ASSESSMENT OF THE COMPLIANCE IN PATIENTS OF TUBERCULOSIS AT PRIMARY HEALTH CARE CENTERS HYDERABAD

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ABSTRACT

Introduction: WHO defines medication compliance as "The degree to which the person's behavior corresponds with the agreed recommendations from a health care provider". A major determinant of the outcome of tuberculosis treatment is patient compliance; nevertheless, 20 to 50 percent of patients fail to complete the therapy. The consequences of failure to complete the therapy include prolonged communicability, relapse, prolonged and more expensive therapy, development of drug resistance and deaths.

Objectives: To assess the compliance among the patients of tuberculosis at various primary health care centers of Hyderabad.

Methodology: A descriptive cross sectional study was conducted at three selected primary health care centers Hyderabad. A total of 300 Patients having tuberculosis were enrolled via purposive sampling technique for the period of one year. A structured questionnaire was developed and a series of questions were asked for the assessment of compliance among tuberculosis patients. All data was analyzed descriptively.

Results: Out of total 300 patients, male patients (n = 204) were more in number than female (n = 96). Maximum number of patients were enrolled from institute of chest

disease Sindh i.e. 40%. Majority of enrolled patient's age were from 24-25 years i.e. 46%. Majority of patients were suffered with pulmonary tuberculosis i.e. 82 %, (n=265), while 18% (n=35) were reported in extra pulmonary tuberculosis. In account of noncompliance, 23% patient was found with dose missed. Whereas 19% were thinking for change the medication. Around 29% patients were found to show irregularity for their routine visits.

Conclusion: It was concluded that most of the patients were non-compliant with anti tuberculosis medication so proper strategy should be made to cope up this situation and increase the level of compliance.

Keywords: Assessment, Compliance, Tuberculosis, Hyderabad

INTRODUCTION

Mycobacterium tuberculosis is that micro organism that caused Tuberculosis [1]. Studies proved that if any individual being victimized by the tuberculosis, so almost 10% cases converted into mature state within 12 to 24 months following the contact. The left over entity were engaged in the other form of the tuberculosis which reactive in afterward phases [2]. Global statistics indicates that tuberculosis still a foremost burning issue which is responsible to increase the burden of infection as well as mortality particularly in developed countries. World largest health agency mentioned in 2005 that various states of the Europe had the vulnerable experienced of the tuberculosis [3]. World health organization (WHO) constantly work on the eradication of the tuberculosis, despite of the solid efforts remedy achievement rate was not desirable, and only secured 40% between the period of the 2007 to 2009 [4]. Due to its rapid occurrence world wide it is now ranked at second largest lethal disease after the HIV/AIDS. Guesstimated statistics indicated that around 9 million subjects associated with tuberculosis in 2011 and out of them 1.4 million embraced the fatality followed by 0.5 million death occurred with HIV related tuberculosis [5]. In early studies it has been discussed frequently that mostly rising countries are more affected by the tuberculosis predominantly sub continent Sahara Africa, in which more or less 50,000 incidences pointed out by the health center. Research justified that tuberculosis deadliest disease especially in young subjects, globally active form of tuberculosis growing rapidly in million of masses, however

more than 3 million sufferers expired every year. Tuberculosis victimization more common in sub continents like Asia rather than other part of the world. Globally resistance of the medication not only responsible of the enlargement of the patients but also showing strong challenge worldwide, so preventive measures strongly recommended by the reputable health agencies[6]. While globally population facing the challenges of the tuberculosis likewise in Pakistan it is still a burning issue. It has been seen previously that tuberculosis did not consider as a serious matter and made it most deserted part in Pakistan, so added more share in the load of contagious disease worldwide. However policy makers consider it 5% sum of the state illness. To reduce the frequency of the reoccurrence of the disease state announces the few effective control programs and ensures their execution at the door step. Directly observe treatment strategy another successful agenda taken on in the start of the 21st century which produced remarkable results not only to perceive the positive but also accomplished the eighty five percent upshots as per requirement [7]. Whereas Pakistan ranked at top 5 between those countries which tolerate

