Knowledge, Attitudes and Practices on Tuberculosis and its Management Among Diagnosed Patients Attending Central and Branch Chest Clinics in the Rathnapura District, Sabaragamuwa Province, Sri Lanka

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Abstract

Background: Tuberculosis being the first reason to cause death due to single infectious agent worldwide requires timely diagnosis and completion of the full course of treatment for interruption of transmission.

Objective: To study the knowledge, attitudes and practices on tuberculosis and its management among diagnosed patients attending government chest clinics.

Methods: Institutional based descriptive cross sectional study was conducted among diagnosed patients attending government chest clinics in the Rathnapura district, in Sabaragamuwa province, Sri Lanka; using an interviewer-administered questionnaire. Level of knowledge was assessed in percentages. Attitudes were assessed using total attitude score converting into percentages and Inter Quartile Range. Associated factors were assessed using chi square test for significance with p value <0.05. Practices were expressed as percentages for each practice statement.

Results: The rate of participation was 396 (92%) and satisfactory. Of them, the level of knowledge on TB and its management among participants was good among 46%, average among 24% and poor among 30%. Significant relationship was elicited in relation has been elicited with the level of knowledge ($X2 = 130.645a$, df = 4, p value = 0.000). Considered socio demographic factors, residence of the participant being rural ($X2 = 21.436a$, df = 4, p value = 0.000), race ($X2 = 21.436a$, df = 4, p value = 0.000), religion ($X2 = 52.742a$, df = 6, p value = 0.000), age of the participant ($X2 = 29.555a$, df = 6, p value = 0.000), educational level ($X2 = 51.074a$, df = 4, p value = 0.000), marital status ($X2 = 59.074a$, df = 8, p value = 0.000) Overall attitudes were good among 51.3%, average among 38.3% while poor among 10.5%. Significant positive association could be elicited between type of chest clinic ($X2 = 7.279a$, df = 2, p value = 0.026), residence of the participant ($8.263a$, df = 2, p value = 0. 016), age of the participant being ($X2 = 15.972a$, df = 6, p value = 0. 014), and the sex off the participant ($X2 = 8.263a$, df = 2, p value = 0.16).

Considered practices among participants that affect treatment outcome, addiction to smoking was 19.7%, alcohol 23.7%, drugs 10.7%, beetle chewing 43.7%. Among all, only 33.9% have conducted regular health promotion programmes in the field. Among them, 71.0% have not referred even a single case. Only 11.9% have ever given DOT during their service. Only 8% has participated in default tracing while only 25.6% have done contact tracing. Among all, only 22.2% have involved in increasing awareness among contacts. Considered practices, statistically significance existed that; the Environment and Occupational Health category referring significantly higher number ($c2 = 271.802$; p = 0.000), providing of more Direct Observed Treatment ($c2 = 49.579$; p = 0.000). Simultaneously between referral for treatment and participation for training programmes ($c2 = 19.596$; p = 0. 000). No significant relationships were elicited with age, educational levels, duration of service and the assessed practices. No statistically significant association between levels of overall knowledge and overall attitudes ($c2 = 6.375$; p = 0.173). The practice of conduction of health education sessions to the community showed significant association with the knowledge ($c2 = 9.775$; p = 0.044).

Conclusion: The level of knowledge, attitudes and practices were not favorable for the expected level of cure among patients on treatment for TB.

