Assessment of Knowledge, Attitude and Practice of Health Care Providers towards the Prevention and Control of Multi Drug Resistant Tuberculosis at Nekemte Referral Hospital, Western Ethiopia

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ABSTRACT

Background: Tuberculosis (TB) has existed for millennia and remains a major global health problem. Although it may be assumed that in general health care workers (HCWs) know about MDR-TB and its implications, several studies from around the globe have found that HCWs do not always exhibit sufficient knowledge, positive attitudes, and acceptable practices regarding preventing and treating MDR-TB.

Methods: A cross-sectional study was conducted by means of self-administered semi-structured questionnaires that were provided to health care workers of NRH from March 10 to April 2, 2017. Using convenient sampling technique, from 155 health professionals’ 140 individuals returned the questionnaires. The data was analyzed using SPSS version 20. Descriptive statistics was used to determine frequency and percentage. Chi-square test was used to identify the relationships between dependent and independent variables (P<0.05 and 95% CI).

Results: The mean age of participants was 30.76+6.42 years. About 56.4% of the participants were males and majority of participants were Nurses (42.2%). Greater than half (59.3%) of respondents had good level of knowledge about MDR-TB and the overwhelming majority of them held positive attitude (60.7%) towards patients with MDR-TB. Overall 21%, 55%, 72.1% of respondents reported that they had their own copy of MDR-TB management guidelines, used the protective masks and were individually involved in educating patients about MDR-TB respectively. Respondents who had good knowledge about MDR-TB significantly wore their Protective masks than those with insufficient knowledge which was statistically significant (P=0.01).

Conclusion: The finding indicates that the level of knowledge about MDR-TB did not influence the attitude and practices of respondents towards patients suffering from MDR-TB. Contrary to this good knowledge was positively associated with safer practices such as using protective masks, educating patients, and referring to the MDR-TB guidelines manual. This situation needs to be remedied by making the guidelines available to all healthcare workers in Ethiopia.

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1 INTRODUCTION

Tuberculosis (TB) has existed for millennia and remains a major worldwide health problem and is one of the top ten causes of mortality worldwide. Most of the estimated num-
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2 MATERIALS AND METHODS

2.1 Study area and period
The study was conducted in Nekemte Referral Hospital (NRH), Nekemte town, Oromia region, western Ethiopia which is found 331 km from Addis Ababa, capital city of Ethiopia. NRH has different departments and wards. The study was conducted from March 10 to April 2, 2017.

2.2 Study design
A cross sectional study was conducted by using self-administered semi-structured questionnaire to assess the knowledge, attitude and practice of HCWs towards MDR TB.

2.3 Population

2.3.1 Source population
All employed persons to Nekemte Referral Hospital including HCWs, staffs, administration unit, guard and secretaries.

2.3.2 Study population
All health care workers who were working in Nekemte Referral Hospital during study period: medical doctors, nurses, pharmacists, laboratory technicians, midwives, aestheticians and health officers.

2.4 Eligibility criteria

2.5 Inclusion criteria: All Health care providers who were present in the hospital during data collection period.

2.5.1 Exclusion criteria: Health care workers not willing for filling the questionnaires.

2.6 Study variables

2.6.1 Independent variables
• Socio demographic variable like Age, sex, marital status
• Educational qualification
• Work experience

2.6.2 Dependent variables
• Knowledge about prevention and control of MDR-TB
• Attitude towards prevention and control of MDR-TB
• Practice towards prevention and control of MDR-TB

2.7 Sample size and sampling technique
Given the small number of the targeted population, the study populations were selected by using convenient sampling technique. From 155 health professionals 140 individuals returned the questionnaire. About 15(9.7%) HCWs were non respondents.

2.8 Data collection process
A semi-structured questionnaire was used to collect the information on KAP of HCWs towards MDR-TB at Nekemte Referral Hospital. The questionnaire was distributed to the HCWs to fill it in their home or at their free time. Then the filled questionnaires were returned back after one week.

