

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Willingness to seek medical care for tuberculosis and associated factors among the elderly population in Shenzhen: A cross-sectional study
<b>AUTHORS</b>	Wang, Yunxia; Feng, Jing; Zhang, Juanjuan; Shen, Xin; Lei, Zihui; Zhu, Yi; Meng, Xin; Di, Hongkun; Xia, Wenqi; Lu, Zuxun; Guo, Yanfang; Yuan, Qing; Wang, XiaojuN; Gan, Yong

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Chan, Mei Wai RCSI & UCD Malaysia Campus, Family Medicine
<b>REVIEW RETURNED</b>	30-May-2021

<b>GENERAL COMMENTS</b>	Kindly state the sample size calculation, inclusion and exclusion criteria for the participants. Can give references on the structured questionnaire that you have created for this study? Table 2: please state the N=151. Kindly explain on "others" in your result. Table 3: please state the total number of participants for each group. Please check the numbers for each column as it i not tally with your total number.
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<b>REVIEWER</b>	Probandari, Ari Universitas Sebelas Maret, Department of Public Health, Faculty of Medicine
<b>REVIEW RETURNED</b>	10-Jun-2021

<b>GENERAL COMMENTS</b>	General comment: The article highlights an important issue of tuberculosis control. However, there is lacking clarity on methods, results, and discussion.  Specific comments: Major revision 1. Methods: a. Please describe the research setting under the Methods section. b. Please write a sub-section on research design under the Methods section. The authors write about the study design under the instrument and measurement. It should be removed to a proper sub-section c. Please describe the source of sampling frame to select 600 people aged 65 years from every community health service centre.
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	<p>d. How many questions of each domain of the questionnaire?</p> <p>e. Please elaborate on the operational definition of each variable?</p> <p>f. Please elaborate on “a logic check of all data was undertaken to determine if there were any contradictions.” (Page 8)? How did the authors did check for 1140 participants?</p> <p>g. How the authors apply ethics principles in the data collection and analysis?</p> <p>2. Results: In relation to my comment no. 1.d.; I suggest that the results should be presented by each item analysis (for health-related characteristics, knowledge, attitude, and practice for TB prevention and control and medical care-seeking willingness for TB).</p> <p>3. Discussion:</p> <p>a. The discussion needs more references to support the arguments.</p> <p>b. The implications of the research should be reflected in the international context – including other countries with a high burden of TB.</p> <p>Minor revision</p> <p>1. In writing proportion, write 86.7% instead of 86.75%. It needs only a digit number after a point. Please revise for all relevant numbers.</p> <p>2. The manuscript needs an English edition to conform to academic writing standards.</p>
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<b>REVIEWER</b>	Hossain, Shahed
<b>REVIEW RETURNED</b>	icddr,b, Centre for Equity and Health Systems 19-Jun-2021

<b>GENERAL COMMENTS</b>	<p>This is a good report, covering an important area of TB care-seeking and focusing on one of the most at-risk population, the elderly above 65 years in China.</p> <p>The manuscript is well written and almost all sections are described. The intro with literature review and rationale is well laid out. The methods are succinctly written, however, may need further elaboration in some areas;</p> <p>i. Provide the selection and further description of the setting, the Bao’an District of Shenzhen</p> <p>ii. The process of multistage randomization is not clear. Whether a sampling frame was created and how randomization was done.</p> <p>iii. It will be useful if the ongoing TB management programme is described in the setting: Whether the treatment, diagnosis, and follow are done free of cost? How close are the centers for TB treatment to the people? Why are people incurred cost for TB treatment? Is there any supplementation for the TB patients in terms of monetary or nutrition? Is the case detection process active or passive and if active are there any incentives for the workers? Etc.</p> <p>iv. Instrumentation: Justification scoring put off points 3 and 2. Are they based on mean or median or what? Are all the items carry the same weight?</p> <p>v. Measurement: A binary logistic stepwise regression model was used. Not clear what were steps and what variables were included in the model and how?</p>
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vi. Results: Table 3 is not well described in the text. Line 18 on page 8 starts with a number (no problem if acceptable with BMJ format)

vii. Finally, were informed consents taken from the participants?

Considering all, the manuscript covered an important area of public health that needs attention from the policymakers and has greater implication for the TB control measures in future.

Thanks.

## VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

1. Kindly state the sample size calculation, inclusion and exclusion criteria for the participants.

**AUTHORS' RESPONSE:** We greatly appreciate the reviewer's thoughtful comment. The sample size was calculated according to the formula,  $n = [Z^2 p(1-p)]/d^2$  (where  $n$  = sample size,  $Z$  = confidence level for a normal distribution,  $p$  = estimated proportion, and  $d$  = absolute error). A previous study showed that 92.2% of residents aged  $\geq 15$  years who suspected themselves had TB would seek healthcare immediately in Bao'an district of Shenzhen. (Zhao MG, Wang WX, Tang Y, et al. Survey on knowledge, attitude and practice about tuberculosis prevention and treatment among residents in Bao'an District of Shenzhen. *J Clinic Pulmonary Medicine*. 2015, 20(9).1567-1571.) Taking a confidence interval of 95% and an absolute error of 5%, the sample size was rounded off to 113. To compensate for nonresponses, the sample size was increased by 10% to 124. Totally, 1,123 valid questionnaires were included in the final data analyses. Thus, the sample size was sufficient in our study.

In addition, we have followed the reviewer's suggestion and added the inclusion and exclusion criteria for the participants. It was reported that elderly people in the study communities who met the following criteria were included in the survey: (1) aged 65 years and older; (2) residence in the area for at least half a year; (3) no communication disorders or mental illnesses; and (4) willingness to complete the survey. Individuals were excluded if they did not meet one of the above requirements.

Now, in the revised manuscript, we have made the change accordingly in the section of study population and sampling.

2. Can give references on the structured questionnaire that you have created for this study?

**AUTHORS' RESPONSE:** We greatly appreciate the reviewer's thoughtful comment. We apologized for the unclear statement in the previous manuscript. In the revised manuscript, we have added references on the structured questionnaire accordingly in the section of study design and measurement.

3. Table 2: please state the N=151. Kindly explain on "others" in your result.

**AUTHORS' RESPONSE:** We greatly appreciate the reviewer's thoughtful comment. First, we would like to explain it. In the revised manuscript, we have checked our data and made some corrections. The number of respondents who were unwilling to seek medical care for TB was 155. We have reported it in Table 2. In addition, we want to explain it as follows. We were unable to acquire the information of other specific reasons regarding unwillingness to seek care for TB. In the questionnaire, we have listed "others" as an open-ended question. The respondents did not fill this question. Therefore, other specific reasons

remained unknown. This is a limitation of our study. In future research, we could consider designing the specific response to investigate the reasons for being unwilling to seek medical care for TB among the elderly.

4. Table 3: please state the total number of participants for each group. Please check the numbers for each column as it is not tally with your total number.

**AUTHORS' RESPONSE:** We greatly appreciate the reviewer's thoughtful comment. We apologized for our carelessness in the previous manuscript. Now, in the revised manuscript, we have checked the data and made some corrections for the full text. However, it did not alter our important findings. Because the elderly people have relatively poor memories and some may be reluctant to disclose sensitive information, some data were missing in the questionnaires. Although we included the individuals who had no communication disorders or mental illnesses, a small percentage of missing data remained. Therefore, the number of each column was not tally with the total number (N=1,123). Now, in the revised manuscript, we have reported the missing number of participants for each group in the notes of Table 1 and 3.

Reviewer: 2

Major revision

1. Methods:

a. Please describe the research setting under the Methods section.

**AUTHORS' RESPONSE:** We greatly appreciate the reviewer's thoughtful comment. In the revised manuscript, we have followed the reviewer's suggestion and added some research settings in the section of methods.

b. Please write a sub-section on research design under the Methods section. The authors write about the study design under the instrument and measurement. It should be removed to a proper sub-section.

**AUTHORS' RESPONSE:** We greatly appreciate the reviewer's thoughtful comment. Now, in the revised manuscript, we have followed the reviewer's suggestion and made the change accordingly in the section of methods.

c. Please describe the source of sampling frame to select 600 people aged 65 years from every community health service centre.

**AUTHORS' RESPONSE:** We greatly appreciate the reviewer's thoughtful comment. In the previous manuscript, we have reported the sampling in the section of study population and sampling of methods in detail. We would like to explain it as follows. Shenzhen Bao'an Centre for Chronic Disease Control provided the sampling frame. The study sample was obtained by a multistage random sampling procedure. There were 8 community health service centres with chest X-ray film screening capabilities in Bao'an District. In the first stage, 2 of these 8 community health service centres were selected randomly. In the second stage, 600 people aged 65 years or above who received health examinations were randomly selected from every community health service centre. Totally, 864 and 728 participants aged  $\geq 65$  lived in these two community health service centres, respectively. Finally, we randomly selected 600 people aged 65 years or above from every community health service centre. The simple random sampling method was used to select samples randomly at each stage.

d. How many questions of each domain of the questionnaire?