Keywords: Tuberculosis; Knowledge; Attitudes; Practices; Patients on Treatment

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Abbreviation

BCG: Bacillus Calmet and Guarine; DGHS: Director General of Health Services; DOT: Direct Observed Treatment; DOTS: Direct Observed Treatment Short Course; EPTB: Extra Pulmonary Tuberculosis; E&OH: Environment and Occupational Health; FP: Family Planning; GCE/AL: General Certificate of Education/Advanced Level; GCE/OL: General Certificate of Education/Ordinary Level; HIV/AIDS: Human Immuno deficiency Virus/Acquired Immuno Deficiency Syndrome; IAQ: Interweaver Administered Questionnaire; IQR: Inter Quartile Range; MCH: Maternal and Child Health; MDR/RR TB: Multi Drug Resistant/Rifampicin Resistant Tuberculosis; MOH: Medical Officer of Health; NGOs: Non-Governmental Organizations; NPTCCD: National Programme for Tuberculosis Control and Chest Diseases; OPD: Out Patient Department; PHI: Public Health Inspector; PTB: Pulmonary Tuberculosis; SPHI: Supervising Public Health Inspector; SPSS: Statistical Package for the Social Sciences; TB: Tuberculosis; WHO: World Health Organization

Introduction

Tuberculosis (TB) is an airborne communicable disease; caused by the bacillus *Mycobacterium tuberculosis,* commonly affects the lungs, but can affect any other organ in the body except nails and hair. It has become the ninth leading cause of death worldwide. It has become the first reason to cause death due to single infectious agent prior to the Covid 19 pandemic, even above HIV/AIDS [1]. TB is curable and preventable. Usually about 85% of TB cases can be completely cured by six month regimen of anti TB drugs. The disease is more commonly associated with poverty, under nutrition, HIV, smoking and diabetes. It has been estimated that about 25% of the global population is infected with *M. tuberculosis* and thus is at risk of developing TB disease [2].

Sri Lanka has been identified as middle burden country in relation to the disease tuberculosis in the global ranking accounting of 14,000 cases per year. The case fatality rate (death rate) of TB has been over 5% and the lost to follow up rate is close to 4% in the last 3 years [3]. Reporting of TB cases has also got affected by the Covid 19 pandemic in Sri Lanka. Out of 7251 cases in 2020, 1928 are extra pulmonary cases. Occurrence of Multi Drug Resistant (MDR) TB was 14 in the year 2020; with 602 total numbers of deaths giving case fatality rate of 8.3% in 2020. Treatment success rate of new TB patients (84.9%) is higher compared to the previously treated TB patients (75.5%) whereas; deaths rates are more or less similar in both groups (7.1% Vs 7.3%) within the country [3]. Tuberculosis (TB) continues to be a public health problem in the country and the estimated incidence in 2021, is 64/ 100,000 population. Around 7000-9000 cases are reported every year and the ratio for new pulmonary to new EPTB is 2.4 in 2021. Nearly 72% of total TB cases are Pulmonary TB (PTB) while 79.6% of PTB are bacteriologically confirmed. There are 10 Multi Drug Resistant TB (MDR) patients reported in the country in 2021 and the number of people with TB/HIV co- infection is 48 (Number detected by screening in both TB and HIV programmes) [4].

Considered Rathnapura district, annual cases detected during 2019 is 378, of which 115 (30%) cases were extra pulmonary TB. Among all, 242 (64%) were bacteriologically confirmed cases. Clinical diagnosis has been applied only for 21 (5.5%); thus giving the high chance of spreading the illness in the community. However, in the year 2021, number of new cases has dropped to 163, of which 87 (53.3%) were extra pulmonary TB and 43(26.3%) were clinical diagnosis [4]. Among the 6249 new TB cases in 2021, 4416 (70.6%) were pulmonary TB (PTB) cases and the rest 1833 (29.3%) were extra pulmonary TB (EPTB) cases. Of the 4416 PTB cases, 3483 (78.9%) were bacteriologically diagnosed, while 933 (21.1%) were clinically diagnosed (Figure). Of the 3483 bacteriologically confirmed PTB cases, 2793 (80.2%) were sputum microscopy positive, 78 (2.2%) were sputum negative culture positive, and 612 (17.6%) were xpert MTF/RI positive cases. Out of the previously treated cases of 508, 391 (77%) were bacteriologically confirmed PTB, 60 (11.8%) were clinically diagnosed PTB and 57 (11.2%) were EPTB cases. Considered Ratnapura district, 55.6% cases in the year 2021 are bacteriologically confirmed while 14.7% of new PTB are clinically diagnosed. Of all cases 29.7% is extra pulmonary cases in the Ratnapura district in 2021 [4].