2.9 Data processing and analysis
The collected data was cleaned, checked for its completeness, categorized, coded and analyzed using SPSS version 20. Descriptive statistics was used to determine frequency and percentage. Chi-square test was used to identify the
relationships between dependent and independent variables (P<0.05 and 95% CI). The result was interpreted and presented using appropriate tables and figures.

2.10 Data quality assurance
The quality of the study was improved by explaining highlight of the questionnaire to the study populations during delivery of the questionnaires. During collection of the questionnaires, the data collector asked if there were any unclear ideas in the questionnaire and checked for any unfilled information. All completed data collection forms was checked and examined for their completeness, consistency, clarity and accuracy by the principal investigator. The data will be entered and cleaned by the investigator before analysis.

2.10.1 Operational definition
1. Good knowledge
2. Insufficient knowledge
3. Positive attitude
4. Negative attitude

3 RESULTS
3.1 Socio demographic characteristics
A response rate of 90.3% was achieved as 140 of 155 respondents returned the questionnaires. The mean age of participants was 30.76±6.42 years (ranged, 20 to 56 years). Majority of participants were young adults (Less than 30 years old); only three respondents were over 50 years old. About 56.4% of the participants were males and nurses constituted the majority of participants (42.2%). More than half (51.4%) of respondents had five years or less working experience. About (62.1%) were married and none was widowed. Table 1

3.1.1 Knowledge toward MDR-TB patients
Overall, 59.3% had good knowledge about MDR-TB based on their answers asked for assessing them. As shown in Table 2, the level of knowledge varied with age and professional categories but not statistically significant. About 65% of respondents aged less than 30 years had good level of knowledge about MDR-TB than their elder counterparts, though the difference was not statistically significant (p=0.084). In contrast, females and those with less than 5 years’ experience had insufficient level of knowledge than their counterparts; though the difference was also not statistically significant (p>0.05). On the contrary, the majority (95.8%) of medical doctors had significantly good knowledge about MDR-TB as compared to less than half of respondents among nurses. The mean knowledge score of the participants was 6.79 out of 10 (ranged, from 2 to 10).

3.1.2 Attitude toward MDR-TB patient
The mean attitude score of the respondents was 4.09 (ranged, from 2 to 6). Majority of respondents (60.7%) had positive attitude towards MDR-TB infected patients. Male respondents, held more positive attitude than females (68.3% versus 50.8 %), which statistically significant different (p=0.038). In contrast, based on the professional category, more pharmacists (66.7%) held negative attitude than medical doctors, nurses and others, but the difference was also not statistically significant (Chi-square =1.188; p=0.075). Respondents with less than 5 years’ experience held slightly more positive attitude as well as those who had good level of knowledge about MDR-TB but in both cases these differences were not statistically significant (p>0.05).

The level of knowledge about MDR-TB did not significantly affect the attitude of respondents towards patients with MDR-TB since both those with good and insufficient level of knowledge held positive attitude (65.1% versus 54.4%, p=0.222).Table 3

3.1.3 Practices relating to MDR-TB infection control
Overall, 20.7% of respondents had their own copy of the MDR-TB management guidelines; while 92.1% of the participants agreed that having MDR-TB guidelines would assist them in managing appropriately MDR-TB patients.

About 55% of respondents reported that they used the protective masks, when they are in contact with MDR-TB patients. Respondents older than 30 years old and those with positive attitude wore masks slightly more than their counterparts did, but the difference was not statistically significant. In contrast, males has positive attitude to use masks than females which was statistically significant (P=0.027). In addition, respondents who had good knowledge about MDR-TB significantly wore their Protective masks than those with insufficient knowledge which was statistically significant (P=0.01).

