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Article

Identification of Barriers to Diagnosis and Treatment among Households Surrounding Childhood Tuberculosis in Northern Philippines

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Abstract:
Northern Philippines is not exempted from the burden of childhood tuberculosis (TB) given its geographical locations. This paper focuses on spectrum of barriers to childhood TB diagnosis and treatment in Northern Philippines. Cross sectional survey was conducted among 547 household indexed cases from 788 enrolled, and traced covering all selected sites in the provinces of Isabela, Kalinga and Pangasinan to determine barriers to childhood TB diagnosis and treatment in northern Philippines. A total of 1,941 children 15-years old and below were enrolled, screened and referred to the nearest health centers. Interviewed TB indexed cases identified the fear of stigma (53%), lack of knowledge about TB (47%) and shame in asking for help (36%) as top three barriers to diagnosis and treatment of childhood tuberculosis. Only one percent of the children referred visited the health facilities for diagnosis and treatment. Children continue to link the chain of future transmission of TB disease if neglected. Hence, there is a need to intensify information campaign on childhood tuberculosis in the concerned provinces. Generally, active contact tracing should be implemented by the local governments to reach the goal of ending TB by 2030 in these provinces and country.

INTRODUCTION

Being in the 8th rank, Philippines is considered as one of the highly burdened countries in tuberculosis for pulmonary tuberculosis, and ranked 6th on multi-drug resistant cases (WHO Global Report,2018). Northern Philippines is not exempted from the disease burden, especially, among children given its geographical locations of mountainous and urbanizing valleys in all three regions of Ilocos, Cagayan Valley and the Cordilleras encompassing 10 provinces.

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The current public health goal is "zero childhood deaths from TB" (WHO, 2013). Mycobacterium tuberculosis is the leading global killer from a single infectious agent, yet the harsh reality is that TB is preventable, Thomas, Shenoi, et al. (2010).

In 2014, there were an estimated 1 million cases of childhood TB with approximately 136,000 deaths. However, these estimates are vastly different with the total cases disclosed to national TB programs, reflecting under recognition and under-reporting. In 2014, only 36% of estimated pediatric TB cases were reported to national TB programs (WHO, 2015). Reasons for suboptimal detection and diagnosis of a child with TB are multifactorial, but all too commonly it is because no one is looking (Goosby, 2015).

A child with TB is a sentinel event, representing recent transmission in the community. Compared to adults, children below 5 years of age have a disproportionately higher risk of progressing to TB disease within the first 2 years after exposure to an infectious case (Thomas, 2013). Progression can be rapid, sometimes within months.

Although the country achieved an 84% case detection rate for 2012, thousands of cases go undetected, and these "missed cases" represent missed opportunities for effective TB control which means that transmission rate in the household level is still high, particularly, among children who are at high risk. TB in children has been a neglected field due to challenges in case detection and lack of perceived public health importance (WHO, 2013). With the DOTS strategy, the cure rate is considerably high, but there is a need to increase the detection rate to prevent worsening and spread of TB within the family and community, Thim, Sina, et al. (2004).

The spectrum of TB differs in adults and children. Following exposure to M. tuberculosis, an unknown percentage of people will clear infection entirely, while the vast majority develop latency (Rangaka, Cavalcante, et al., 2015). Populations with occasional replication (termed "percolating") can be held under immunologic control. As mycobacterial burden increases, so does the risk of progression to active disease. Of note, the rate of progression between exposure and progressive TB is accelerated in children compared to adults. The severity of disease presentation often follows a bi-modal age distribution, where children below 2 years of age are at higher risk of developing severe disseminated forms of disease and adolescents are at higher risk of developing adult-type or cavitary disease, while the remainder manifest with intrathoracic disease and a predilection for isolated mediastinal lymph node disease, El-Sony, Mustafa, et al. (2003). Detecting children with clinical disease represents the proverbial "tip of the iceberg." Effective TB control not only detects those with symptomatic disease, but also identifies those with subclinical or "latent" infection who are at high risk of developing active disease. Without active screening, this would be impossible.

A greater commitment to active screening of at-risk children is imperative to prevent and detect childhood TB cases earlier. To increase prevention, case detection, and management of childhood TB, international stakeholders (WHO, CDC, UNICEF, USAID, and TB organizations such as IUALTD and the Stop TB Partnership) have created the "Roadmap for Childhood Tuberculosis" which advocates specifically for two priority actions: intensified case finding and integrating TB care into existing maternal/child health services, WHO (2013).