Ratthnapura has been identified to conduct a pilot district to monitor the achievement of case detection according to the WHO estimates. It has been estimated to have 166 cases in Rathnapura district in each quarter of the year. The set target was 80% of the expected number of cases was 133 [7]. These reasons lead to conduction of the present study in the Rathnapura district. Establishment of Gene expert laboratory at DGH Rathnapura and availability of digital X ray at Rathnapura chest clinic would facilitate active case finding if patients and contacts are cooperative for the procedure [1].

Justification

In Sri Lanka, TB accounts for about 1200 annual toll of deaths while 3000-4000 cases are not detected annually. The incidence rate in the year 2021 was 29.1 per 100,000 population. Out of 6771 cases identifies in 2021, 6249 (92.3%) were new cases, 508 (7.5%) were previously treated cases and 14 (0.2%) were cases with unknown treatment history. Among the 6249 new TB cases, 4416 (70.6%) were pulmonary TB (PTB) cases and the rest 1833 (29.3%) were extra pulmonary TB (EPTB) cases. Of the 4416 PTB cases, 3483 (78.9%) were bacteriologically diagnosed, while 933 (21.1%) were clinically diagnosed. Bacteriologically confirmed cases showed increase from 69.3% in 2015 to 77.2% in 2019. Of the 3483 bacteriologically confirmed PTB cases, 2793 (80.2%) were sputum microscopy positive, 78 (2.2%) were sputum negative culture positive, and 612 (17.6%) were xpert MTF/RI positive cases. Out of the previously treated cases of 508, 391 (77%) were bacteriologically confirmed PTB, 60 (11.8%) were clinically diagnosed PTB and 57 (11.2%) were EPTB cases. Further, majority (2/3) of cases are sputum positive at the time of presentation indicating the delayed diagnosis of the disease as well as the risk of disease transmission in the community [4]. During the period 2013-2019, the proportion of previously treated cases among all

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notified cases increased from 4.3% to 7.1% indication higher defaulter rate [3]. The treatment success rate is 84.6% which is below the WHO End TB strategy of 95%, expected to be achieved by 2025. Along with that, the National Programme for tuberculosis Control and Chest Diseases (NPTCCD) aims at achieving 95% reduction of deaths and 90% reduction of incidence by 2035 considering the baseline levels of 2015 [5].

As planned in the National strategic plan for tuberculosis control 2020-2025, priority has been given find more cases and to successfully treat 50,000 citizens with TB between 2021 and 2025, including 3,000 children less than 15 years [5]. In order to identify the deficit of 4000 that undergoes unnoticed, the existing challengers have been identified in the Mid Term review 2020 by the Ministry of Health. Under-reporting of initial lost to follow-up, deaths before the start of the treatment, Inadequate and insensitive contact tracing and uncertainty about the number of under-reporting have been identified as major concerns [3]. These invariably lead to delay in diagnosis of active cases leading to high communicability and case fatality rate. One of the plans set in the national strategic plan 2020-2025 is to conduct operational research in other high-risk groups, e.g., estate workers, in order to identify further groups for routine active case finding [5].

Considered health seeking behavior of patients, their knowledge and attitudes towards the disease and its management exert a great effect on the completeness of contact tracing as well as treatment completeness of diagnosed patients. Further, in order to overcome the stigma related to the disease and complete the full course of treatment, the knowledge, attitudes of these patients are very crucial because according to the existing data, only 85% of patients complete the full course of treatment. Defaulting leads not only to increase morbidity and mortality, but gives rise to the development of Multi Drug Resistant tuberculosis (MDR/RR TB) within the country. Further, unawareness of the community on modes of spread, prevention and control measures of TB may be contributing for high incidence for smear positive cases which delays the treatment seeking at the initial stage.

