Title: Being safe, feeling safe and stigmatizing attitude among primary health care staff in providing Multidrug-Resistant Tuberculosis care in Bantul District, Yogyakarta Province, Indonesia

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Response to Reviewers

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Being safe, feeling safe and stigmatizing attitude among primary health centre staff in providing Multidrug Resistant Tuberculosis care in Bantul District, Yogyakarta Province, Indonesia.

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Dear Editor of Human Resources for Health,

We thank all the comments from the reviewers. We response to the reviewers’ comments point by point. We do hope that these response are adequate to support the publication of the manuscript.
Reviewer #1: Dear Authors, Thank you for a very interesting paper, which reported the knowledge and attitude of health professionals when conducting MDR-TB care. The authors showed a good intention to present an in-depth analysis on the level of health professional occupational safety services especially for those who are in contact with MDR-TB patients in primary health care. In addition, the study highlighted a major barrier to quality care. The work was basically well constructed. Some issues below require the author(s)' attention and revision:

Response: Thank you for your feedback. We response your comments point by point as following.

1. The introduction for this paper is well written and clearly sets out an aim for the research. It would be valuable to include a null hypothesis for further clarity.

Response: Thank you for your comment. Our research was based on a mixed methods study, which consisted of a cross-sectional survey and a qualitative study. The overall aim of the mixed methods study is to explore the issue of safety, feeling safe, and stigmatizing attitude among health staff working with multidrug resistant tuberculosis cases in Primary Health Clinic facilities in Indonesia (see Page 2, Line 31-35). The cross-sectional study was conducted to assess the health staff’s knowledge about infection control and their attitude to conduct proper care protocols for MDR-TB. Through the survey, we would like to describe whether health staff’s knowledge about infection control and the attitude to conduct DOT for MDR-TB were lacking (see Page 2-3, Line 49-53). The qualitative study was conducted by observations and in-depth interviews. The observation aimed to assess the infrastructure and activities related to infection control. We also conducted in-depth interviews to explain the findings from the cross-sectional study and observation, and to explore about reasons behind irrational stigma behavior (see Page 3, Line 54-58).

2. On the Methods and Materials, a reference should be used for the DOT as some readers may not be familiar with it and wanted to read its reference article.

Response: Thank you. We add two references (No. 8-9) as suggested (see Page 1, Line 25), i.e.:
• WHO South-East Asia. What is DOTS (Directly Observed Treatment, Short Course) http://www.searo.who.int/tb/topics/what_dots/en/.


3. In M & M section, the description is satisfactory. It wasn't entirely clear which national infection control guidelines were used in constructing the survey, reference is needed.

Response: Thank you. We add the reference (No. 13) as suggested. See Page 4 Line 89:


4. The author(s) mentioned that "There are 27 PHCs located in 17 sub-districts of Bantul". However, only 24 PHCs were reported in the analysis.

Response: Thank for your comment. There are three type of data collections in the study: (1) a survey using self-administered questionnaires: we selected relevant PHC staff (physicians, TB program staff, registration staff, health promotion staff, health environment staff) from all 27 PHCs by quota sampling. In collaboration with District Health Office, the researchers invited all relevant staff with the inclusion criteria to six consecutive meetings in district level to fill in the questionnaires; (3) Observation of health facilities: we selected 7 PHC that have provided DOT for MDR-TB and 17 PHC that considered has high number of TB at the district based on the suggestion from the District Health Office; (3) In-depth interviews: we selected relevant PHC staff from 17 PHCs, considering the achievement of data saturation;

To clarify this issue, we revised those in Page 3-4, Line 61-78:
For the survey, we selected staff that met the inclusion criteria in all 27 PHCs: health staff involved in implementing protocols for MDR-TB care (registration staff, medical doctors, nurses, lab staff) and infection control (staff responsible for health promotion and environmental health). Sample size calculation was done based on formula for descriptive cross-sectional study [12]. By estimating that 50% of staff among total 1800 population of relevant health staff at PHCs (Bantul district health office 2015, unpublished data) were knowledgeable about the MDR-TB care procedure and infection control, 95% confidence level, and precision 10%, we calculated a minimum sample size of 123 individuals for our study. Data on eligible staff were obtained from the District Health Office. We selected the staff by quota sampling until we reached the minimum sample size.

