

Assessment of Health Related Quality of Life Among Tuberculosis Patients at Government Teaching Hospital

Mude Srujana, Rakshitha N, Dronavalli Lokesh Sai, Riyaz Miya

DOI: 10.29322/IJSRP.10.08.2020.p10445
<http://dx.doi.org/10.29322/IJSRP.10.08.2020.p10445>

Abstract- At present the Tuberculosis (TB) Management had much attention on microbiological cure, and its impact on HRQOL is undervalued. The study was aimed to assess HRQOL including psychological, general health perception among TB patients. A prospective interventional study was conducted among 52 patients visiting department of chest and TB (IPD & OPD), Gulbarga Institute of Medical Science's, Kalaburagi, for a period of 6 months. The data was collected by face-to-face interview and a suitably designed questionnaire world health organization quality of life (WHOQOL - BREF) and SF-36 questionnaire were used to assess the HRQOL of TB patients at base line before intervention and 2 months after the intervention using a pre-test design. The data of 52 patients were analyzed in the study. Present study reveals that the Mean SD scores of WHOQOL(BREF) of psychological health at base line was 44.35 ± 13.20 , at follow up was 56.60 ± 14.95 and environmental at base line was 51.17 ± 10.60 , at follow up was 60.00 ± 8.09 and p-value < 0.001 , which is very highly significant. The Mean SD score of SF 36 of physical health at base line was 33.87 ± 21.16 , at follow up was 53.0 ± 21.10 and role limitations due to emotional problems at base line was 49.22 ± 38.61 , at follow up was 81.27 ± 27.36 and p-value < 0.001 , which is very highly significant. All the health domains scores are increased after follow up this is due to patient education regarding disease. Patient counselling is one of the most important aspects in developing patient's knowledge about disease, management, precautions and improving overall quality of life. Our study concluded that although HRQOL improved with treatment, the scores on component summary measures showed compromised physical health among the study patients even at the end of the follow up.

Index Terms- Tuberculosis, Health related quality of life, WHOQOL (BREF), SF 36 questionnaire.

I. INTRODUCTION

In 1993 an increase in reported cases of TB in countries across all continents let the WHO to declare TB a global emergency. Tuberculosis (TB) remains a leading infectious killer globally. TB is caused by Mycobacterium tuberculosis, which can produce either a silent, latent infection or a progressive, active disease. Tuberculosis (TB) is a bacterial infection, treatable by anti-TB drugs. It is a global problem, with the incidence varying across the world.^{1,2}

WHO states that TB has been considered as a global threat. It is estimated that approximately 1.9 billions of people or one third of the world population is infected by this disease. Every

year, there are about 9 millions new sufferers of TB with about 3 millions mortality. In developing countries, mortality occurs in around 25% of all cases.⁷

According to global TB report 2018 of all the world population nearly 6.8 million population got effected with Tuberculosis. The effected population may be suffering with Pulmonary TB, Extra Pulmonary TB. In this report - of 133million Indian population nearly 3.7million population got infected with Tuberculosis, of which nearly 85% population are suffering from Pulmonary Tuberculosis. And according to 2017 reports India shares a total of 84% incidence rate.⁸

WHO's definition of health as —a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. In 1993, the world health organization (WHO) initiated a program to reduce TB morbidity and mortality and developed a strategy called directly observed treatment, short course (DOTS). The aims were to detect and treat patients with all forms of TB to reduce transmission of the disease control its spread and increase cure rates.^{11,12} At present, much of the attention within tuberculosis management is spent on microbiological cure, and its important on health related quality of life (HRQOL) is undervalued. Existing literature shows that TB has substantial and encompassing impact on HRQOL of infected patients. In tuberculosis (TB) patients, health-related quality of life (HRQoL) is significant in self-management, which in turn can be effective in therapeutic acceptance and prevention of treatment failure due to multi-drug resistant TB. With effective treatment strategies, the focus of tuberculosis (TB) management has shifted from the prevention of mortality to the avoidance of morbidity. As such, there should be an increased focus on quality of life (QoL).^{13,14,15}

Quality of life in TB (QOL) is a broad, complex, multidimensional concept that incorporates psychological, economic, socio-cultural and spiritual dimensions. Assessment on life quality was covering 5 aspects namely: activity level, daily life, health, social support and expectation.^{16,7}