The level of knowledge about MDR-TB was significantly associated with the use of protective masks. Respondents who had good knowledge about MDR-TB significantly wore their protective masks than those with insufficient knowledge (p=0.01). The attitude of respondents towards MDR-TB infected patients did not influence their use of protective masks. Respondents with positive attitude practiced the use of masks more than those with positive attitude but the difference was not statistically significant (p=0.488) Table 4.

With regard to educating patients about MDR-TB, overall, 72.1% of respondents stated that they were individually involved in educating patients about MDR-TB. As shown in Table 5, respondents who were younger than 30 years old, male, and with more than 5 years of work experience, were more involved in educating patients about MDR-TB. With regard to the professional category, pharmacists were the least involved in patient education. In contrast, midwives were the most involved in educating patients (92.8%). The level of knowledge about MDR-TB didn’t significantly influence the involvement of respondents in educating patients.
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Table 1. Socio-demographic characteristics of HCW at NRH, March 10 to April 2, 2017 (n=140)

| Variables              | Frequency | Percent (%) |
|------------------------|-----------|-------------|
| Age category           |           |             |
| Less than 30 years old | 80        | 57.2        |
| 30 and over years     | 60        | 42.8        |
| Gender                 |           |             |
| Male                   | 79        | 56.4        |
| Female                 | 61        | 43.6        |
| Nurses                 | 60        | 42.2        |
| Medical doctors        | 24        | 17.1        |
| Midwives               | 14        | 10          |
| Professional category  |           |             |
| Laboratory technicians | 13        | 9.3         |
| Pharmacists            | 12        | 8.6         |
| Anesthetics            | 8         | 5.7         |
| Health officers        | 6         | 4.4         |
| Radiologist            | 3         | 2.1         |
| Work experience        |           |             |
| 5 years or less        | 68        | 48.6        |
| Over 5 years           | 72        | 51.4        |
| Single                 | 52        | 37.1        |
| Marital status         |           |             |
| Married                | 87        | 62.1        |
| Divorced               | 1         | 0.7         |

Table 2. Knowledge levels of respondents towards MDR-TB at NRH March 10 to April 2, 2017 (n=140).

| Variables              | Good knowledge (N=83) | Insufficient knowledge (N=57) | Total (N=140) | Chi-square | p-value |
|------------------------|-----------------------|-------------------------------|---------------|------------|---------|
| Age category           |                       |                               |               |            |         |
| Less than 30 year      | 52 (65%)              | 28 (35%)                      | 80 (57.1%)    | 0.112      | 0.0843 |
| 30 and above years     | 31 (51.7%)            | 29 (48.3%)                    | 60 (42.9%)    |            |         |
| Gender                 |                       |                               |               |            |         |
| Male                   | 58 (73.4%)            | 21 (26.6%)                    | 79 (56.4%)    | 0.657      | 0.082  |
| Female                 | 25 (49.0%)            | 36 (51.0%)                    | 61 (43.6%)    |            |         |
| Nurses                 | 25 (41.7%)            | 35 (58.3%)                    | 60 (42.9%)    |            |         |
| Medical doctors        | 23 (95.8%)            | 1 (4.2%)                      | 24 (17.1%)    |            |         |
| Midwives               | 6 (42.8%)             | 8 (57.2%)                     | 8 (5.7%)      |            |         |
| Professional category  |                       |                               |               |            |         |
| Laboratory technicians | 10 (76.9%)            | 3 (23.1%)                     | 13 (9.3%)     | 0.032      | 0.082  |
| Pharmacists            | 8 (66.7%)             | 4 (33.3%)                     | 12 (8.6%)     |            |         |
| Anesthetics            | 4 (50.0%)             | 4 (50.0%)                     | 8 (5.7%)      |            |         |
| Health Officers        | 4 (66.7%)             | 2 (33.3%)                     | 6 (4.3%)      |            |         |
| Radiologists           | 3 (100%)              | 0 (0%)                        | 3 (2.1%)      |            |         |
| Work experience        |                       |                               |               |            |         |
| 5 years or less        | 40 (59.7%)            | 27 (40.3%)                    | 67 (47.9%)    | 0.924      | 0.082  |
| Over 5 years           | 43 (58.9%)            | 30 (41.1%)                    | 73 (52.1%)    |            |         |

