represented the vast majority of the publications of the study and the search began at BVS, which included papers published in journals indexed by Scielo, it does not embody all the scientific and biomedical journals.” This limitation then goes back to my earlier question of why you restricted your search to BVS and then PUBMED/MEDLINE.

Is BVS a meta search? What exactly is it? I have mentioned this earlier.

MEDLINE and PUBMED are also, separate databases. Why wouldn’t you have searched EMBASE or other databases that use the OVID platform? It has been suggested that the combination of EMBASE with MEDLINE offers quite a comprehensive search strategy. I know you have stated that you did not choose to do a systematic review, but given the urgency of this topic, it might be a better approach to do a more comprehensive search through both the published and grey literature, or at least, through as many databases of published research as is feasible (or a related meta search). Was your limitation to MEDLINE and PUBMED due to resource constraints? If this was, please mention it as this is an understandable explanation.

There’s no doubt that the number of publications by Angolan authors would be underestimated using the method you have applied.

CONCLUSIONS

15) Page 11: conclusions (second para). “Overall, this work highlights the rapid increase of scientific publications related to Angola but also a need for reinforcing academy-driven research. “ Again, as I stated earlier, your conclusion needs to strengthen the rationale as to why it is important to strengthen research capacity specifically within Angola. The WHO has called for stronger health research and
Minor essential revisions

ABSTRACT
1) Results: Should be written as “fourfold” not four folds
2) Format statistics appropriately with n italics, n = 232.

BACKGROUND
3) Para 3 page 3: This first sentence is a bit unclear. What do you mean that “health research can strengthen the capacity of producing more knowledge and use of evidence”? Are you saying that conducting more health research can stimulate countries to strengthen their capacity to produce and use such research to guide decision making?
   It might be better to break up this sentence. Start the second one by saying “In Sub-Saharan Africa in particular, the production of health research can affect teaching…”
   Change “as happened in the developed countries” to “which is comparable to developed countries”.
4) Page 4 – second last para: Change to “What is the level of involvement of Angolan researchers and institutions in this published research”.
   Similarly, on the same para “3) what is the involvement of Angolan researchers and institutions; 5) what are the most represented research fields” The 5) should be changed to 4).
5) Page 5 –para 1: Should be “up until the 8th of June 2014”
6) Page 5 – para 2: What do you mean by “the topic reported exclusively to vectors”?
   Change “appearing mentioned in a general set of countries…” to “but was instead reported as part of a group of countries…”
7) Page 6 – top line: Change this to Excel spreadsheet and include the appropriate citation to Microsoft

RESULTS AND DISCUSSION
8) Page 6 first paragraph of results: Why have you used the term life science here? Don’t you mean health? Please be consistent with your use of terms. Once you have provided a clearer definition of health (see my essential comment above) that includes life sciences then it is probably acceptable to use that term here.
9) “Therefore, the research pursued exclusively on MEDLINE/PubMed keeping
the keyword "Angola."

• This sentence is not clearly written. Rather, say that you undertook a further
search for relevant Angolan publications in MEDLINE/PubMed.

10) The sentence is unclear: “All other variables were taken into account using
availability of abstract as a single filter which yielded 658 abstracts.”

• Rephrase to: All other variables were taken into account using the availability of
abstract as main inclusion criteria, and this yielded 658 abstracts.

11) Page 6: para on publication rate: “It is remarkable the increase in the 90s,
though irregular, with a trend towards to be more sustained since 2004, peaking
in 2013.”

• Please rephrase this to say that there has been a remarkable, albeit irregular,
increase in the number of publications during the 1990s, with a more sustained
increase from 2004 onwards, and a peak in 2013.

12) Page 7: “Palestine where a total of 770 publications were retrieved in the
medical and biomedical field in ten years “

• Change to “medical and biomedical field across a ten#year period (01 January
2002 to 31 December 2011), averaging approximately 80 articles per year.
Interestingly, the number of publications has also increased four#fold during this
period 2002#2011, showing stabilization in the last three years of the study
period.”

13) Page 7: “A study published in 2007, that analyzed the geography of the
PubMed biomedical “

• Remove the word “the”

14) Page 7 “concluded that, though the contribution of Africa was weak, it was
evident a continuous increase during this period “

• Might be best not to say that the contribution of Africa to the publication pool
was weak, but rather say that “the contribution of Africa was considerably less
than other continents, in particular (e.g., North America, Europe, etc.), although it
was evident that there was a continuous increase in publication output during this
period in all African sub#regions, although Angola was located in the lowest
quintile with less than two publications per year.”

15) Page 7 “Tuberculosis occupied the 10th position with nine papers (Figure 2).
As a whole, infectious diseases was a topic of 59% of the publications under
analysis (n=178).”