Physical and mental distress is found to be common in TB patients and as a result leading to poor disease outcome or poor treatment outcome. Physical functioning reflects the capacity of the patient to carry out basic day-to-day activities, impaired physical functioning was closely related to the development of fatigue. Social support is important for chronic disease sufferers because social support can influence individual behavior, such as decrease in anxiety, helpless and desperate feeling that will then increase their health status.^{14,4,7}

TB patients are considered to be a source of infection for the healthy individuals, so they have to face social rejection and isolation. In a few studies, TB patients themselves reported that they experienced negative emotions such as anxiety and fear.

Stigmatization and negative emotions resulting from illness could result in a long term impairment of patients psychosocial well-being. While psychological health takes into account several facets of the individual's mood and emotional well-being.^{17,13}

Psychosocial factors, such as poor levels of education, have been shown to influence whether patients are adherent with their medication. Increased knowledge and awareness about the disease is important along with early detection, diagnosis, and treatment in order to control TB. The untreated patients can become a source of transmission of infection leading to spread of disease whereas irregularities in treatment can lead to drug resistance.

Health related quality of life is the impact that perceived health status has on the normal functions of life. Reduced health related quality of life can lead to depression and medication adherence which can further lead to worsening of the medical condition.^{18,19}

Poor adherence to treatment remains a major obstacle in the global fight against tuberculosis (TB). Poor treatment adherence increase the risk of drug resistance, treatment failure, relapse and death.²⁰

The poor patient adherence in tuberculosis (TB) treatment is considered to be one of the most serious challenges which reflect the decrease of treatment success and emerging of the Multidrug Resistance-TB (MDR-TB). Several previous studies have showed HRQOL varies among TB patients at different stages of treatment and is significantly worse than HRQOL among the general population at all stages of treatment.^{21,11} Resistance to anti tubercular drugs has become a serious obstacle in the control of the disease.²²

II. AIM & OBJECTIVES

1. To assess health related quality of life including psychological, general health perception among tuberculosis patients.
2. To review quality of life (QoL) by using World Health Organization Quality of Life (WHOQoL - BREF) questionnaire and Short Form Health Survey - 36 (SF - 36) questionnaire.
3. To increase the level and extent of health education to the maximum extent.

III. METHODOLOGY

Prospective interventional study conducted at Department of Chest and TB (IPD&OPD), Gulbarga Institute of Medical Sciences, Kalaburagi from October 2018 to march 2019 (06 months). A sample of 52 patients were enrolled in to the study based on inclusion criteria. patients who are on ATT for at least 2-3 months are included in the study and the exclusion criteria

1. Patient who are not turned up for follow up. 2. Patients who are diagnosed with Extra Pulmonary Tuberculosis. 3. HIV patients

Study procedure:

The study was conducted at department Chest and TB. Patients diagnosed with TB were enrolled into the study considering inclusion and exclusion criteria. Informed consent

was taken from each patient at the time of enrollment. Details regarding demography, disease and treatment were collected from the case sheets and lab reports of the patients in a specially designed patient case collection form.

A patient information leaflet (PIL) was prepared on TB by using the standard text books, journals, internet and other sources. The PIL contains the information about the disease and its management, Life style modifications and importance of adherence to the treatment.

On the day of enrollment patients were provided with patient information leaflet (PIL) on TB. Firstly patients will be assessed for the baseline with help of World

Health Organization Quality of Life (WHOQOL- BREF) and Short Form Health Survey-36 (SF-36) questionnaire outcome is noted. Patients asked to turn up for first follow-up after two months and assessed for the same.

The results of the study were analyzed statistically using SPSS version 20.0

IV. RESULTS

A total of 52 patients were enrolled in to the study of which 40 (76.93%) patients were completed the study and remaining 12 (23.07%) patients were excluded from the study.

Table 1: Socio-demographic characteristics of the patients

Characteristics	Patients n(%)
No of patients	40
Sex	
Male	24 (66%)
Female	16 (34%)
Age	
0-20 years	5 (12.5%)
21-40 years	14 (35%)
41-60 years	12 (30%)
>60 years	9 (22.5%)
Area	
Urban	10 (25%)
Rural	30 (75%)
Social Habits	
Smoking	7 (17.5%)
Alcoholic	5 (12.5%)
Tobacco chewing	5 (12.5%)

Gender:

Results revealed that the most affected gender is Male 24(60%) and the Female were 16(40%).