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. The number of questions was 8, 4, 16, and 2 in the section of demographic characteristics, health-related characteristics, knowledge, attitudes, and practice for TB, and medical care-seeking willingness for TB, respectively. Now, in the revised manuscript, we have provided the questionnaire in the supplemental material.

e. Please elaborate on the operational definition of each variable?

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. In the revised manuscript, we have made the change accordingly in the section of statistical analysis.

f. Please elaborate on "a logic check of all data was undertaken to determine if there were any contradictions." (Page 8)? How did the authors did check for 1140 participants?

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comments. We apologized for our unclear statement. The logical errors were identified as some mismatched socio-demographic characteristics for individuals. For example, an individual aged 70 years old reported the duration of residence in Shenzhen was more than 70 years. In the revised manuscript, we have made the change accordingly in the section of data collection and quality control.

g. How the authors apply ethics principles in the data collection and analysis?

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. Before the questionnaire survey, all participants were informed of the purpose of this study. We promised that the data was only used for scientific research. Informed consent was obtained from all survey participants. In addition, all questionnaires were anonymous. The personal information involved would be kept strictly confidential.

## 2. Results:

In relation to my comment no. 1.d.; I suggest that the results should be presented by each item analysis (for health-related characteristics, knowledge, attitude, and practice for TB prevention and control and medical care-seeking willingness for TB).

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. In terms of health-related characteristics, we have followed reviewer's suggestion and made the change accordingly. Regarding knowledge, attitude, and practice for TB prevention and control, we think the questions of each domain should be considered as a whole to make a qualitative evaluation of the dimension. If we reported the multivariable analyses results presented by each item analysis, the findings would be unable to show the comprehensive information. Thus, we defined respondents who answered 60% of the knowledge, attitudes, and practice questions correctly or appropriately as being aware of TB or having positive attitudes or practices towards TB. Finally, we systematically analyzed the associations between demographic characteristics, health-related characteristics, TB knowledge, attitude, or practice and medical care-seeking willingness in the multivariable model through the logistic stepwise regression method. Therefore, we think that it was relatively unreasonable to present the results by each item analysis.

## 3. Discussion:

a. The discussion needs more references to support the arguments.

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful suggestions. In the revised manuscript, we have provided more references to support our arguments accordingly.

b. The implications of the research should be reflected in the international context – including other countries with a high burden of TB.

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. In the revised manuscript, we have added some international context and made the change accordingly in the section of discussion.

Minor revision

1. In writing proportion, write 86.7% instead of 86.75%. It needs only a digit number after a point. Please revise for all relevant numbers.

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. In the revised manuscript, we have revised all relevant numbers accordingly.

2. The manuscript needs an English edition to conform to academic writing standards.

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. In the revised manuscript, we have edited our manuscript carefully.

Reviewer: 3

1. Provide the selection and further description of the setting, the Bao'an District of Shenzhen

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. In the revised manuscript, we have followed the reviewer's suggestion and added some descriptions of the setting accordingly.

2. The process of multistage randomization is not clear. Whether a sampling frame was created and how randomization was done.

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. We apologize for the unclear statement. In the previous manuscript, we have reported the sampling in the section of study population and sampling of methods in detail. We would like to explain it as follows. Shenzhen Bao'an Centre for Chronic Disease Control provided the sampling frame. The study sample was obtained by a multistage random sampling procedure. There were 8 community health service centres with chest X-ray film screening capabilities in Bao'an District. In the first stage, 2 of these 8 community health service centres were selected randomly. In the second stage, 600 people aged 65 years or above who received health examinations were randomly selected from every community health service centre. Totally, 864 and 728 participants aged  $\geq 65$  lived in these two community health service centres, respectively. Finally, we randomly selected 600 people aged 65 years or above from every community health service centre. The simple random sampling method was used to select samples randomly at each stage.

3. It will be useful if the ongoing TB management programme is described in the setting: Whether the treatment, diagnosis, and follow are done free of cost? How close are the centres for TB treatment to the

people? Why are people incurred cost for TB treatment? Is there any supplementation for the TB patients in terms of monetary or nutrition? Is the case detection process active or passive and if active are there any incentives for the workers? Etc.