Thus the objective of the study was to study the Knowledge, attitudes and practices on tuberculosis among diagnosed patients attending central and branch chest clinics in the Rathnapura district, Sabaragamuwa Province, Sri Lanka.

Materials and Methods

This is an institutional based descriptive cross sectional study conducted to assess the knowledge, attitudes and practices related to treatment and prevention of tuberculosis among diagnosed patients attending central and branch chest clinics in the Rathnapura district of Sri Lanka. Calculated sample size was 430[6]. Selection of sampling was done by using random sampling technique because the sampling frame of all patients was available in the clinics. The selection of number of patients was based on probability Proportionate to Size (PPS sampling technique) method, according to the proportion of patients attending for central and branch clinics.

Study instrument was an Interviewer Administered structured Questionnaire (IAQ) consisted of 15 questions on socio demographic information of participants, 10 questions on knowledge on TB, seven attitude statements on TB and 10 statements to assess practices of participants on TB management. The questionnaire was pre tested using 25 patients in the central chest clinic, Teaching Hospital, Nagoda, Kalutara in the Western province. Data was collected by trained health volunteers in the district. All the members of the team were trained and made through on the questionnaire. Data collection was conducted on clinic days of each clinic center.

Considered the quality of data, the validity was ensured by training the team by the principal investigator to ensure uniformity of collecting information, to ensure completeness of the questionnaire, to develop a friendly atmosphere and build up a good rapport with the respondents.

Data analysis was carried out by using SPSS version 20. Categorical differences between knowledge and attitude groups were assessed using Chi-square test. $P < 0.05$ (95% confidence interval) was considered as statistically significant. Questionnaire was prepared in English and was translated into Sinhala and Tamil.

Knowledge on TB was assessed using 12 questions of which some are single response multiple choice questions and others being open ended questions on epidemiology, prevention and management of TB. The number of correct responses were converted to percentages; then divided into three levels as low (<44%), average (45-59%) and excellent (>60%). The relationships between socio demographic characteristics and the level of knowledge were assessed using chi-square test.

The level of attitudes on TB was assessed using total attitude score converting into percentages. The relationship between socio demographic characteristics and the level of attitudes were assessed using the participants' levels of attitudes as 'Favourable (<40%), Neutral (40-86%) and unfavorable (87-100%) and the Inter Quartile Range (IQR). The relationships between socio demographic characteristics and the level of attitudes were assessed using chi-square test.

In assessment of practices, the percentages of participants were expressed as a percentage for each practice statement. The relationship between socio demographic characteristics and the level of practices were assessed using chi-square test.

Finally, the relationship between knowledge, attitudes and practices were assessed using chi-square test separately.

In relation to administrative requirements and ethical issues, permission from the Provincial Director of Health Services of the Sabaragamuwa Province and the Regional Director of Health Services of the Rathnapura District, the director, teaching hospital

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Rathnapura and directors/MS of other respective hospitals where chest clinic are conducted was obtained. Confidentiality was strictly maintained in such a way that data sheets were kept under lock and key and only the research team handling data. Ethical clearance was obtained from the Ethical Review Committee, National Institute of Health Sciences, Kalutara. After the interview, the participants were given a feedback on any problem identified with regard to the existing respiratory illness with necessary referrals.

Results

Socio demographic characteristics:

The participation was 396 (92%); 174(43.9%) from the central chest clinic at Provincial General Hospital Ratnapura and 222 (56.1%) from branch chest clinics (from base hospitals Balangoda, Kahawatta, Ehaliyagoda and District General Hospital Embilipitiya). Considered residential zone, majority (n = 245; 61.9%) was from rural setting while 29 (7.3%) from urban and 122 (30.8%) from estate settings. Among participants 208 (52.5%) were males and 188 (47.5%) were females. Among participants, majority (n = 254; 64.1%) were Sinhalese while 132 (33.3%) were Tamils and 10 (2.5%) were Muslims. Considered the age of participants, 103 (26%) were between 18-30 years, 93 (23.5%) were between 31-45 years, 112 (28.3%) were between 46-60 years and 88 (22.2%) were above 60 years of age. Considered marital status, majority 261 (65.9%) were married while 92 (23.2%) were unmarried. The rest of the participants were widowed, divorced or separated.