For the in-depth interviews, we selected health staff at PHCs relevant to MDR-TB care by purposive sampling (medical doctor, nurses, lab staff, and TB program staff) for in-depth interviews. We also conducted observations of infection control facilities with a TB infection control consultant to assess the adequacy of infrastructure and procedures of MDR-TB care in PHCs. Both in-depth interviews and observations were conducted until data saturation was achieved.

We also revised table 2 to clarify the results of analysis.

5. The authors mentioned that "Seven of 27 PHCs have implemented DOT". The authors should clarify the number of participated who were recruited from the PHC that provides DOT and provided an analysis based on this variable. As this information might have an effect on the level of knowledge and attitude/stigma of the health workers toward infection control protocols.

Response: Thank for your suggestion. We add a comparison of the level of knowledge and attitude of the health workers in the 7 PHCs that provided DOT and 20 PHCs that have not provided PHCs. Please see the current Table 1, 3, 4 and 5.

6. In the results, the authors should mention the power of the sample size.

Response: Thank you. We add a sentence about sample size calculation (Page 3, Line 65-71):
Sample size calculation was done based on formula for descriptive cross-sectional study [12]. By estimating that 50% of staff among total 180 population of relevant health staff at PHCs (Bantul district health office 2015, unpublished data) were knowledgeable about the MDR-TB care procedure and infection control, 95% confidence level, and precision 10%, we calculated a minimum sample size of 123 individuals for our study. Data on eligible staff were obtained from the District Health Office. We selected the staff by quota sampling until we reached the minimum sample size.

7. From line 154 - 165, academic style rephrasing of this section is recommended. Please avoid direct speech sentences?

Response: Thank you. We revised the sentences;

The previous version:

We also found an inefficient use of the infrastructure of infection control in our observations. For illustration, in a DOT room outside the PHC building that had much airflow, there was an ordinary fan and exhaust fan had been set up. Both fans were used when DOT was provided.

A fact about lacking knowledge about infection control protocols was confirmed in the observations. The observations revealed unsafe practices such as unawareness of health staff about the direction of airflow while they were providing DOT. The health staff even stood in the opposite direction of airflow. We saw the health staff unknowingly allowed the MDR-TB patients to be without surgery masks when the patients were having cough during the DOT.

The revised version (see Page 6, Line 145-150):

The observations also revealed unsafe practices such as health staff’s unawareness of health staff about the direction of airflow while they were providing DOT. The health staff even stood in the opposite direction of airflow. The observation also found the health staff unknowingly allowed the MDR-TB patients to be without surgery masks when the patients were having cough during the DOT.

8. Table 4, please re-phrase the title to clearly explain the contents.
Response: Thank you for your suggestion. We divided the previous table 4 into two tables (Table 4 and 5). We revised the titles of the table:

Table 4: Distribution of Primary Health Care staff who stated perceived stress and fear to conduct Multidrug Resistant Tuberculosis care

Table 5: Distribution of Primary Health Center staff who agree about perceived capacity and motivation to conduct Direct Observed Treatment for Multidrug Resistant Tuberculosis patients

9. Re-drafting considerably your discussion and conclusions sections, which at present are under-developed with regards to the implications. I also suggest that the authors avoid generalization of the results.

Response: Thank you. We revised the discussion by adding the implications (see Page 12-13, Line 296-320):

“The state of being safe is a priority issue that should be addressed by improving the quality of infection control. Our finding showed a need for knowledge and capacity building for infection control. We argue that this intervention will be a foundation to influence the feeling of safety among health workers to conduct MDR-TB care.

Our study added the gap of knowledge about whether the stigma of health staff to conduct TB care, is/is not reasonable. The internalized and enacted stigma among health staff is found related to feeling unsafe due to lacking infection control infrastructure and knowledge. Improved supervision of MDR-TB care should be performed with the continuation of its implementation.