Moving toward the "End TB Strategy," which aims to end the TB epidemic by 2030, there is an urgent need for action across all health sectors. 2 Consequently, the "decentralization" of TB services from national TB programs into the general health system has been advocated as an effective means of achieving targets to end TB, Triasih, Rutherford, et al. (2012); Marais, Obinara, et al. (2005).

The aim of this paper was to identify barriers affecting diagnosis and treatment of childhood TB that would inform methods to improve successful implementation of national childhood TB guidelines in the Philippines.

METHODOLOGY

Study design

Cross sectional survey was employed which identified barriers affecting diagnosis and treatment of children for tuberculosis and latent TB infection. The research project was able to enroll a total of 788 TB adult indexed cases. The lists were obtained from the City and Municipal Health Offices which covered January to June 2017 for the Provinces of Pangasinan and Isabela and January to September 2017 for the Province of Kalinga.

From the 788 indexed adult cases enrolled to the study, only 547 households were surveyed. Other households refused to schedule interviews due to their existing condition (very sick), uncooperative household members employment reasons, and other unmentioned barriers.

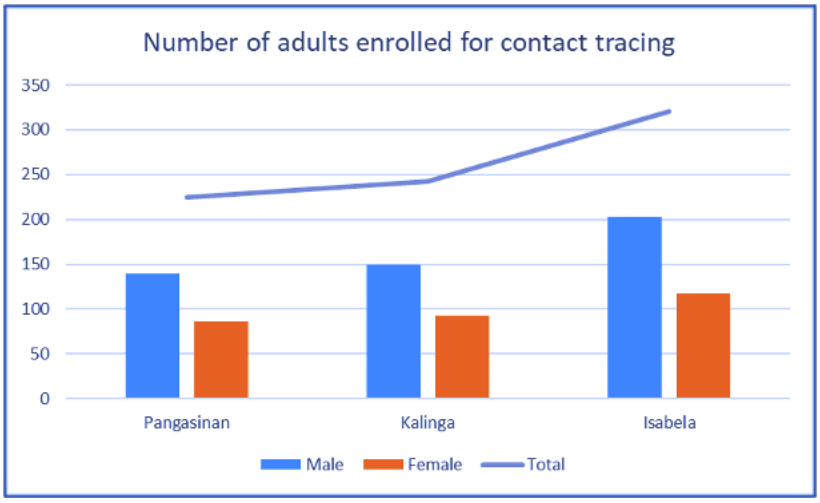

Figure 1. Number of Adult TB indexed-cases voluntarily participated in the research

Based on the recommendations of the Department of Health's Regional Centers for Health Development, the research was conducted in the three provinces of Regions 1, 2 and Cordillera Administrative Region (Fig. 1).

Figure 2. Map showing the provinces as the sites for the research project

Ethics Approval

The research project underwent ethical reviews from USAID Washington and provided with a Federal-wide Assurance number (FWA – 00025485). The Regional Hospitals in Region 1 (R01 Medical Center, Dagupan City), Region 2 (Veterans Regional Hospital, now, Region 02 Trauma Medical Center, Bayombong, Nueva Vizcaya and Cordillera Administrative Region (Baguio General Hospital and Medical Center, Baguio City. All local Institutional Review Boards or Research Ethics Committees gave their approval after their rigorous review of the research protocols, and these were submitted to the funding agency. Consenting process was undertaken among the TB indexed cases to their households. For the TB indexed cases who agreed to participate, the researchers scheduled the participants for interview in their homes. Adhering to research protocols, all questionnaires were coded to ensure the confidentiality of all the information gathered from the participants.

Considering data confidentiality protocols which was strictly observed by the research team, all data obtained from the participants were coded and analyzed using Excel and SPSS 14. Descriptive statistics was utilized in this research project.

Inclusion and Exclusion Criteria

All adult indexed cases ages 20 years and above who underwent a six-month short course treatment for tuberculosis including relapse cases covering a six-month period (January to June 2017) for the provinces of Isabela and Pangasinan and January to September 2017 in the case of Kalinga province were included in the study. The adult TB indexed cases enrolled were included in the database of subjects for the study.

Subjects excluded in the study were those participants who withdrew from the study, and those not covered in the sampling for the study sites.

RESULTS AND DISCUSSION

Socio-demographic profile of the household-respondents

The table below presents the socio-demographic profile of the household adult indexed cases enrolled and participants of the survey. The study found out that the mean age of the respondents is 51 years old which signifies that most of those who got sick of TB were of productive age and elderly.