In relation to the level of education, 23 (5.8%) had no education at all while 52 (13.1%) had education only up to grade 05. Among the participants, 114 (28.8%) had obtained education from grade 6 to grade 10 and 130 (32.8%) have completed Ordinary Level examination. Only 38 (9.6%) participants have completed the Advanced Level examination Of the remaining participants, 17 (4.3%) have achieved vocational training and 22 (5.6%) had degree or above level of education. Considered the employment, the participants, majority (n = 164; 41.4%) were unemployed while 104 (26.3%) were unskilled workers and 47 (11.9%) are skilled workers. Only 9 (2.3%) were at managerial level and 16 (4%) were technical workers. Considered income level, 38 (9.6%) had less than 10,000.00 while 95 (24%) had 10,001.00-20,000.00 monthly income. Eighty two (20.7%) had 20,001.00-30,000.00, 91 (23%) had 30001.00 - 40000.00 as monthly family income. Only 84 (21.2%) had more than 40000.00 per month.

Patient health related characteristics

- **Existence of co-morbidities:** In considering the good outcome of TB, other associated co-morbidities play a vital role. In the present study, 155 participants (39.1%) had some type of co-morbidity. Of the participants, 67 (16.9%) had diabetes, 72 (18.2%) had hypertension, 2 (0.5%) had chronic renal diseases, 88 (14.6%) had bronchial asthma, 14 (3.5%) had heart diseases. Some participants had more than one comorbidities.
- **Addictions by patients:** Many of Sri Lankans are having se-

vere addictions to tobacco (in the form of cigarettes, Beetle chewing, alcohol and other form of drugs which exert a great effect on the immunity and recovering ability. In the study group also, higher level of addiction was observed which will exert an effect on the cure rate.

Knowledge on TB and its management

Knowledge on TB and its management was assessed in relation to nature of infection (affecting organs, risk groups and favorable conditions for the spread of tuberculosis and signs and symptoms), management and available treatment options and their side effects as well. The overall knowledge of the participants was good in 182 (46%), average in 95 (24%) while that of poor in 119 (30.1%).

Attitudes on TB and its management

In order to achieve completion of the full course of treatment and cure as well as for the prevention of further spread, attitudes are very important. Considered attitudes in the study group, it was very good only among 21 (5.3%). Among the participants, 180 (45.5%) had good attitudes while in 150 (37.9%) had average level. Attitudes were poor among 41 (10.4%) of the study participants.

Practices related to TB and its management

Practices which should be followed in taking treatment for TB were assessed using 12 statements. Among the study group, 380 (96%) were taking treatment at the time of survey while 16 (4%) is not because those participants have just completed the full course of treatment and have come for follow-up. Considered the duration of treatment, 118 (29.8%) were within the first month of treatment while 88 (22.0%) in the second and third month of treatment, 72 (18.2%) in the fourth and fifth months, 93 (23.5%) in the sixth month. There were 25 (6.3%) participants who are taking treatments for more than six months.

Among participants, 150 (37.5%) is undertaking DOT procedure while majority was not (n = 246; 62.1%). Among those who are not attending for DOT, only few have given reasons being long distance (n = 3; 0.8%), unfriendliness of the DOT provider (n = 4; 1.0%) and due to time constrains (n = 12; 3%). Considered the DOT provider, 67 (16.9%) get from the hospital staff member, 22 (5.6%) from field health staff, 2 (0.5%) from private health staff, 32 (8.1%) from a private practioner and 27 (6.8%) from a volunteer.