Table 3. Attitude of respondents towards MDR-TB at NRH, March 10 to April 2, 2017.

| Variables              | Positive attitude n(%) | Negative attitude n(%) | Chi-square | p-value |
|------------------------|------------------------|------------------------|------------|---------|
| Age category           |                        |                        |            |         |
| Less than 30           | 46 (57.5%)             | 34 (42.5%)             | 0.369      | 0.388   |
| 30 and over years     | 39 (65%)               | 21 (35%)               |            |         |
| Gender                 |                        |                        |            |         |
| Male                   | 54 (68.3%)             | 25 (31.7%)             | 0.035      | 0.038   |
| Female                 | 31 (50.8%)             | 30 (49.2%)             |            |         |
| Nurses                 | 32 (53.3%)             | 28 (46.7%)             |            |         |
| Medical Doctors        | 18 (75%)               | 6 (25%)                |            |         |
| Midwifery              | 10 (71.4%)             | 4 (28.6%)              |            |         |
| Professional category  |                        |                        |            |         |
| Laboratory technicians | 10 (76.9%)             | 3 (23.1%)              | 1.188      | 0.075   |
| Pharmacists            | 4 (33.3%)              | 8 (66.7%)              |            |         |
| Anesthetics            | 4 (50%)                | 4 (50%)                |            |         |
| Health Officers        | 4 (66.7%)              | 2 (33.3%)              |            |         |
| Radiologists           | 3 (100%)               | 0 (0%)                 |            |         |
| Work experience        |                        |                        |            |         |
| 5 years or less        | 42 (62.7%)             | 25 (37.3%)             | 0.647      | 0.730   |
| Over 5 years           | 23 (58.9%)             | 30 (41.1%)             |            |         |
| Knowledge Category     |                        |                        |            |         |
| Good knowledge         | 54 (65.1%)             | 29 (34.9%)             | 0.204      | 0.222   |
| Insufficient knowledge | 31 (54.4%)             | 26 (45.6%)             |            |         |
Table 4. Use of protective masks by HCW towards MDR-TB at NRH March 10 to April 2, 2017.

| Variables            | Used masks n(%) | Did not use masks, n(%) | Chi-square | p-value |
|----------------------|-----------------|-------------------------|------------|---------|
| **Age category**     |                 |                         |            |         |
| Less than 30         | 42(52.5%)       | 38(47.5%)               | 0.492      | 0.607   |
| 30 and over years   | 35(58.3%)       | 25(41.7%)               |            |         |
| **Gender**           |                 |                         |            |         |
| Male                 | 50(63.3%)       | 29(36.7%)               | 0.025      | 0.027   |
| Female               | 27(44.3%)       | 34(55.7%)               |            |         |
| **Professional category** |           |                         |            |         |
| Laboratory technicians | 6 (46.1%)  | 7(53.9%)              | 0.369      | 0.320   |
| Pharmacists          | 8(66.7%)        | 4(33.3%)                |            |         |
| Anesthesitcs         | 6(75%)          | 2(25%)                  |            |         |
| Health officers      | 2(33.3%)        | 4(66.7%)                |            |         |
| Radiologists         | 1(33.3%)        | 2(66.7%)                |            |         |
| **Work experience category** |           |                         |            |         |
| 5 years or less      | 35(52.2%)       | 32(47.8%)               | 0.529      | 0.611   |
| Over 5 years         | 42(57.5%)       | 31(42.5%)               |            |         |
| **Knowledge category** |              |                         |            |         |
| Good knowledge       | 56(67.5%)       | 27(32.5%)               | 0.060      | 0.01    |
| Insufficient knowledge | 21(36.8%)  | 36(63.2%)              |            |         |
| **Attitude category** |               |                         |            |         |
| Positive attitude    | 49(57.6%)       | 36(42.4%)               | 0.434      | 0.488   |
| Negative attitude    | 28(50.9%)       | 27(49.1%)               |            |         |