The annual household income of the respondents was PhP46,359.00 which is already far below the poverty threshold or under abject poverty. This is in congruence to the 2017 data of the Philippine Statistics Authority wherein, the provinces covered by the research, extreme poverty still lingers (Rangaka, Cavalcante, et al., 2015), specifically, in Isabela. The average household size for the three provinces is five (5).

Majority (62%) were males and 81 percent were married. This is also supported by the nature of the respondents' occupation, whereby, majority of the types of jobs are generally male-oriented (Fig. 3). As to their education, more than half (61%) of the respondents either reached or finished primary/elementary level; 20% reached high school level or graduated from HS and 19% were able to reach the college level and were college graduates as well. Based on the WHO (2003) report on Gender and Tuberculosis, majority of those cases notified were males.

Table 1. Socio-demographic profile of the adult TB indexed cases surveyed

Demographic profile of the respondents	**Mean**	**n (%) N=547**
Mean age	51.20	-
Mean annual household income	Php 46,359.00	
Average household size	5	
Sex		
Male		339 (62)
Female		208 (38)
Marital Status		
Single		60 (11)
Married		444 (81)
Widow/widower		43 (8)
Educational attainment		
Primary (Elementary Level and Elementary Graduate)		334 (61)
Secondary (High school graduate and HS level)		109 (20)
Tertiary education (College graduate and college level)		104 (19)

Occupation of the respondents

As to their occupation, majority (43%) of the respondents were engaged in Farming/Farm Tenants/Farm Laborer/Fishing. Though, the indexed cases were able to complete their treatment of either 6 months or 9 months and considered cured from TB, there were those who cannot work anymore and with no work (22%) due to aging, especially those 60 and above, with complications and other illnesses (hypertension, diabetes, heart disease). A number (18%) of them also have informal jobs such as Construction, Carpentry, Mechanic, Mason, Tricycle Driver. Ten percent (10%) are working as household helpers. Other jobs (3%) they engaged into included selling goods and snacks, as government or private employees or formal sector and others.

Hence, it can be gleaned (Table 1) that males from this region are more likely than females to be diagnosed with TB, a finding that mirrors the distribution of TB in the Philippines, though, according to WHO, in 2015, it was estimated that 3 million women fell ill with TB and it is one of the top five killers of women among adult women aged 20–59 years with half a million women died from TB in 2015. Based on the data gathered, their occupation can be described as a contributory factor because these jobs require a lot of strength, and if food intake is not much due to poverty situation as gleaned from their average annual income and lacking from rest, it can wear-out the body. Thus, diseases like TB could develop actively if already acquired as a response to low immunologic response against the disease given this situation in the indexed cases' lives. The results showed congruence to the study of Kootbodien, Wilson, et al. (2018) in South Africa, wherein, they found out that low socio-economic occupations of individuals aged 15 to 64 years old affected with TB disease was the cause of TB deaths, of which, 12.2% from those had jobs as agriculture, forestry and fishery laborers as well as cleaners and helpers with 9.14%, as well.

The respondents or the adult TB cases interviewed were mostly males (62%) and the nature of their jobs mentioned above are strenuous ones. Based on the average annual income, it is understood that most of them belong to the marginalized sector. This only proves that TB is an illness that affects the most vulnerable populations, especially the poor people. However, anyone can get infected once they are exposed to a person with active TB disease, living in highly burdened country, immune-compromised and living in highly burdened country, especially those who may have compromised immune systems or underlying organ dysfunction from alcohol/tobacco dependence (WHO, 2013).

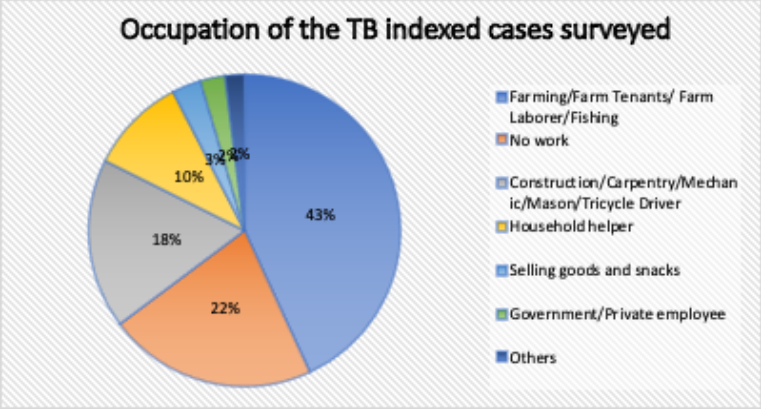

Figure 3. Occupation of the adult TB indexed cases surveyed

Barriers to Immediate Diagnosis and Treatment of Childhood TB in Northern Philippines