Practices related to preventive work and better outcome of the treatment

In order to have a better outcome, each confirmed case should be investigated by the Public Health Inspector (PHI) and the patient and the contacts should be promoted for contact tracing, continuation of treatment and following other preventive measures. Majority of the participants (n = 380; 96%) have been visited by the PHI. Among them only 301 (76%) have participated for contact tracing. Out of those who are not, 17 are planning, 6 think it is not necessary and 9 have not mentioned the reason for not going for

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contact tracing. Among participated patients, 385 (97.2%) have got their sputum checked after commencement of treatment. Only 94 (23.7%) participants have experienced side effects for drugs.

Factors associate with knowledge

When considering the factors associated with the knowledge on TB and its management, many factors showed significant association to the level of knowledge. The level of attitudes showed a highly significant relationship with the level of knowledge (X^2 = 130.645[a], df = 4, p value = 0.000). considered socio demographic factors, residence of the participant being rural (X^2 = 21.436[a], df = 4, p value = 0.000), race (X^2 = 21.436[a], df = 4, p value = 0.000), religion (X^2 = 52.742[a], df = 6, p value = 0.000), age of the participant (X^2 = 29.555[a], df = 6, p value = 0.000), educational level (X^2 = 51.074[a], df = 4, p value = 0.000), marital status (X^2 = 59.074[a], df = 8, p value = 0.000) has shown highly significant relationship with the knowledge on TB and its management. Comparatively, regarding the type of attending clinic being central or branch chest clinics, sex of the participant, presence of comorbidities, whether taking DOT or not and whether visited by the PHI has not shown significant relationship with the level of knowledge of the participants.

Factors associate with attitudes

Considered the Factors associate with Attitudes, knowledge is significantly associated with attitudes on TB and its management. Further, type of chest clinic (X^2 = 7.279[a], df = 2, p value = 0.026), residence of the participant (8.263[a], df = 2, p value = 0. 016), age of the participant being (X^2 = 15.972[a], df = 6, p value = 0. 014), and the sex off the participant (X^2 = 8.263[a], df = 2, p value = 0.16).

Discussion

The present study has revealed many important factors that are highly related to the treatment outcome of TB. Considered the age of the affected people, as usual TB has attacked all age groups in the study group also. On its nature, TB affects more in the outside of home; males as revealed in the study, because males spend more time of the day exposing to the infection. Considered the marital status, as in the general population, many are married in the study group also. According to the census data in 2012 census, Ratnapura consists of 81.7% rural, 9.1% urban and 92% estate population. The present study, more patients attending government clinics comprises of Tamil population than that of general population (33.3%) while the Sinhalese and Muslim populations are less than the general population in the district. It reveals that estate people are more prone for having TB, probably due to their poor socio economic and living conditions with low income, poor housing conditions. Similarly, the religion also not compatible with the general population in the district, but represents the same picture as the ethnicity of the participants, more Hindus in the study group the general population 9.4% vs 29.8%). Considered the educational status, same distribution is seen as in the study group also; in the district population (no schooling 5.7%, passed primary 26%, passed secondary 42.1%, passed O/L 14.3%, passed A/L 10.1% and degree or above 1.7%). Considered employment status, more

participants in the study are either unskilled or unemployed while the percentage involve in the higher professions are very limited. It is compatible with the monthly family income; it being very low in the majority [7].

Considered the existence of co morbidities, many of them are having high risk conditions for TB such as diabetes and bronchial asthma. It may influence on the outcome of the illness. It can further be influenced by high rate of smoking, alcoholism and beetle chewing by the participants since these affect the immunity of the patient. It reflects the susceptibility of the community for TB.

Considered the knowledge of the participants on TB and its management, having average or poor knowledge among more than 50%, reflect the workload to be completed by the health staff in order to gain completion of the drugs and cure by the patients because higher knowledge is required to continue drugs for a longer duration like six months proper follow-up by the clinic. Same type of picture is seen in relation to attitudes as well, it being poor or average among in more than 50% of participants.

