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Self-Management Behaviour And Quality Of Life Among Patients With Pulmonary Tuberculosis In Cuttack, India

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Abstract

Objective: Pulmonary tuberculosis is a global health concern, & effective self-management practices & improved quality of life for patients are essential for successful treatment outcomes. This study aimed to correlate self-management behavior and quality of life & find out the association of the level of quality of life, and level of self-management behavior with selected demographic variables among pulmonary tuberculosis patients.

Methods and materials: A total of 200 samples were taken by consecutive sampling technique and descriptive co-relational research design was undertaken. Tools were structured demographic Performa, structured self-management behaviour rating scale, and standardized WHOQOL-BREF scale (Interview).

Result: According to the ANOVA test, there is a significant variation in self-management behavior & quality of life by Periods in months since diagnosis group with (p=0.050* & p=0.002*) between the group and within the group; the corresponding 'F' value of self-management behavior & quality of life is (3.789 & 9.920). The coefficient reveals a positive correlation between self-management behaviour with quality of life.

Conclusion: According to the study's findings, the majority of participants had an average quality of life and a decent degree of self-management behavior. Among pulmonary tuberculosis patients, there was also a favorable association between these two variables.

Key words: Malaria, ITN (Insecticide treated nets), NFME (National framework for Malaria Eradication), *Plasmodim falciparum*, *Plasmodium vivax*, NVBDCP (National Vector Borne Disease Control Programme.

Introduction

Tuberculosis (TB) is a communicable disease, which is one of the top 10 causes of death worldwideandtheleadingcauseofdeathfromasingleinfectiousagent(rankingaboveAIDS). According to the World Health Organization estimates, in 2019, there were 9.87 million new

casesofTBand1.28milliondeaths.Chinaisoneofthe30highTBburdencountries.In2020, thenumberofnewTBcasesinChinawas842,000,rankingsecondintheworld.Hence,TBis a major public health problem with high incidence and mortality worldwide.

Self-managementisdefinedasataskthatpatientsundertaketodealwiththemedical,role,and emotional management of their chronic conditions. For patients with TB, self-management includesadheringtomedicationandtreatment,maintainingahealthydietandadequateamount of exercise, keeping a good mental state, and strengthening personal capacity to solve problems. Therefore, improving the self-management level of patients with TB is of great significanceforcontrollingtheirillness,increasingtheirqualityoflife,improvingthecurerate, and controlling the prevalence of TB (Bao Y, Wang C et.al, 2022).[1]

TuberculosisisconsideredoneoftheillnessesthatcanseriouslyundermineQOL.Thefactors that have been cited as most important in influencing QOL in patients affected with TB have been long-termtreatment; multi-drugtherapy; toxicreactions and side effects ofmedications; adherence to drug regimen; social impacts; social support; social acceptance of the illness; family; changes in lifestyle; patients' marital status; extent of access to health care services; socioeconomic status; patients and their family's knowledge of the illness, treatments; as well as complications oftuberculosis.Currently, the tuberculosis management strategyis based on preventingmortalityand avoidingmorbidity.Qualityoflifemonitoringisthebestmethodfor achievingthisgoal. Tuberculosis(TB)hasexceededHIVasthemostlethalinfectiousdisease globallywith approximately 10.0 million new cases in 2017. China is one of the 22 countries withahighburdenofTB,andthenumberofnewTBcasesrankssecondworldwide.TheWorld Health Organization (WHO)has reported that the burden ofTB in Chinais shiftingto elderly individuals.Chinahasanincreasingelderlypopulationthatrequiresmorehealthcareresources because the burden of TB also increases(Harandi TF, Mahmoodi Z, et.al, 2021).[2]

Assessing QOL is a good response and an effective factor in expressing the level and outcome of health. In patients with pulmonary diseases, this survey questionnaire is a good tool for evaluating response to treatment and proper physiological functioning of the respiratory tract (SalehitaliS,Hafizi M,et.al, 2019).[3]

Tuberculosis (TB) is one of the top 10 causes of death in the world. Since Directly Observed Therapy (DOT) as a core strategy for global TB control does not apply to all types of TB patients, self-management of TB patients (SMTP) as a patient-centered supervision type is a supplement to DOT and can improve TB case management. However, the factors related to SMTP are complex and need more study. This study aimed to identify the determinants of SMTP and examine the direct/indirect effects of these determinants.