Age:

Results revealed that more number of patients 14 (35%) were in the age group 21-40 years, followed by 12(30%) patients in the age group of 41-60 years, followed by 9(22.5%) patients

with age group of > 60 years and 5(12.5%) patients were in the age group of 0-20 years.

Area:

In our study majority of patients are from Rural area 30 (75%) and 10 (25%) from Urban.

Social habits:

Out of 40 patients 7 (17.5%) patients are habituated to smoking, 5(12.5%) patients are habituate to alcohol, 5 (12.5%) patients are habituated to tobacco chewing and rest 23 (57.5%) patients have no social habits.

Previous history of TB:

Among the 40 enrolled TB patients about 8 (20%) patients are having previous history of TB and the rest 32 (80%) patients are newly diagnosed with TB.

Co-morbidity:

Results revealed that 4(10%) patients had co-morbidities and 36(90%) are without co-morbidities.

Table no: 2 Comparison of mean scores of variables base line and follow up of SF-36

variables	Base line	Follow-up	t- test value	P- value & Significance
	Mean ± SD	Mean ± SD		
Physical function	33.87 ± 21.16	53.0 ± 21.10	t = 3.78	P=0.001, VHS
Role limitations due to physical health	25.63 ± 45.23	48.12 ± 30.30	t = 2.90	P=0.006, HS
Role limitations due to emotional problems	49.22 ± 38.61	81.27 ± 27.36	t = 4.64	P=0.000, VHS
Energy/ fatigue	38.55 ± 9.78	42.37 ± 13.27	t = 1.84	P=0.073, NS
Emotional well being	67.22 ± 15.39	75.40 ± 8.62	t = 2.84	P=0.007, HS
Social functioning	49.0 ± 16.23	53.87 ± 18.36	t = 1.71	P=0.096, NS
Pain	39.0 ± 10.22	46.17 ± 16.71	t = 2.79	P=0.010, HS
General health	48.12 ± 8.56	49.57 ± 9.18	t = 0.88	P=0.383, NS

NS= Not significant, S=Significant, HS=Highly significant, VHS=Very highly significant

Present study reveals that, there was statistically very highly significant difference of mean scores of SF 36 of Physical function, Role limitations due to emotional problems before and after follow up (P<0.001).

There was statistically highly significant difference of mean scores of Role limitations due to physical health, Emotional well being and Pain before and after follow up (P<0.01).

There was no statistical significant difference of mean scores of Energy/ fatigue, Social functioning and General health before and after follow up (P>0.05).