Considered practices among participants majority (56.1%) from branch chest clinics because Ratnapuara is geographically difficult district and coming to the central city would have been difficult for them. However, 4% is not taking treatments continuously having high risk of developing complications. Simultaneously, 6.3% of them were taking treatment for more than 6 months, may be due to discontinuation of treatment or having EPTB. This is something that we have to reconsider on defaulters and occurrence of EPTB and MDRTB. Only 37.9% of them taking DOT, might have contributed for discontinuation of treatment. However, since 68% of them were taking DOT correctly, it would support achieving completing the full course of treatment and complete cure.

Considered practices related to preventive work and better outcome of the treatment, majority (96%) have been visited by the area PHI and have been for contact tracing (76%). But not contributing for contact tracing and not visited by the PHI is highly related to late detection of active cases, incomplete treatment and further spread. These factors are very useful in achieving the said target by the WHO by 2035. Further, sputum examination after commencement of treatment ensures the non-infectivity of the patient which is essential for limiting the community spread the infection. It is also not up-to the expected level and must be vigorously addressed. At the same time, experiencing side effects by 23.7% would also have an adverse outcome of the illness. However, informing the health sector when side effects occurred shows a good health seeking behavior among patients which ensures the recovery. However, having 11.1% of defaulters among the study participants is a severe issue which directly related to development of MDRTB which is already seen in the country. Having reasons like forgetting to take drugs, side effects and not having money to go for the clinic should be considered as very big threats to the cure rate. Further, not having drugs available should be considered as a great

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management failure which should be prevented completely.

Considered the factors related to the level of knowledge on TB and its management among study participants, highly significant relationship has been elicited with residence being rural, race being Sinhalese, religion being Buddhist and more educated population having high score because many of them are from the community having a better educational status than those who are not attending school as seen in estate residing Tamil speaking non Buddhist population; mainly Hindus. Further, younger participants had better knowledge as they are more educated than old aged. The marital status being unmarried also showed higher level of knowledge; probably due to being more educated younger age group represent better knowledgeable community. As expected, level of knowledge showed positive relationship with the level of attitudes of the study participants because attitudes are developed parallel to the knowledge in mot of time. Considered the factors associate with attitudes, type of the clinic being in the central chest clinic, residence being rural sector, age being more than 40 years and sex being a female shows positive relationship. Generally females in rural areas in our country are more concerning about health information and might have developed better attitudes in this situation.

Conclusion

Table 1: Distribution by basic demographic characteristics.

Characteristics	No.	%
Age (in years)		
18 - 30	103	26.0
31 - 45	93	23.5
46 - 60	112	28.3
>60	88	22.2
Sex		
Male	208	52.5
Female	188	47.5
Marital status		
Unmarried	92	23.2
Married	261	65.9
Divorced	1	.3
Separated	14	3.5
Ethnicity		
Sinhala	254	64.1
Tamil	132	33.3
Muslim	10	2.5
Religion		
Buddhist	255	64.4
Hindi	118	29.8
Islam	10	2.5
Catholic	13	3.3

Table 2: Distribution by basic socio-economic characteristics.

Sector	No.	%
Rural	245	61.9
Urban	29	7.3
Estate	122	30.8
Education		
No schooling	23	5.8
Grade 1-5	52	13.1
Grade 6-10	114	28.8
O/L	130	32.8
A/L	38	9.6
Vocational training/degree	17	4.3
Employment		
Managerial	9	2.3
Technical	16	4.0
Clerical	9	2.3
Business	44	11.1
Supervisory	3	.8
Skilled work	47	11.9
Un-skilled	104	26.3
Unemployed	164	41.4
Monthly income		
<10000	38	9.6
10001-20000	95	24.0
20001-30000	82	20.7
30001-40000	91	23.0
>40000	84	21.2
<10000	38	9.6
10001-20000	95	24.0

Table 3: Distribution by patient health related characteristics.