the elevated lumber of the tuberculosis [8-10]. 3 years ago Pakistan among the top five states which generated globally maximum share of the tuberculosis. In Pakistan the process of the analysis performed from more the 20 years to get positive outcome of the assessments and forecast for the future [11]. Type of contagious infection in which mostly individual at the threat of development of the illness which turn towards its confirmation, only rely on the ever used method tuberculin skin test, which posses few reservations [12]. Vigorous form of the tuberculosis multiply from part of the lungs alveoli with the help of blood stream or another system of the body called lymphatic system. It is mainly assault the integral part of the respiratory organ (lungs), moreover get access additional corpse component like urinary system, skeleton, skin, and urinary system. Tuberculosis symptoms are as follows Anorexia, Loss of weight, Night sweats, Temperature or fever Mortality and morbidity rate of tuberculosis can be reduce if it is manage properly, otherwise it proves costly and can offer utmost damage to victimized patients [13]. According to world health organization "The degree where the individual performance communicates with the approved

proposal through the health professional." Adherence can be described that the degree where the tolerant pursue the medical instruction [14]. Statistics showed that adherence is major problem while treating in chronic conditions studies illustrated that around 50% patients unsuccessful to obtain their medication as per guideline, and that stoppage has extremely expensive insinuation [15]. As yet there is no conclusive data demonstrating factors responsible for poor treatment adherence in the locality of Hyderabad. The objectives of current research were to estimate the anti-tuberculosis medication compliance level of patients with in primary health care centers. To evaluate the factors that affect on compliance of patients with anti-tuberculosis medication.

METHODOLOGY

A descriptive cross sectional study was conducted at three selected primary health care centers Hyderabad i.e. Institute of chest disease, Rural health Center Tando Jam, and Chest Centre Latifabad. A total of 300 Patients having tuberculosis were enrolled via purposive sampling technique for the period of one year. A structured questionnaire were developed that includes the questions regarding their

disease and factors such as obedience of the tuberculosis therapy plus tolerant distinctiveness, affiliation among the serene and health professional, therapy scheme along with wellbeing concern location. Patients 18 years of age and above, with confirmed diagnosis of Tuberculosis and taking anti-TB therapy are included in this study regardless of gender at particular areas of Hyderabad District. Mentally compromised, unconscious like meningitis (patients depend on other people for medication administration), drug addicts, unable to respond verbal questions, patients with severe liver and kidney damage, cardiac temponade and pregnancy/lactating women are exclude from the study. A series of questions were asked for the assessment of compliance among tuberculosis patients that includes patient's disease history, habits, medication regimen, complaint and necessary information. A written consent was taken from health care providers (HCPs) and patients prior the study. The study was approved by Advanced Studies and Research Board (ASRB), University of Sindh, Jamshoro, Pakistan. All data was analyzed descriptively and statistically.

RESULTS AND DISCUSSION

A total of 300 patients were enrolled from three different health care centers. From Institute of Chest disease 120 (40%) patients were enrolled, 90 (30%) patients each from rural health center Tando jam and Chest center Latifabad respectively (Table 01).

Gender wise patients were also evaluated among all health care centers. Male gender patiens were dominant as compared to all female such as 67.5% in institute of chest disease, 64.4% in rural health center Tando Jam and 72.2% in Chest center Latifabad. (Table 02).

Out of total patients, maximum number of patients were aged between 24 to 35 years and the frequency was 87 (29%) and only 12% patients were more than or equal to 55 years of age. (Table 3).

Table 4 showed the duration of therapy and it was clearly described that maximum enrolled patients i.e. 39% had 5-6 months duration therapy it means near to complete the therapy.

Below Table 5 showed the various percentages of literacy among enrolled patients. Out of total patients 33% of the patients were crossed primary education and only 7 % were crossed bachelors.

Below mentioned Table 6 showed the stages of the treatment that one third of the subjects (72%) were persistent to get the medication of the tuberculosis whereas residual were in the initial phase of the treatment.