4 DISCUSSION

This study showed that the mean age of the participants was 30.76±6.42 years which was slightly similar to the findings by Ahmed et al [17]. Pertaining to the gender, majority of the participants were males unlike to study Kiefer et al [12]. This may be due to difference of distribution of healthcare professionals in Ethiopia. More than half of respondents had good knowledge about tuberculosis, although the mean knowledge score was 6.79 out of total score of 10. This finding on the knowledge gaps is similar to the reports of the studies conducted by other investigators in different areas [10, 15, 17, 18]. Having good knowledge regarding MDR-TB is associated with being subject matter of health care professionals is related to disease knowledge.

With regard to referring to the MDR-TB management guidelines manual, overall, 25.7% of respondents reported that they referred to it. The level of knowledge about MDR-TB did not influence the use of the MDR-TB guidelines. Respondents with good level of knowledge referred to the guidelines more than those with insufficient level (30.1% versus 19.3%, P=0.172). In contrast, males referred more to the guidelines than females which was statistically significant (P=0.003). The attitude of respondents towards MDR-TB infected patients did not influence their practice about the use of the MDR-TB guidelines manual. Those with positive attitude referred more to the guidelines manual than those with negative attitude but the difference was not statistically significant (p=0.49). On the professional category, none of the health officers and radiologists referred to the MDR-TB guidelines, but medical doctors and Laboratory technicians reported more frequently than other professionals. Table 6

Findings from this study suggest that majority of the study participants had positive attitude (60.7%) towards patients with MDR-TB. This was in contrast to study by Yu et al and Holtz et al findings [11, 20]. It seems that the positive attitude is associated that since the environmental factors can influence the community to exposed and susceptible for this chronic disease. Since most of health care
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Table 5. Respondents’ involvement in educating patients towards MDR-TB at NRH March 10 to April 2, 2017.

| Variables                  | Involved in education n(%) | Not involved in education n(%) | Chi-square | p-value |
|----------------------------|----------------------------|--------------------------------|------------|---------|
| **Age category**           |                            |                                |            |         |
| Less than 30 years         | 61(76.2%)                  | 19 (23.8%)                     | 0.211      | 0.254   |
| Over 30 years              | 40(66.7%)                  | 20 (33.3%)                     |            |         |
| **Gender**                 |                            |                                |            |         |
| Male                       | 62(78.5%)                  | 17 (21.5%)                     | 0.057      | 0.061   |
| Female                     | 39(63.9%)                  | 22 (36.1%)                     |            |         |
| **Professional category**  |                            |                                |            |         |
| Nurses                     | 17(70.8%)                  | 7 (29.1%)                      |            |         |
| Medical doctors            | 13(92.8%)                  | 1 (7.2%)                       |            |         |
| Lab technicians            | 9(69.2%)                   | 4 (30.8%)                      | 4.999      | 0.660   |
| Pharmacists                | 7(58.3%)                   | 5 (41.7%)                      |            |         |
| Anesthesiists              | 5(62.5%)                   | 3 (37.5%)                      |            |         |
| Health Officers            | 5(83.3%)                   | 1 (16.7%)                      |            |         |
| Radiologists               | 2(66.7%)                   | 1 (33.3%)                      |            |         |
| **Work experience category**|                            |                                |            |         |
| 5 years or less            | 53(72.6%)                  | 20 (27.4%)                     | 0.899      | 0.825   |
| Over 5 years               | 48(71.6%)                  | 19 (28.4%)                     |            |         |
| **Knowledge category**     |                            |                                |            |         |
| Good knowledge             | 63(75.9%)                  | 19 (24.1%)                     | 0.231      | 0.254   |
| Insufficient knowledge     | 38(66.7%)                  | 20 (33.3%)                     |            |         |
| **Attitude category**      |                            |                                |            |         |
| Positive attitude          | 61(71.8%)                  | 24 (28.2%)                     | 0.421      | 0.531   |
| Negative attitude          | 40(72.7%)                  | 15 (27.3%)                     |            |         |