The findings about stigmatic stigma signified the need for improvement of the quality of care provided by health staff at PHC. Considering that patient-centered care is one of pillars of the strategy to end TB [1], we agreed with others that the improvement of quality of MDR-TB care should include empathy and respect for the patients [24].

Interventions to reduce stigma concerning TB among health care providers is limited [25]. Wu et al.’s study put an effort to decrease internalized stigma among healthcare worker by training to improve knowledge and attitude among health staff; however, it has been shown less effective
among health staff conducting DOT [26]. Hence more research is needed to get pieces of evidence about the effective strategies to reduce stigma among health staff providing MDR-TB care.”

We also add study limitation, to emphasize that the study was limited in the generalization in other setting (see Page 14, Line 547-548): “This study explored the phenomena of safety and stigmatic attitude with qualitative study which was limited in the generalization in other setting.”

We revised the conclusion (see Page 15 Line 573-576): Our study concluded with a clear demonstration of lacking safety, feeling unsafe, and stigmatic attitude among health staff to conduct patient-centered MDR-TB care in PHCs in Indonesia. Serious efforts are needed on all levels to ensure safety and prevent irrational stigma.

Reviewer #2: This is an important and actual issue with a differentiated approach in investigating the feelings of health workers about the sense of security and stigmas related to multidrug-resistant care in Tuberculosis in Indonesia. The lack of research on this aspect indicates its scientific relevance. In general, the article is appropriate for different aspects in relation to: background, objectives, methods, results and conclusions.

Response: Thank you for your comment. We really appreciate it.

However, I have some questions/considerations:

1) replace, in the abstract, the acronyms by the expressions;

Response: Thank you. We revised as suggested. Please see the revised abstract:

Introduction: Patient-centered care approach in multidrug resistant tuberculosis care requires health worker safety, that covers both being safe and feeling safe to conduct the services. Stigma has been argued as a barrier to patient-centered care. However, there has been relatively little research addressing the issues of safety and stigma among health staff. This paper explored the
issue of being safe, feeling safe, and stigmatizing attitude among health staff working with multidrug resistant tuberculosis cases in Primary Health Care facilities in Indonesia.

Methods: Using a mixed-methods research design. Data was collected with structured questionnaires among 123 staff, observations of infection control in 17 Primary Health Care facilities, and in-depth interviews among 22 staff.

Results: The findings showed suboptimal infection control infrastructures for the Primary Health Care facilities. The knowledge and motivation to follow multidrug resistant tuberculosis care protocols are suboptimal. Feeling unsafe is related to stigmatizing attitude in providing multidrug resistant tuberculosis care.

Conclusion: Being safe, feeling unsafe and stigmatizing attitude are challenges in providing patient-centered multidrug resistant tuberculosis care in Primary Health Care facilities in Indonesia. Serious efforts are needed on all levels to ensure safety and prevent irrational stigma.

2) how were participants selected to participate in the quantitative and qualitative phases?

Response: Thank you. We revised the description about sampling to clarify (see Page 3, Line 64-71):

“Research participants and sampling

For the survey, we selected staff that met the inclusion criteria in all 27 PHCs: health staff involved in implementing protocols for MDR-TB care (registration staff, medical doctors, nurses, lab staff) and infection control (staff responsible for health promotion and environmental health). Sample size calculation was done based on formula for descriptive cross-sectional study [12]. By estimating that 50% of staff among total 180 population of relevant health staff at PHCs (Bantul district health office 2015, unpublished data) were knowledgeable about the MDR-TB care procedure and infection control, 95% confidence level, and precision 10%, we calculated a minimum sample size of 123 individuals for our study. Data on eligible staff were obtained from the District Health Office. We selected the staff by quota sampling until we reached the minimum sample size.

For the in-depth interviews, we selected health staff at PHCs relevant to MDR-TB care by purposive sampling (medical doctor, nurses, lab staff, and TB program staff) for in-depth interviews. We also conducted observations of infection control facilities with a TB infection control consultant to assess the adequacy of infrastructure and procedures of MDR-TB care in
PHCs. Both in-depth interviews and observations were conducted until data saturation was achieved.”