Table 7 described that 85.83 patients had pulmonary site while remaining extra pulmonary in institute of chest disease Sindh (IOCDS), 87.7% had pulmonary site in rural health center Tando Jam and 92.2% in Chest center Latifabad (CCL).

Persistent cough with fever was the most prominent indicator of the tuberculosis patients and it was found in 47.66% while remaining were also shown in below table 8.

On the basis of recommended guidelines, the results showed that 88.33% of the patients taken first line of drugs while remaining on second line i..e only 11.6%.

Table 10 illustrated that significant amount (88%) of the sufferers were proper responded the medication of the tuberculosis and gave the impression of consciousness regarding their therapy, while (12%) patients were careless for the prescribed therapy.

Table 11 described the negligence to take medication and alarming figure came out during the inquiry that (23%) patient missed the dose of the medicine subsequent (67%) subjects chase the

appropriate instruction of the treatment and (10%) victims did not replied positively.

Various evidences found which led the cause of the negligence; among them unpleasant effects of the medicine was the prominent in (11%) of the patients whereas patients also did not look comfortable due to satisfactory level and non availability of the treatment.

In the response of the series of the quarries during the investigation major concern shown by the patients that when they feel better they stopped their therapy, current study proved that 17% patients were left the treatment due to state of well being.(Table 12)

Data analysis also depict that a pool of patients (19%) was struggling to alter the medicine during the period of the treatment, left over (81%) continued with the predefined remedy.

Table 13 shows the struggle of the patients. Survey found significant portion (14%) of the patients to be defaulter due to the different circumstances during the treatment of the tuberculosis.

Figure 2 described that the defaulter patients, and out of 14% the most significant argue was the length of the therapy (6%), followed by the early satisfaction (4%), however left over discontinued therapy due to irregularity in follow up subsequent by the poor literacy level.

Study dignified the justification of the defaulter patients, and out of 14% the most significant argue was the length of the therapy (6%), followed by the early satisfaction (4%), however left over discontinued therapy due to irregularity in follow up subsequent by the poor literacy level.

Table 01: Hospitals wise Patients Enrolled

S/No	Name of Hospital	No: of Patients	Percentage %	Cumulative %
1	Institute of chest diseases Sindh	120	40%	40%
2	Rural Health Centre Tando Jam	90	30%	70%
3	Chest Centre Latifabad	90	30%	100%
Total	03	300	100%	

Table 2: Gender Wise Enrolled Patients

Hospital	Gender	Frequency	Percentage	Cumulative%
Institute of chest disease Sindh (Out OF 120)	Male	81	67.5%	67.5%
	Female	39	32.5%	100%
Rural Health Centre Tando Jam (Out OF 90)	Male	58	64.4%	64.4%
	Female	32	35.5%	100%
Chest Centre Latifabad Hyderabad (Out OF 90)	Male	65	72.2%	72.2%
	Female	25	27.7%	100%

Table 3: Age Wise Patients

Age	Frequency	Percentage (%)	Cumulative%
≥18≤24	51	17%	17%
≥24≤35	87	29%	46%
≥35≤44	72	24%	70%
≥45≤54	54	18%	88%
≥55	36	12%	100%
Total	300	100%	

Table 4: Duration Of Therapy

Duration of Tuberculosis	Frequency	Percentage (%)	Cumulative (%)
1-2 Months	84	28%	28%
3-4 Month	99	33%	61%
5-6 Month	117	39%	100%
Total	300	100%	

Table 5: Literacy Of Patients

Literacy Division	Frequency	Percentage (%)	Cumulative (%)
Uneducated	93	31%	31%
Primary	99	33%	64%
Secondary	42	14%	78%
Higher Secondary	30	10%	88%
Bachelors	21	7%	95%
Masters	15	5%	100%
Total	300	100%	

Table 6: Prescribing Status Of Anti-T.B Drubgs By Phases

Phases	Frequency	Percentage (%)	Cumulative (%)
Intensive Phase	84	28%	28%
Continues Phase	216	72%	100%
Total	300	100%	