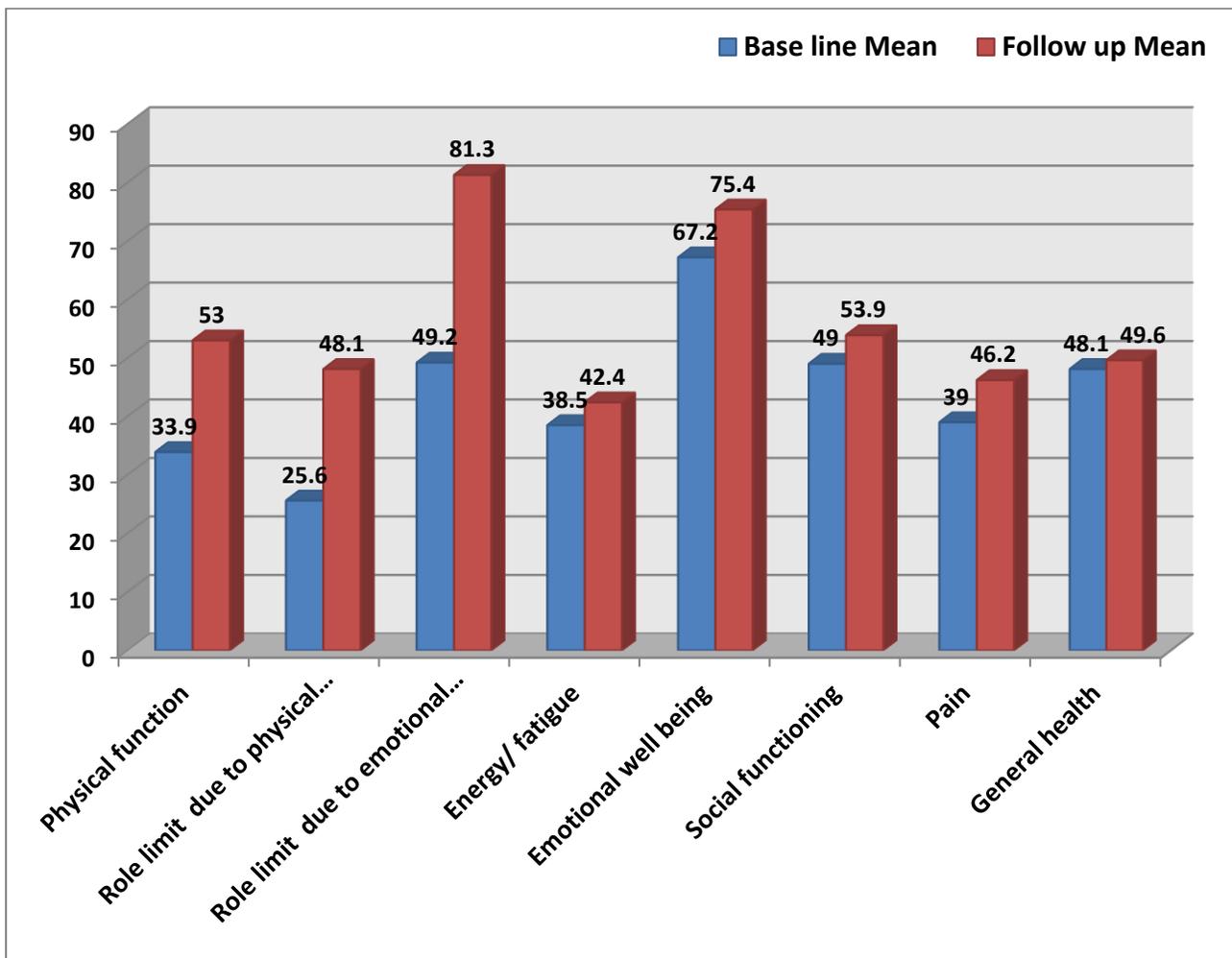


Fig :1 Comparison of mean scores of variables base line and follow up of SF-36

Table no:3 Comparison of mean scores of variables base line and follow up of WHOQOL (BREF)

variables	Base line	Follow-up	t- test value	P- value & Significance
	Mean ± SD	Mean ± SD		
Physical health	39.12 ± 11.61	44.97 ± 20.42	t = 2.17	P=0.036, S
Psychological health	44.35 ± 13.20	56.60 ± 14.95	t = 5.52	P=0.000, VHS
Social relationships	47.53 ± 8.28	50.60 ± 4.61	t = 2.26	P=0.029, S
Environmental	51.17 ± 10.60	60.00 ± 8.09	t = 4.79	P=0.000, VHS

Present study reveals that, there was statistically very highly significant difference of mean scores of WHOQOL (BREF) of Psychological health and Environmental before and after follow up (P<0.001).

There was statistical significant difference of mean scores of Physical health and social relationships before and after follow up (P<0.05).