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. In the revised manuscript, we have made the change accordingly in the section of study setting. In fact, this study was funded by one of the sub-projects of the 13th Five-Year science and technology major project on comprehensive prevention and control of TB. This programme aimed to actively detect TB cases among the elderly population through TB symptoms and chest X-ray film screening. The Centre for Chronic Disease Control, the local TB designated institution, has provided TB diagnosis, treatment, and management. Patients had free access to anti-TB fix-dose combination products and must undergo standard anti-TB treatment. Since patients started to take anti-TB drugs, they were required to visit the Centre for Chronic Disease Control every month for health checks until the treatment ends. Besides the free TB drugs, the government has provided subsidies of transportation and nutrition for low-income TB patients. However, all patients had to pay for monthly prescriptions of subsidiary drugs such as liver protection drugs and auxiliary examinations like X-ray tests.

In summary, this was an active detection strategy for the elderly population. Meanwhile, the Chinese government have tried to conduct active strategies for other populations to detect TB cases, including patients with diabetes, and children.

4. Instrumentation: Justification scoring put off points 3 and 2. Are they based on mean or median or what? Are all the items carry the same weight?

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. We apologized for the unclear statement. In fact, all the items carry the same weight. Respondents who can answer 60% of the knowledge, attitude, and practice questions correctly or appropriately were categorized as being aware of TB or having positive attitudes or practices towards TB. Now, in the revised manuscript, we have defined it more clearly in the section of study design and measurement.

5. Measurement: A binary logistic stepwise regression model was used. Not clear what were steps and what variables were included in the model and how?

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. We apologized for the unclear statement. In the binary model, dependent variable was the medical care-seeking willingness for TB of the elderly, which took neutral or unwilling attitude as the reference category. Independent variables included all characteristics of the population: age (65~70, 71~75, > 75), gender (male, female), residence (local residents, others), education (primary school or below, junior or senior middle school, college degree or above), marital status (married, unmarried/widow/divorced), medical insurance (yes, no), family annual income per capita (< 50,000 ¥, 50,000~100,000 ¥, 100,000~200,000 ¥, > 200,000 ¥), self-perceived health status (good, fair, bad), smoking status (current smoker, former smoker, never smoker), alcohol intake (current drinker, former drinker, never drinker), TB knowledge scores (< 3, ≥ 3), TB attitudes scores (< 3, ≥ 3), TB practice scores (< 4, ≥ 4). Our logistic regressions were performed according to a stepwise procedure, fitting all variables and sequentially discarding non-significant values. The final model contains only variables with a statistically significant impact on the medical care-seeking willingness for TB of the elderly. Additionally, in the multivariable analysis, these independent variables were automatically controlled excluding the confounding effect of them. Furthermore, the stepwise selection method could effectively eliminate the effect of multicollinearity. Thus, it was reliable and reasonable for our study. Actually, this method was extensively used in the epidemiology studies. (e.g. 1. Zhou Z, Hu D. An epidemiological study on the prevalence of atrial fibrillation in the Chinese population of

mainland China. J Epidemiol 2008;18(5):209-16. 2. Campbell JC, Messing JT, Kub J, et al. Workplace violence: prevalence and risk factors in the safe at work study. J Occup Environ Med 2011;53(1):82-9. 3. Meisinger C, Thorand B, Schneider A, et al. Sex differences in risk factors for incident type 2 diabetes mellitus: the MONICA Augsburg cohort study. Arch Intern Med 2002;162(1):82-9. 4. Shu C, Chen S, Qin T, et al. Prevalence and correlates of valvular heart diseases in the elderly population in Hubei, China. Sci Rep 2016;6:27253. 5. Rezzoug N, Vaes B, de Meester C, et al. The clinical impact of valvular heart disease in a population-based cohort of subjects aged 80 and older. BMC Cardiovasc Disord 2016;16:7.)

6. Results: Table 3 is not well described in the text. Line 18 on page 8 starts with a number (no problem if acceptable with BMJ format)

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. Now, in the revised manuscript, we have made the change accordingly in the section of results.

7. Finally, were informed consents taken from the participants?

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. Informed consent was obtained from all survey participants. Now, in the revised manuscript, we have made a statement about it in the section of ethics approval.

#### VERSION 2 – REVIEW

<b>REVIEWER</b>	Hossain, Shahed icddr,b, Centre for Equity and Health Systems
<b>REVIEW RETURNED</b>	01-Aug-2021
<b>GENERAL COMMENTS</b>	Thanks for addressing the review comments. Only suggestion: Please add p-values to the respective results given in the abstract of the manuscript. Wish you all the best! Thanks.

#### VERSION 2 – AUTHOR RESPONSE

Reviewer: 3

1. Please add p-values to the respective results given in the abstract of the manuscript.

AUTHORS' RESPONSE: We greatly appreciate the reviewer's thoughtful comment. In the revised manuscript, we have added p-values to the respective results given in the abstract accordingly.