Table 2 shows several barriers to diagnosis and treatment of childhood TB identified by the 547 household indexed cases interviewed. Majority (53%) identified stigma attached to the disease as the culprit or major reason why parents or guardians do not present their children to the health center for proper diagnosis. This perception was backed by their experiences as victims of the disease themselves and underwent short course treatment for TB. Some also went to private clinics to hide their identity because of stigma. In a study conducted by Spruijt, Haile, et al. (2020) among the Eritrean refugees and asylum seekers in the Netherlands who were screened or treated, both anticipated and enacted stigma were reported. Due to fear, the participants would hide their diagnosis and treatment from LTBI among their social network or friends Spruijt, Haile, et al. (2020).

Another barrier is the lack of knowledge (47%) which further stigmatized the nature of the disease itself while the respondents were also "ashamed to ask for help from the healthcare workers (36%)" which could also be attributed to their social status in the society because based on the demographic profile of the indexed cases, majority of them reached the primary level, of which, educational attainment also dictates unhealthy behavior among young adults in the US (Skalamera and Hummer, 2016) and adults, too, considering norms and cultural differences. The above are the three topmost barriers that affect prompt diagnosis and treatment among children 15 years and below. Due to this barrier, which is directed to the healthcare workers, it could mean that TB indexed cases only sought clinical intervention when they already suffered a lot.

The top 3 barriers contributed to the non-presentation of the 99% referred children to the DOTS centers which already caused longer delays in their diagnosis and treatment either for active TB or LTBI.

On the other hand, institutional level barriers which include no contact tracing done routinely (33%), lack of support from healthcare workers (31%), lack of support from health facilities (29%). This supports WHO's account that barriers which included degree of suspicion for TB, the number and types of health centers or private clinics visited before onset of TB disease, non-adherence to national TB program guidelines like active case finding of public health offices WHO (2013) are existing due to limited resources and support from the local governments concerned.

It is also important to note the following individual-level barriers identified by the indexed TB cases surveyed which include lack of finance to support treatment (20%), lack of concern among household members (18%), the proximity of the health facilities (house is very far from the health clinics- 12%. These barriers are also contributing to the delayed diagnosis and treatment of childhood TB in northern Philippines and posed threat to seeking TB services.

Furthermore, barriers to childhood TB diagnosis and treatment are more profound due to the inability of the children to decide for themselves, though, it is their right to being looked after to by their parents or guardians. On one hand, literature with respect to barriers in the management of child contacts of TB cases in developing countries is relatively low. In this case, a policy practice gap still needs to be addressed, Triashi, Rutherford, et al. (2012); Marais, Obinara, et al. (2005); Marahatta, Yadav, et al. (2020).

Table 2. Barriers to diagnosis and treatment of childhood TB in northern Philippines

Barriers	Frequency (n=547)	Percent
Fear of stigma	103	53
Lack of knowledge about TB	92	47

Ashamed to asked help from healthcare workers	70	36
No contact tracing done not a routine of health facility	33	17
Lack of support from healthcare workers	31	16
Lack of support from health facilities	29	15
Lack of finance to support treatment	20	10
Lack of concern among household members	18	9
House if very far from the clinic	12	6
Lack of concern among community members	12	6
Delayed visit to health facility	10	5
Not a priority of the government to treat TB in children	9	4
No time of parents	4	2
No healthcare package for TB from government	2	1

CONCLUSION

Seeking TB services for children in northern Philippines found to relate to some bottlenecks from the different levels – individual, educational, financial, geographic access to health facilities and even institutional or facility level barriers. Topmost barriers to childhood TB diagnosis and treatment as perceived by the household indexed cases surveyed were stigma (53%), lack of knowledge or awareness on TB (47%) and ashamed to ask or approach the healthcare workers (36%). Hence, childhood TB diagnosis and treatment is still a way behind in this part of the country due to these barriers.

RECOMMENDATIONS

The researchers recommend the following:
1. LGUs through the health facilities should prioritize the diagnosis and treatment of children either for LTBI or active TB who are household contacts of adult TB indexed cases.

2. For the LGUs to conduct and intensify information and education campaign program about tuberculosis in children.

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ATTRIBUTION

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