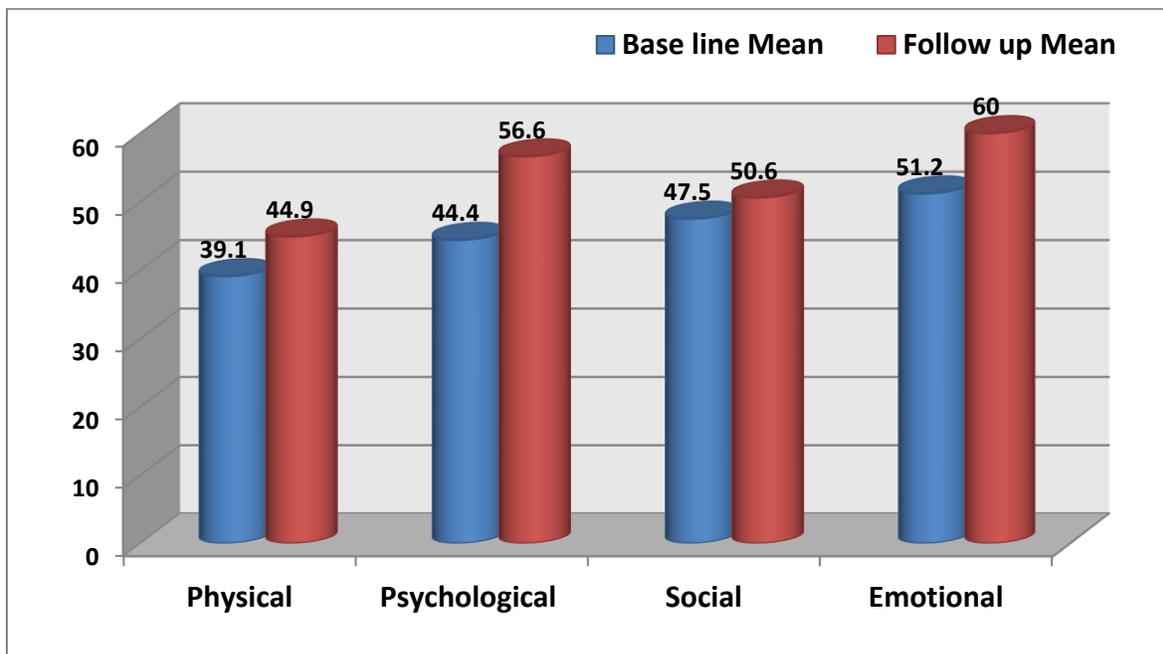


Fig:2 Comparison of mean scores of variables base line and follow up of WHOQOL (BREF)

V. DISCUSSION

Tuberculosis (TB) studies have concentrated on clinical outcomes only few studies have examined the impact of TB on patient's Quality of Life (QOL). It is therefore very important to improve QOL in diseased states. The current study was an attempt to assess the Health Related Quality of Life (HRQOL) in TB patients

The study was conducted on 40 TB patients and their QoL scores were measured by WHOQOL (BREF) and SF-36 questionnaire.

VI. WHOQOL (BREF):

Present study reveals that, the Means SD scores of WHOQOL(BREF) of psychological health at base line was 44.35 ± 13.20 , at follow up was 56.60 ± 14.95 and environmental at base line was 51.17 ± 10.60 , at follow up was 60.00 ± 8.09 and p-value < 0.001 , which is very highly significant.

The Mean SD scores of physical health at base line was 39.12 ± 11.61 , at follow up was 44.97 ± 20.42 and social relationships at base line was 47.52 ± 8.28 , at follow up was 50.60 ± 4.6 and p-value < 0.05 , which is statistical significant.

SF-36:

Present study reveals that, the Mean SD score of SF 36 of physical health at base line was 33.87 ± 21.16 , at follow up was 53.0 ± 21.10 and role limitations due to emotional problems at base line was 49.22 ± 38.61 , at follow up was 81.27 ± 27.36 and p-value < 0.001 , which is very highly significant.

The Mean SD scores of role limitations due to physical health at base line was 25.63 ± 45.23 , at follow up was 48.12 ± 30.30 , emotional wellbeing at base line was 67.22 ± 15.39 , at follow up was 75.40 ± 8.62 and pain at base line was 39.0 ± 10.22

at follow up was 46.17 ± 16.71 and p-value < 0.01 , which is statistically highly significant.

The Mean SD scores of energy / fatigue at base line was 38.55 ± 9.78 , at follow up was 42.37 ± 13.27 , social functioning at base line was 49.0 ± 16.23 , at follow up was 53.87 ± 18.36 and general health at base line was 48.12 ± 8.56 , at follow up was 49.57 ± 9.18 and p-value > 0.05 , which there was no statistical significant difference.

Patient counselling is one of the most important aspects in developing patient's knowledge about disease, management, precautions and improving overall quality of life.

In our study 5 deaths were reported, this is due to TB disease along with co-morbidity of other lung diseases such as hydropneumothorax, pneumonia and lung consolidation.