Table 7: Status Of Patients By Site Among Health Centers

Hospital	Therapy	Frequency	Percentage	Cumulative%
IOCDS	Pulmonary	103	85.83%	85.83%
(OUT OF 120)	Extra Pulmonary	17	14.16%	100%
RHCTJ	Pulmonary	79	87.7%	76.6%
(OUT OF 90)	Extra Pulmonary	11	12.2%	100%
CCL	Pulmonary	83	92.2%	76.6%
(OUT OF 90)	Extra Pulmonary	07	7.77%	100%

Table 8: Sign & Symptoms

Symptoms	Frequency	Percentage (%)	Cumulative%
Persistent cough Fever	143	47.66%	47.66%
Fever Weight Loss	91	30.33%	77.99%
Persistent cough +Weight Loss	54	18%	95.9%
Blood In Cough	12	4%	100%
Total	300	100%	

Table 9: Treatment

S.NO	Frequency	Percentage (%)	Cumulative%
First Line	265	88.33%	88.33%
Second Line	35	11.6%	100%
TOTAL	300	100%	

Table 10: Are You Sloppy About Your Medicine?

S/No	Description	Name of Variable	Type of Variable	Codes	n	Frequency	Proportion
1	Anti.T.B	Anti T.B therapy	Categorical	Yes	300	36	12%
2	Therapy		(binary)	No		264	88%

Table 11: Have You Ever Missed Dose During This Therapy?

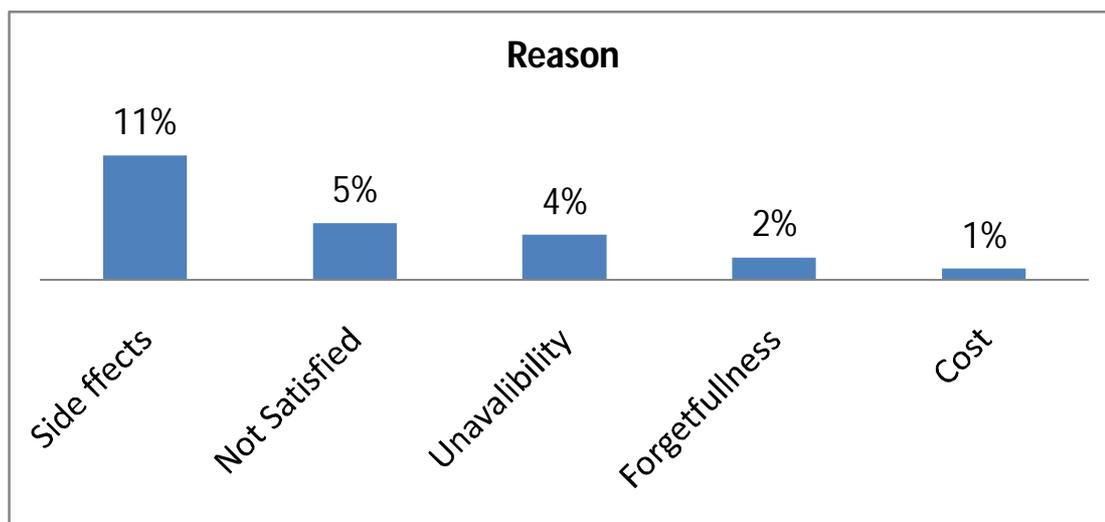| S/No	Description	Name of Variable	Type of Variable	Codes	n	Frequency	Proportion
1	Anti.T.B Therapy	Anti T.B therapy	Categorical (Polygonal)	Yes	300	69	23%
2				No		201	68%
3				Don't know		30	10%

Figure 1: If Missed Than Why?

Table 12: During The Treatment Did U Stop Your Medicine While Believe Improved?

S/No	Description	Name of Variable	Type of Variable	Codes	n	Frequency	Proportion
1	Anti.T.B Therapy	Anti T.B therapy	Categorical (binary)	Yes	300	51	17%
2				No		249	83%

Table 4.15: Have You Ever Thought About Change Of Medicine?