Co-morbidities	No.	%
Yes	155	39.1
No	241	60.9
Types of Co-morbidities		
DM	67	16.9
HT	72	18.2
CKD	2	.5
BA	58	14.6
Heart Disease	14	3.5
Other	23	5.8
Addictions		
Smoking	78	19.7
Beetle chewing	173	43.7
Alcohol	94	23.7
Drugs	40	10.1

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Table 4: Distribution by knowledge and attitudes on TB and its management.

Knowledge	No.	%
Good	182	46.0
Average	95	24.0
Poor	119	30.1
Attitude		
Very good	21	5.3
Good	180	45.5
Average	152	38.4
Poor	43	10.9

Table 5: Distribution by practices related to treatment for TB.

Treating chest clinic	No.	%
Central Chest Clinic	174	43.9
Branch Chest Clinics	222	56.1
Taking anti TB treatment continuously		
Yes	16	96
No	4	4
Duration of anti TB treatment		
First month	118	29.8
2nd and 3rd months	88	22
4th and 5th months	72	18.2
6th month	93	23.5
> six months	25	6.3
Undertake DOT procedure		
Yes	150	37.9
No	246	62.1
Reason for not attending for DOT		
Distance	3	0.8
Unfriendliness	4	1.0
Time constraint	12	3.0
Other	27	6.9
Person involve in DOT providing		
Hospital staff member	67	16.9
Field health staff	22	5.6
Private health staff	2	0.5
Privet practitioner	32	8.1
Volunteer	27	6.8
Procedure of taking DOT		
Correct	102	68.0
Incorrect	48	32.0

Table 6: Practices related to preventive work and better outcome of the treatment.

Visits paid by the PHI	No.	%
Yes	380	96.0
No	16	4.0
Participate for contact tracing		
Yes	301	76.0
No	33	8.3
Reason for not participating contact tracing		
Pending	17	4.3
Not necessary	6	1.5
Not mention	9	2.3
Sputum examination after commencement of treatment		
Yes	385	97.2
No	11	2.8
Experiencing side effects		
Yes	94	23.7
No	302	76.3
Action taken for side effects		
Inform DOT provider	2	2.1
Inform clinic	86	91.5
Hospital admission	6	6.4

Table 7: Distribution by characteristics of defaulters.

Defaulted treatment		
Yes	44	11.1
No	352	88.9
Reason for default		
Not mention	8	18.1
No money	5	11.4
SE	5	11.4
Drug delay	6	13.6
Forgotten	20	45.5

Table 8: Factors associate with Knowledge.

Variable	X^2 Value	df	P value
Attitude	130.645^a	4	.000
CC	5.866^a	2	.053
Residence	21.436^a	4	.000
Race	27.677^a	4	.000
Religion	52.742^a	6	.000
Age	29.555^a	6	.000
Sex	3.808^a	2	.149
Level of Education	51.074^a	4	.000
Marital status	59.074^a	8	.000
Presence of co-morbidities	1.661^a	2	.436
DOT treat	4.710^a	2	.095
PHI visit	5.261^a	2	.072

Knowledge, Attitudes and Practices on Tuberculosis and its Management Among Diagnosed Patients Attending Central and Branch Chest Clinics in the Rathnapura District, Sabaragamuwa Province, Sri Lanka

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Table 9: Factors associate with Attitudes.

Variable	X² Value	df	Significance
Type of CC	7.279[a]	2	.026
Residence	8.263[a]	2	.016
Race	9.148[a]	4	.058
Religion	11.200[a]	6	.082
Age	15.972[a]	6	.014
Sex	8.263[a]	2	.016

In order to achieve the expected level of control in TB, increasing the knowledge, improving positive attitudes on the disease control and prevention and improving the health seeking behavior and adhering to the drug course is essential with the involvement of the health sector more than the current levels of practice.

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