Among the 40 patients 2(5%) patients were shifted to CAT- II ATT because of relapse of therapy (defaulter) of CAT-I.

Highest WHOQOL –BREF mean scores had been observed for the domain psychological health and environmental health and the least mean score is observed in physical health and social relationships. Physical health is most affected due to worsened symptoms of disease. Social relationships are more affected due to the isolation of patients. Highest SF-36 mean scores were observed in emotional well-being and role limitations due to emotional problems it is possible only by the patient education regarding disease. The most affected health scale in energy / fatigue followed by pain these are due to nature of the disease.

The results of the present study states that vigorous activities such as running or lifting heavy objects, climbing several flights of stairs, and walking more than a kilometer were limited a lot for most of TB patients. Most of the time they had to cut down the amount of time spent on work and accomplished less than they would have liked to achieve, similar results they reported in a study conducted in Sudan where TB effect long distance moments of TB patients in their activities were limited due to their health¹⁹.

The pharmacist provided education showed a positive and effective improvement in patients Health Related Quality of Life in TB.

VII. CONCLUSION

The results of the present study concluded that TB patients had poor HRQOL inspite of receiving new care strategies, the disease had a negative impact on HRQOL of TB patients across all domains.

Our study concluded that although HRQOL improved with treatment, the scores on component summary measures showed compromised physical health and energy/ fatigue among the study patients even at the end of the follow-up. Consideration of related factors can have an effective role in improving HRQOL in TB patients.

Higher the social and family support we can expect better quality of life of the patients.

REFERENCES

- [1] Roger Walker and, Cate Whittlesea. Clinical Pharmacy 5th Edition. Churchill Livingstone Elsevier. 2012.p:623
- [2] Dipiro.J and Robert L. Pharmacotherapy A Pathophysiologic Approach 7th Edition. McGraw-Hill Med Co. 2008.p:1873
- [3] Brian R. Walker, Nicki R. Colledge. Davidson's Principles & Practice of Medicine 22nd Edition. Churchill Livingstone Elsevier. 2014.p:688
- [4] Raman Sharma, Ravinder Yadav Meenakshi Sharma, Varinder Saini and Vipin Koushal. Quality of Life of Multi Drug Resistance Tuberculosis Patients: A Study of North India. Actamedica Iranica.2014;52(6):448-453.
- [5] Sumeera Khan, Balamurugan Tangiisuran, Ayesha Imtiaz, Hadzliana Zainal. Health Status and Quality of Life in Tuberculosis, Systematic Review of Study Design, Instruments, Measuring Properties and Outcomes. Health Science Journal.2017;11(1):484
- [6] Mojgan mamani, Mohammad Mahdi Majzoobi, Sahar Maousavi Ghahfarokhi, Farzaneh Esna – Ashari, and Fariba Keramat. Assessment of Health Related Quality of Life among Patients with Tuberculosis in Hamadan, Western Iran. Oman Medical Journal 2014 Mojgan mamani, Mohammad Mahdi Majzoobi, Sahar Maousavi Ghahfarokhi, Farzaneh Esna – Ashari, and Fariba Keramat.2014;29(2):102-105.
- [7] Lasmaria Magdalena Hutahaean.Factors Affecting Life Quality of Pulmonary Tuberculosis Sufferers at Sanglah Hospital Denpasar. IOSR Journal of Nursing and Health Science (IOSR-JNHS).2013;2(5):30-34.
- [8] Laura Anderson, Annabel Baddaley, Hannah Monica Dias, Katherine Floyd. Global Tuberculosis Report 2018. World Health Organization.2018;105.
- [9] India TB Report 2018. Revised National TB Control Programme – Annual Status Report - Central TB Division.2018;108.
- [10] Dr A Sreenivas, Dr K Rade, Dr KS Sachdeva Standards for TB care in India - World Health Organization - Testing and Screening for Pulmonary TB.2014; 27.
- [11] Tanja Kastien – Hilka, Ahmed Abulfathi, Bernd Rosenkranz, Bryan Bennett, Matthias Schwenkglens and Edina Sinanovic. Health – related quality of life and its association with medication adherence in active pulmonary tuberculosis – a systematic review of global literature with focus on South Africa. Kastien – Hilka et al. Health and Quality of life Outcomes.2016;14:42.