S/No	Description	Name of Variable	Type of Variable	Codes	n	Frequency	Proportion
1	Anti.T.B Therapy	Anti T.B therapy	Categorical (binary)	Yes	300	57	19%
2				No		243	81%

Table 13: Defaulters

S/No	Description	Name of Variable	Type of Variable	Codes	n	Frequency	Proportion
1	Anti.T.B Therapy	Anti T.B therapy	Categorical (binary)	Yes	300	42	14%
2				No		258	86%

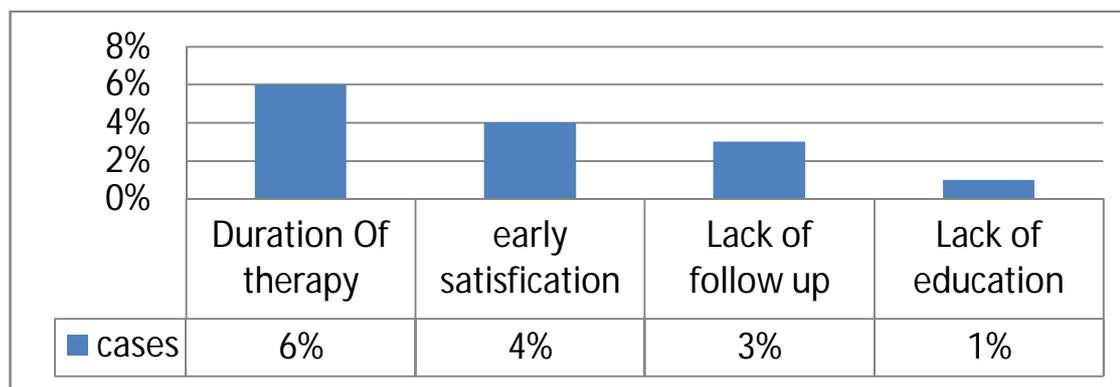| cases	Duration Of therapy	early satisfication	Lack of follow up	Lack of education
	6%	4%	3%	1%

Figure 2: If Yes Than Reason?

DISCUSION

The focus of the study is to identify the reasons behind the poor compliance of the tuberculosis treatment, and closely learning of the cases indicated the different issues of the non adherence. Current study shows that male patients were more prominent to participate in the research around 68%, whereas the female gender joined unhurriedly 32%, which revealed that male gender is more interactive as shown in table 2. While in another study conducted in 2015 and the results were almost same about the gender i.e. 64%. Further 53% of the patients were fall between the ages of the 24 to 44 years, moreover comparative study followed the same pattern i.e. 50% between the age of 20 to 40 years [16]. Throughout the assessment 88% patients diagnosed with pulmonary tuberculosis whereas 12% with extra pulmonary, similarly in another study it was concluded that 71% confirmed cases of tuberculosis associated with lungs[17]. Present study hold the significant number (88%) of the sufferers were proper responded the medication of the tuberculosis and gave the impression of consciousness regarding their therapy, while (12%) patients were careless for the prescribed therapy like another study described that 60.3% were classified as intermediate adherents whereas the leftover patients 39.7% were sorted out as squat adherents, and not any sufferer was found among the high category of the adherence [18]. Study statistics described that 23% of patient missed the dose of the medicine subsequent (67%) subjects chase the appropriate instruction of the treatment and (10%) victims did not replied positively similarly present study shows the Various evidences which led the cause of the negligence among them unwanted effects of the medicine was the prominent in (11%) of the patients whereas patients also did not look comfortable due to satisfactory level

and non availability of the treatment[19].

CONCLUSION

The conclusion of current study was clearly described that compliance among tuberculosis patients was not good that may leads to the treatment failure. Moreover it was also found that pharmacist plays a vital role in peruse patient's compliance, so it is necessary that pharmacist must be present each and every pharmacy which ensure the proper patient counseling regarding the Anti Tuberculosis therapy.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

All authors read and approved the final research article. This paper is the result of a corresponding author M.Phil research topic.

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REFERENCES

1. Halse, T. A., Escuyer, V. E., & Musser, K. A. Evaluation of a single-tube multiplex real-time PCR for differentiation of members of the Mycobacterium tuberculosis complex in clinical specimens. Journal of clinical microbiology, 2011, 49(7), 2562-2567.