3) Although it is a research of mixed methods, the quantitative results were privileged to the detriment of the qualitative results (of the in-depth interviews). Only one speaking of a participant was presented, regarding his/her feelings. In that sense, I suggest revising the methodological design and perhaps include only the quantitative results in this article. Another option would be to expand qualitative data.

Response: Thank you. We expand the analysis of the qualitative data. We add the example of content analysis in Table 6, and expand the qualitative part in the results (see page 9-11, Line 204-264).

Reviewer #4: As the authors claimed, this manuscript has the advantage of rarity of research, which explores the issue of the stigmatizing attitude among health professional workers dealing with MDR-TB treatment. However, there are major issues that must be resolved before this manuscript will be ready for publishing.

1. Framework. Only a descriptive snapshot of what occurs in a primary health care facility is provided.

Response: Thank you for your comment. Our research was based on a mixed methods study, which consisted of a cross-sectional survey and a qualitative study. The overall aim of the mixed methods study is to explore the issue of safety, feeling safe, and stigmatizing attitude among health staff working with multidrug resistant tuberculosis cases in Primary Health Clinic facilities in Indonesia (see Page 2, Line 31-35). The cross-sectional study was conducted to assess the health staff’s knowledge about infection control and their attitude to conduct proper care protocols for MDR-TB. Through the survey, we would like to describe whether health staff’s knowledge about infection control and the attitude to conduct DOT for MDR-TB were lacking (see Page 2-3, Line 49-53). The qualitative study was conducted by observations and in-depth interviews. The observation aimed to assess the infrastructure and activities related to infection control. We also conducted in-depth interviews to explain the findings from the cross-
sectional study and observation, and to explore about reasons behind irrational stigma behavior (see Page 3, Line 54-58).

In order to have a better description, we add the analysis about comparison of knowledge and attitude between staff with different characteristics (please see the current table 1, 3, 4 and 5).

2. If the stigma exists, it would be interesting to hear the thoughts of the authors in the discussion section of the manuscripts as to the reasons behind this, and what possible solutions exist to address the issue.

Response: Thank you. We revised the results by highlighting that the reasons behind the stigmatic attitude was fear of being infected among the health staff. Moreover, there was perceived high risk of being infected, while there was perceived limited security. Please kindly refer to the revise Results section (Page 9-11, Line 210-256; and Page 11, Line 259-264).

In the discussion we add that evidence about intervention to reduce stigma among health care provider is still limited. More research is needed to get pieces of evidences about the effective strategies to reduce stigma among health staff providing MDR-TB care (see Page 13, Line 314-320).

3. What were the reasons for the inadequate sub-optimal knowledge about infection control protocol among care providers for MDR-TB?

Response: Thank for your question. The qualitative data revealed that lacking of training. Please see Page 11 Line 251-256:

“Information from the in-depth interviews showed that the coverage and quality of training was perceived inadequate by some health staff at PHCs. The survey data showed that only 29% of health staff received the training on DOT for MDR-TB procedure. Our confirmation with the TB program managers revealed that the training was conducted in a working day at the PHC as a preparation to receive a back referred patient from the MDR-TB center hospital.”
4. If the knowledge gap is the cause of the undesirable behaviors or the unnecessary practice of health care providers, then would it be desirable to expand on this?

Response: Thank for your question. We expanded the description about the undesirable behaviours or the unnecessary practice in Page 9, Line 204-226:

The observation showed inefficiency in the use of the infection control infrastructure of infection control in our observations. For illustration, in a DOT room outside the PHC building that had much airflow, there was an ordinary fan and exhaust fan had been set up. Both fans were used when DOT was provided.

