ENGAGEMENT OF LADY HEALTH WORKERS LEADING TO EARLY DIAGNOSIS

A cross sectional study

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Background

Tuberculosis is still considered a major cause of morbidity and mortality especially in developing countries. Pakistan is facing a huge burden of disease and currently around 518,000 new cases of TB occur each year in the country with an overall mortality of 23 deaths per 100,000 population[1]. Pakistan's National TB control program along with its partners is striving to arrest the transmission of disease within the communities through early diagnosis and immediate start of treatment. Delay in diagnosis not only complicates the disease at individual level but also results in significant transmission of disease within the community. A study conducted by Madebo et al. found that as the delay in diagnosis progresses, the patients become

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[1] WHO World TB Report 2017

more contagious and have more grave health outcomes[2]. Since, TB symptoms, particularly cough with sputum are so prevalent in most of the communities; delay in diagnosis is quite common. The present study is an attempt to assess the delay in diagnosis of TB patients diagnosed through the Public Private Mix (PPM) project and the TEAM to end TB project, both being implemented by Mercy Corps in different districts of Pakistan.

Methodology

Since there is no standard cut off point to calculate the delay in diagnosis in days; early diagnosis is demonstrated in this study through comparison of cross-sectional data between the beneficiaries of the Global Fund's Public Private Mix (PPM) project and the TB REACH's TEAM to End TB Project.

A cohort of 242 persons with bacteriologically confirmed pulmonary TB (registered during January – March 2018) was considered as the total population for this study, including 145 persons with TB (PWTB) diagnosed through LHW intervention (TEAM to End TB project) and 97 from the PPM intervention. Proportionate to population sizes, 66 cases from LHW intervention (males=36; females=30) and 43 cases from PPM intervention (males=22; females=21) were randomly selected at 90% confidence level and 6% margin of error. Using systematic random sampling every 2nd entry was selected from intervention-wise patient register and patient was contacted telephonically to gain informed consent. Trained interviewer administered face-to-face interview by using validated data collection tool to measure diagnosis and treatment delay.

According to World Health Organization, diagnosis delay corresponds to time interval between onset of symptoms and diagnosis of TB. Similarly, treatment delay corresponds to time interval between TB diagnosis and initiation of anti-TB drugs. Our study used these definitions to calculate diagnosis and treatment delays.

Results

The results showed that the average number of days between onset of symptoms and diagnosis of TB were 119 days in case of patients registered through PPM intervention while it was 72 days in case of LHW intervention. This shows that through LHW intervention, people with TB signs or symptoms were diagnosed 47 days earlier as compared to patients diagnosed through PPM intervention. It is also noted that 40 (27%) patients in LHWs intervention approached a formal health care provider as first contact to seek care while only 14 (14%) patients contacted a formal health care provider in PPM intervention. Moreover, in LHW intervention diagnosed persons initiated treatment one day earlier than those in PPM intervention.

It can be concluded that LHW intervention is an active case finding approach that can potentially reduce diagnosis delay, hence chances of infection transmission can be reduced and severity of disease can be avoided.

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[2] Madebo T, Lindtjørn B: Delay in Treatment of Pulmonary Tuberculosis: An Analysis of Symptom Duration Among Ethiopian Patients. 1999, Medscape General Medicine , -[http://www.medscape.com/viewarticle/407989]

The findings of the study are summarized in tables below:

TABLE 1: DELAY IN DIAGNOSIS PPM AND LHW INTERVENTIONS

	PPM (n=43)	LHW intervention (n=66)
Time between the onset of symptoms and first contact with **any** provider	55 days	41 days
Time between the onset of symptoms and first contact with a **formal** provider	112 days	62 days
Number of persons whose first contact was a formal healthcare provider	14 persons	40 persons
Diagnosis delay	119 days	72 days
Treatment delay	4 days	3 days

The below table shows the difference in health seeking and diagnosis delay between men and women under the two interventions:

TABLE 2: DELAY IN DIAGNOSIS FOR MEN AND WOMEN IN PPM AND LHW INTERVENTIONS

	PPM (n=43)		LHW intervention (n=66)	
	Men	Women	Men	Women
Time between the onset of symptoms and first contact with **any** provider	77 days	33 days	52 days	29 days
Time between the onset of symptoms and first contact with a **formal** provider	118 days	106 days	74	47 days
Number of persons whose first contact was a formal healthcare provider	10 persons	4 persons	20 persons	20 persons
Diagnosis delay	129 days	108 days	79 days	63 days
Treatment delay	2 days	7 days	1 day	5 days

Conclusion

A cross-sectional study, undertaken by Mercy Corps team in three intervention districts of TEAM (Train, Empower and Mobilize Communities) to End TB, has demonstrated that the engagement of Lady Health Workers (LHWs) can significantly reduce the delay in diagnosis of TB patients.

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