Table 6. Reference to MDR-TB Management guidelines by respondents towards MDR-TB at NRH March 10 to April 2, 2017.

| Variables                  | Refer to guidelines n (%) | Do not refer to guidelines n (%) | Chi-square | p-value |
|----------------------------|---------------------------|---------------------------------|------------|---------|
| **Age category**           |                           |                                 |            |         |
| Less than 30 years         | 21(26.2%)                 | 59(73.8%)                       | 0.367      | 1.000   |
| Over 30 years              | 15(25.0%)                 | 55(75.0%)                       |            |         |
| **Gender**                 |                           |                                 |            |         |
| Male                       | 28(35.4%)                 | 51(64.6%)                       | 0.003      | 0.003   |
| Female                     | 8(13.1%)                  | 53(86.9%)                       |            |         |
| **Professional category**  |                           |                                 |            |         |
| Laboratory technicians     | 5(38.5%)                  | 8(61.5%)                        | 7.419      | 0.387   |
| Pharmacists                | 4(33.3%)                  | 8(66.7%)                        |            |         |
| Anesthesiists              | 2(25%)                    | 6(75%)                          |            |         |
| Radiologists               | 0(0%)                     | 3(100%)                         |            |         |
| **Work experience category**|                           |                                 |            |         |
| 5 years or less            | 18(26.9%)                 | 49(73.1%)                       | 0.765      | 0.847   |
| Over 5 years               | 18(24.6%)                 | 55(75.4%)                       |            |         |
| **Knowledge category**     |                           |                                 |            |         |
| Good knowledge             | 25(30.1%)                 | 58(69.9%)                       | 0.150      | 0.172   |
| Insufficient knowledge     | 11(19.3%)                 | 48(80.7%)                       |            |         |
| **Attitude category**      |                           |                                 |            |         |
| Positive attitude          | 27(31.8%)                 | 58(68.2%)                       | 0.42       | 0.49    |
| Negative attitude          | 9(16.4%)                  | 46(83.6%)                       |            |         |

providers know the background and outcome of this infection as it is global concern and needs special attention and remedy.

The guidelines and manuals are supposed to guide the health care workers in discharging their responsibilities adequately to the standard. In this study, about (92.1%) of the respondents supported that having MDR-TB guidelines and manuals will help them in treating and managing MDR-TB patients. This finding is in line with previous studies [21–25]. But in actual sense only 21% of study participants had their own copy of the guidelines and manuals which was almost in line with study Zungu et al only 16.5% of health care professionals reported owning a copy of the guidelines [24]. Low utilization and poor adherence to global and national guidelines is a major issue for the community and health care providers as every healthcare professional should possess management guidelines in order to ensure quality services for the patient. This is an emergency agenda that needs to be modified and remedied by making the guidelines and manuals available to all healthcare professionals in different sectors and wards.

Regarding the practice of using protective masks, 55% of participants reported that they have used the protective masks of TB when they are in face with TB patients. As guideline and evidence based studies, it is better that all health care workers and family members of the patients use the protective masks while dealing with MDR-TB patients. This is particularly important for health care providers traditionally who are not adapted to wear and use protective masks as they were not in contact with MDR-TB patients for longer periods during diagnosis, management and counselling. Participants who were males and longer work experience wore protective masks than the counterparts which was in agreement with reports by Parmeggiani and co-workers [25]. This less experience could be one reason for vulnerability for the infection. The females are more of care less in protecting themselves and gives emphasis value for others than for themselves as most of them rush to help the others.