- [12] Cheng – Ting Li, Kuei – Hui Chu, Bereka Reiher, Takeieta Kienene and Li – Yin Chien. Evaluation of health – related quality of life in patients with tuberculosis who completed treatment in Kiribati. Journal of International Medical Research.2017;45(2):610-620.
- [13] Muhammad Atif, Syed Azhar Sulaiman, Arsul Akmal Shafie, Muhammad Asif, Muhammad Khan Sarfaraz, Heng Chin Low and Zaheer-Ud-Din Babar. Impact of tuberculosis treatment on health – related quality of life of pulmonary tuberculosis patients: a follow-up study. Atif et al. Health and Quality of Life Outcomes.2014;12:19
- [14] Ali Darvishpoor Kakhki, Ph.D and Mohammad Reza Masjedi, M.D. Factors Associated with health – Related Quality of Life in Tuberculosis Patients Referred to the National Research Institute of Tuberculosis and Lung Disease in Tehran. Tuberculosis and Respiratory Disease.2015;78:309-314.
- [15] Carlo A Marra, fawziah Marra, Victoria C Cox, Anita Palepu and J mark Fitzgerald. Health and Quality of Life Outcomes - Factors Influencing quality of life in patients with active tuberculosis. Health and Quality of Life Outcomes.2004;2:58.
- [16] Olufunke O. Adeyeye, Olayinka O. Ogunleye, Ayodele Coker, Yetunde Kuyinu, Raymond T. Bamisile, Udemekiri Ekrikpo, Babatunde Onadeko. Factors influencing quality of life and predictors of low quality of life scores in patients on treatment for pulmonary tuberculosis: a cross sectional study. Journal of Public Health in Africa.2014;5:366.
- [17] Aarsha Joby, Allu Jaya George, Anjali A. Nair, Pranney Shanker P.V., Rajeswari Ramasamy, N.S. Mahesh, Shashidhar G., Teena Nazeem. Impact of Pharmacist assisted patient counseling for improvinh medication adherence and quality of life in Pulmonary Tuberculosis patients - an educational intervention study Indo American Journal of Pharmaceutical Research.2017;7(09).
- [18] Tanja Kastien – Hilka, Ahmed Abulfathi, Bernd Rosenkranz, Bryan Bennett, Matthias Schwenkglens and Edina Sinanovic. Association between Health-Related Quality of Life and medication adherence in Pulmonary Tuberculosis in South Africa Frontiers in Pharmacology.2017;8:919
- [19] Madeeha Malik, Rida Nasir, and Azhar Hussain. Health Related Quality of Life among TB patients: Question mark on Performance of TB DOTS in Pakistan Journal of Tropical Medicine.2018;2018.
- [20] Syklla Thiam, MD., Andrea M. LeFevre, PhD., Fatoumata Hane, MSc., Alimatou Ndiaye, MD., Fatoumata BA, DPharm, Katherine L. Fielding, MSc,PhD., Moustapha Ndir, MD., Christian Lienhardt, MD, MSc, PhD. Effectiveness of a Strategy to Improve Adherence to Tuberculosis Treatment in a Resource – Poor Setting A Cluster Randomized Controlled Trial. JAMA.2007;297(4).
- [21] Shaip Krasniqi, Arianit Jakupi, Armond Daci, Bahri Tigani, Nora Jupolli – Krasniqi, Mimoza Pira, Valbona Zhjeqi, and Burim Neziri. Tuberculosis Treatment Adherence of Patients in Kosovo. Tuberculosis Research and Treatment.2017;2017.
- [22] Cherinet Gugssa Boru, Tariku Shimels, Arebu I. Bilal. Factors Contributing to Non-Adherence with Treatment among TB Patients in Sodo Woreda, Gurage Zone, Sothern Ethiopia: A Qualitative Study. Journal of Infection and Public Health.2017;10:527-533.
- [23] Na Guo, Fawziah Marra and Carlo A Marra Measuring Health – Related Quality of Life in Tuberculosis: A Systematic Review. Health and Quality of Life Outcomes.2009;7:14.

AUTHORS

First Author – Mude Srujana
Second Author – Rakshitha N
Third Author – Dronavalli Lokesh Sai
Fourth Author – Riyaz Miya