2. Dinnes, J., Deeks, J., Kunst, H., Gibson, A., Cummins, E., Waugh, N., ... & Lalvani, A. (2007). A systematic review of rapid diagnostic tests for the detection of tuberculosis infection. Health Technol Assess. 2007 Jan;11(3):1-196.

3. Drobniewski, F. A., Nikolayevskyy, V., Hoffner, S., Pogoryelova, O., Manissero, D., & Ozin, A. J. The added value of a European Union tuberculosis reference laboratory network--analysis of the national reference laboratory activities. Euro surveillance: bulletin Europeen sur les maladies transmissibles= European communicable disease bulletin, 2008, 13(12), 717-727.

4. Ukwaja, K., Alobu, I., Ifebunandu, N., Osakwe, C., & Igwenyi, C. (2011). From DOTS to the Stop TB Strategy: DOTS coverage and trend of tuberculosis notification in Ebonyi, southeastern Nigeria, 1998-2009. Pan African Medical Journal, 9(1).

5. World Health Organization. (2010). Global tuberculosis control: WHO report 2010. World Health Organization.

6. Jain, A., & Dixit, P. (2008). Multidrug resistant to extensively drug resistant tuberculosis: what is next?. Journal of biosciences, 33(4), 605-616.

7. Vermund, S. H., Altaf, A., Samo, R. N., Khanani, R., Baloch, N., Qadeer, E., & Shah, S. A. (2009). Tuberculosis in Pakistan: A decade of progress, a future of challenge. J Pak Med Assoc, 59(4), 1-8.

8. World Health Organization. (2010). Global tuberculosis control: WHO report 2010. World Health Organization.

9. World Health Organization. (2010). Global tuberculosis control: WHO report 2010. World Health Organization.

10. Khan, J. A., & Malik, A. (2003). Tuberculosis in Pakistan: Are We losing the battle?. JOURNALPAKISTAN MEDICAL ASSOCIATION, 53(8).

11. Chee, C.B.E., Boudville, i.c, Chan, S.P,.Zee, Y.K. and Wang, W.T. (2000) Patient and disease characteristics in outcomes of treatment defaulter from Singapore Tuberculosis control unit.. a 1 year retrospective survey. International Journal of Tuberculosis and lung disease, 4, 496-503

12. IGRA Expert Committee, & Centers for Disease Control and Prevention (CDC). (2010). Updated guidelines for using interferon gamma release assays to detect Mycobacterium tuberculosis infection, United States, 2010. Department of Health and Human Services, Centers for Disease Control and Prevention.

13. World Health Organization. (2010). Treatment of tuberculosis: guidelines. World Health Organization.

14. Sabate, E. (2001). WHO. Adherence Meeting Report. Genove. World Health Organization.

15. Doucette, W. R., Kreling, D. H., Schommer, J. C., Gaither, C. A., Mott, D. A., & Pedersen, C. A. (2006). Evaluation of community pharmacy service mix: evidence from the 2004

National Pharmacist Workforce Study. Journal of the American Pharmacists Association, 46(3), 348-355.

16. Saleem, U., Mahmood, S., & Ahmad, B. Non compliance to tuberculosis therapy: a cross scetional study. month, (2015) 20(62.5), 62-5.

17. Tiwari, S., & Wavare, R. R. reasons for non-compliance and profile of tuberculosis patients in urban area of indore, National Journey of community Medicine; Volume 6; Issue 1;55-59

18. Kassab, Y. W., Hassan, Y., Aziz, N. A., Zulkifly, H. H., & Iqbal, M. S. (2015). Trends in adherence to secondary prevention medications in post-acute coronary syndrome patients. Pak. J. Pharm. Sci, 28(2), 641-646.

19. Eticha, T., & Kassa, E. (2014). Non-Adherence to Anti-TB Drugs and Its Predictors among TB/HIV Co-Infected Patients in Mekelle, Ethiopia. J Bioanal Biomed, 6, 061-064.