Regarding educating patients about MDR-TB, 72.1% of participants stated that they were individually involved in educating and counselling the patients. This less experience could be one reason for vulnerability for the infection. The females are more of care less in protecting themselves and gives emphasis value for others than for themselves as most of them rush to help the others.
which complies report by Kiefer et al [17] . From the total respondents, only 25.7% reported that they referred to the MDR-TB management guidelines during diagnosis, management and counselling of the patients. This finding is in line with reports by other studies where majority of the practitioners fail to comply with clinical practice guidelines [26] . But this was not in agreement with previous study by Richardson et al [23] . This is mostly due to they did not have their own copy of the guidelines in their respective rooms and wards as well as lack of willingness and being careless to seek these materials to refer it. Additionally, some of health care provider’s does not adhere to the guidelines provided to them.

Limitations of the study

Firstly, the assessment of knowledge level was limited to few questions and did not cover all aspects about tuberculosis and MDR-TB to the standard. Similarly, only attitude towards patients with MDR-TB and few practices were assessed in this study. Secondly, despite a high response rate of over 90%, the sample size of participants was small and restricted to one site in order to ascertain statistically significance of the finding for larger sample size. Hence the finding may not be the one that can be generalizable to the large community. Thus extrapolations to the rest of the community should be done with caution. Thirdly, given the cross-sectional design was employed, it is not possible to establish causal relationships due to the lack of a temporal link due to nature of the study design.

5 CONCLUSION

The results of this study indicate that, overall, more than half of respondents had good level of knowledge about MDR-TB; and majority of them held positive attitude towards patients with MDR-TB. In this study finding, the level of knowledge did not affect the attitude towards patients suffering from MDR-TB but it influenced their practices. Having good level of knowledge about MDR-TB was associated with good practices such as the use of protective masks, MDR-TB guidelines usage and involvement in educating patients about MDR-TB. Moreover, the findings of this study showed also that the attitude of respondents towards patients suffering from MDR-TB did not influence their practices.

Given the low level of knowledge about MDR-TB among certain categories of health care professionals, in-service training on the MDR-TB must be provided to all professionals in collaboration with other stakeholders. In addition, because of more than half of respondents reported not owning a copy of the MDR-TB guidelines manual, these manuals should be made available to them by the hospital or by the regional health bureau. Finally, with collaboration with other stakeholders, NRH should prepare training for all health care professionals to increase positive attitude towards MDR-TB patients.

Abbreviations

CDC/ATS: Centre for Disease Control/American Thoracic Society, DNA: Deoxyribonucleic Acid, DOTS: Directly Observed Therapy Short-course, GLC: Green Light committee, GP: General Practitioner, HCW: Health Care Workers, HIV: Human Immunodeficiency Virus, INH: Isoniazid, KAP: Knowledge, Attitude and, Practice, MDR TB: Multi Drug Resistant Tuberculosis, MTB: Mycobacterium Tuberculosis, NRH: Nekemte Referral Hospital, PIH: Partners in Health, PP: Private Practitioners, RIF: Rifampicin, TB: Tuberculosis, WHO: World Health Organization

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Authors’ Contributions

GF contributes in the proposal preparation, study design, analysis and write up the manuscript. AM made the Proposal preparation, analysis and manuscript write up. GB contributed to the design of the study and made a substantial contribution to the local implementation of the study. We want to ensure that all authors have performed all important points specified on criteria and guidelines for authorship and all authors read and approved the final manuscript.

Ethics approval and consent to participate

Ethical clearance was obtained from Wollega University College of Health science. Permission to administer questionnaires to staff members was obtained from Nekemte Referral Hospital administration and the local health bureau. The purpose of the study was explained for the study participants in order to get informed verbal consent and the confidentiality of the subjects were maintained.

Competing Interests

The authors declare that they have no competing interests.

Consent for publication

Not applicable. No individual person’s personal details, images or videos are being used in this study.

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