• Change to tenth not 10th

16) Page 7 “There is a clear disproportion between the volume of publications on
HIV/AIDS infection and tuberculosis, which was not expected, given the frequent
association of both morbidities.”
• It might be better to say that “Interestingly, there was a disproportionate volume of publications on HIV/AIDS relative to tuberculosis, which is unusual given the frequent association of both morbidities.”
• Provide a reference that indicates that TB and HIV are commonly co-occurring

17) Page 8 – top: Slightly change the wording here from “trend to” to “trend towards”
Add the percentage of publications in which the first author came from an Angolan institution.
Change the sentence to say “The primary affiliation of the first author…”

18) Page 8: “A total of 150 institutions were listed as the first author primary affiliation revealing a high institutional dispersion and 65% of publications represented academic research conducted in universities and institutes or research centers, as shown in Figure 4. “
• Please break up this sentence, for example “…High institutional dispersion. Furthermore 65% of publications represented…”

19) Page 8 “The majority of the research in academic institutions, as evaluated by first-author affiliations were located in Portugal” change this to “Majority of the research “was” located in Portugal etc.
“…although the number of institutions involved in any one of these countries was still quite modest”
Put a full stop after (Figure 5).

20) Page 8 – “Nevertheless, this involvement is dispersed in many different institutions with low track record.” Change to:
“Nevertheless, this involvement is dispersed across many different institutions, many of which having relatively low track records [in what?]”
• What do they have a low track record in?

21) Page 8 bottom: “An Angolan researcher was the first author in fifty-eight abstracts (19%) and when the first author was affiliated to an Angolan institution the first author or co-author were in the vast majority Angolan researchers (Figure 6).”
Break up this sentence so it is like below:
“An Angolan researcher was the first author in fifty-eight abstracts (19%). Further, when the first author was affiliated to an Angolan institution, the first author or co-author were in the vast majority Angolan researchers (Figure 6).”
Also, how were you able to tell that an author was Angolan?

22) Page 9 top: Change to “African first authors” instead of “first African authors.”

23) Page 9: Simplify “but in the context of the African region it is noteworthy the fact that one fifth of all publications had an Angolan as first author.” to
“it is noteworthy that one fifth of all…”

24) Page 9: “Epidemiological research was by far the most significant (n=165) (Figure 7).”
Don’t use the word significant if you haven’t done a statistical test. Use an alternative – “was by far the most common research area”

25) Page 9: “However, the increasing frequency of non-communicable diseases in sub-Saharan Africa must be a matter of concern for research in Africa in coming years.”
Say that “However, the increasing frequency of non-communicable diseases in sub-Saharan Africa is likely to be a matter of concern for research in Africa in coming years.” I think it is too strong to say that it MUST be a matter of concern unless you can provide evidence for this.

26) “On the other side, it is noteworthy the small number of publications on socioeconomic and professional research, that includes governance, health policies, health systems management and human resources. “
• You should state what exactly the number were here and/or include the percentages.

27) Page 9 rephrase ” Angola was a war zone during more than 50% of existence as an independent state (27 years out of 39), it could be expected a much relevance of studies evaluating the socioeconomic determinants of health, such as unemployment, poverty, scholarly, family dissolution and lifestyles and also studies on the performance of health unities and health systems. “
• Say instead that “Angola was a war zone for more than 50 percent of its existence as an independent state, we might have expected a larger number of research publications on relevant topics such as the socioeconomic determinants of health (e.g., unemployment, poverty, education, family dissolution and lifestyles) and the performance of health unities and health systems”

28) Page 9 “In fact, we recognize the possibility that studies concerning “ Change ‘in fact’ to ‘however’

29) Page 9 bottom
“We expect that the increasing number of health professional schools in Angola, particularly since 2009, including six new public medical schools,”
• Rephrase this to:
“We expect that the increasing number of health professional schools in Angola, including six new public medical schools, particularly since 2009, will raise interest in these topics, particularly if educational curricula at the undergraduate and postgraduate levels in Angola incorporates more programs focused on improving research skills and providing on#the#job training in epidemiology”
30) Page 10, top: Change to
“…PLoS ONE and Malaria Journal, both of which are free access journals indexed by…”

31) Page 10:
“Additionally, Malaria Journal is the only journal that publishes exclusively articles on malaria and, as shown, this disease was the most published topic found out in the present study. Notwithstanding the debate around open access publishing, it brings to readers of less resourceful countries free access to a wide range of useful research and information [26-29].”

• Rephrase this to
“This finding is not unusual given that malaria was the most common research topic among Angolan publications observed in the present study. Notwithstanding the debate around open access publishing, the findings reinforce the importance of open access publishing in providing readers in financially disadvantaged countries with free access to a wide range of relevant research and information”

32) Page 10 bottom: “Additionally, authors nationality miss- reporting was detected in a few papers and may have contributed to underestimation of Angolan authorship.”

• Rephrase this sentence, saying that
“In addition, the incorrect reporting of authors’ nationality and affiliation, as was observed in a few of the papers in the present study, may further contribute to underestimation of Angolan-authored publications.

33) Page 11:
“However, Portugal, United States of America and Brazil academic institutions contributed more than Angola universities and research institutes to research publication.”

• Rephase to:
“. However, academic institutions in Portugal, the United States of America, and Brazil contributed more than universities and research centres in Angola to research publication.”

34) The word exiguity is not very clear. Maybe better to say “and remarkably, a very small number of publications on economic and professional issues…”

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