The feeling of being unsafe was also reflected by unnecessary practices by health staff such as wearing double hand gloves, waterproofed gown, plastic boots, and double masks. Those practices reflected efforts to have maximum protection. As an illustration, a nurse at PHC stated, “I am afraid of being infected… [I know that] the PHC staff who conducts the DOT wear excessive personal protective equipment… I am laughing at them, but I am also afraid…Accident can happen. If we get infected, what is the guarantee? Let’s see, some of our friends got infected, what do they get? Even we are blamed, because of the lack of personal protective equipment…” (Health staff 11, a nurse)

Feeling safe or unsafe to conduct DOT for MDR-TB patients was an interaction between four domains: fear, perceived risk, security, and adequate training (Table 6). Fear was perceived as a health staff’s natural expression when taking care of patients with MDR-TB.

5. The Conclusion section only confirmed the existing stigma and the lack of knowledge of the MDR-TB care-providers.

Response: Thank for your comment. We revised the conclusion to:

Our study concluded with a clear demonstration of lacking safety, feeling unsafe, and stigmatic attitude among health staff to conduct patient-centered MDR-TB care in PHCs in Indonesia. Serious efforts are needed on all levels to ensure safety and prevent irrational stigma.
6. Structure. The introduction can be shortened, and more focused on the purpose behind the study.

Response: Thank you for your suggestion. We revised the introduction as suggested.

7. Also, it may not be proper to describe the performance of the TB control program in the Methods section. The performance itself is arguably the reason behind the study, and therefore should be in the introduction.

Response: Thank you. We revised as suggested.

8. I would recommend that the Methodology section describe the 3 methods of investigation, the Results section outline the specific results from each of the methods, and the Discussion section explore a detailed analysis of the study.

Response: Thank you for your comment. We revised the methods to clarify three methods of data collection (See page 3 Line 61-65; Page 3-4 Line 72-78). In the results and discussions, we outline the section based on the themes (being safe, feeling safe, and stigmatic attitude) to conform the principle of presentation of mixed methods study: by merging the qualitative data and quantitative data in each theme, as suggested by this reference:


Reviewer #5: Tuberculosis in general and MDR TB specifically, are important public health issues especially in the context of high burden countries such as Indonesia. Any barriers in providing care to cases of MDR TB as a result of stigmatization could have serious programmatic as well as biological consequences. Hence, this research is an important issue under study. However, the manuscript has serious methodological issues, specifically for qualitative data collection. Hence no comments made on the findings.

Examples of methodological issues include:

1. Quantitative arm is not powered to make conclusions. Results from even knowledge related questions can't be relied upon as the study is under powered.
Response: We add the description about sample size calculation. Please refer to Page 3 Line 65-71:

Sample size calculation was done based on formula for descriptive cross-sectional study [12]. By estimating that 50% of staff among total 180 population of relevant health staff at PHCs (Bantul district health office 2015, unpublished data) were knowledgeable about the MDR-TB care procedure and infection control, 95% confidence level, and precision 10%, we calculated a minimum sample size of 123 individuals for our study.

2. Qualitative arm is not well documented to draw conclusions. The data was not collected, analysed and presented according to standard protocols, and procedures (Like COREQ). There is no description of how the qualitative thematic guide was developed for the study. Section also lacks the mention of the major themes on which the qualitative data was collected. Additionally, results section doesn't have adequate mention of qualitative findings. Only one quotable quote was used out of 32 interviews reportedly conducted in the study.

Response: Thank you. We add the table 6, which is representing the example of the content analysis results. We also expand the results of the qualitative data analysis (see Page 9-11, Line 204-264).

3. Even qualitative sampling is supposed to be representative. For example, majority respondents are females in the qualitative arm. Is this representative? If not then gender could introduce a bias if related to patient care and stigma

Response: Thank you for your comment. The unpublished data from the Bantul district health office revealed that majority of health staff at Puskesmas is female. The results of the cross-sectional survey part in this mix methods study showed the similar pattern. However, since it is the qualitative study, representation of information is more relevant than representation of numbers. Therefore, we deleted the sentence about the majority of females in the qualitative arm.

4. Over all, not adequate evidence (both in terms of quality and quantity) to derive conclusions

Response: Thank you for your comment. We revised the overall manuscript to strengthen the evidence, from both quantitative and qualitative data. We added some comparative analysis for
the quantitative data and expanded the results from the qualitative data analysis. Please kindly refer to the revised manuscript.