Tuberculosis (TB) is caused by the bacillus Mycobacterium tuberculosis, which is one of the most ancient infectious diseases of mankind. It is the deadliest infectious disease and one of the top 10 leading causes of death. TB can affect anyone, anywhere. In 2019, there were an estimated 10.0 million new cases of TB and 1.4 million TB-caused deaths worldwide. India, according to Aggarwal AN. (2019), Indonesia, and China were the three countries with the highest TB burden. Drug-resistant TB worsens the progress of TB control and is a public health threat.ThoughglobalcommitmentsandstrategiesinthefightagainstTBhaveintensified, thenumberofTBcasesworldwidehasstillbeendecliningveryslowlyinrecent years(Chung WS, Lan YL, 2012).[4]

Researchers have shown that self-management behaviors in some diseases improve patient outcomes and treatment acceptance, eliminate the complications of the disease and

hospitalization, and increase the knowledge and skills of patients and their caretakers to maintain and improve their health (J Clin, 2019).[5]

Objectives of the study

This study aimed to assess the level of self-management behaviour and quality of life among pulmonary tuberculosis patients and find out the association of the level of quality of life and level of self-management behaviour with selected demographic variables.

Need of the study

Pulmonarytuberculosis remains a major global health concern with significant morbidityand mortality. Understanding the self-management behaviors and quality of life of TB patients is crucialforimprovingtreatmentoutcomesandreducingthediseaseburden.PulmonaryTBnot only affects physical health but also has a substantial impact on the overall quality of life. Investigating the quality-of-life dimensions specific to TB patients can lead to interventions that improve their well-being.

A study was conducted on determinants of self-management behavior among pulmonary tuberculosispatients.Itis a purposivesamplingmethodology,andparticipantsweredrawnfrom those sites usingthe sequential samplingstrategy. Familysupport was significantlypositively correlatedwithSMTPpractices(P0.05)aswerethepredisposing(TBawareness),facilitating (health education and HCW support), and reinforcing factors. Except for support from family and HCWs, the predisposing, enabling, and reinforcing factors had positive correlations (r=0.123-0.918, P0.05). Both the predisposing (TB knowledge, =0.330) and enabling (HCWs support, =0.437) factors had a direct impact on SMTP behaviors. Health education and HCW support were enabling factors, while family support was reinforcing. ThesefactorsindirectlyaffectedSMTPbehaviors.thisstudyshowedhowSMTPbehaviorsare impacted by TB awareness, health education, support from HCWs, and family support. Potential tactics to encourage SMTP habits include evaluating patients' needs for SMTP, supportingeffectiveTBhealtheducation,andofferingfamilysupportfromHCWsandfamily members (Jin Li, Jie Pu, et.al, 2021).[6]

AstudywasconductedtoevaluatethefactorsaffectingselfmanagementinTBpatientsusing pathanalysis.52.3%ofthestudy'sparticipantswerefemale,comparedto47.7%ofthe participantswhoweremale.ThepercentagesofrespondentswhohadextrapulmonaryTBwere 43.8%, 9.4%, and 46.9% on smear tests. According to the conceptual model, the fit indices (x2= 49.80, df = 25) validated the model fitness and the logical links between the variables. According to the final path model, self-management is impacted directly by age (β = 0.84), attitude (β= 0.10), marital status (β= 0.04), and house condition (β= 0.03). Education and knowledge both have direct and indirect effects on self-management (r = 0.16, 0.83, 0.83). Through knowledge and attitude, education has an indirect impact on self-management. Self-management is influenced by attitude, which is influenced by knowledge. The relationship betweensomecircumstancesandself-management,inotherwords,ismediatedbyknowledge and attitude (Harandi TF, Mahmoodi Z, et.al, 2021).[2]

AstudywasconductedonTuberculosisdiagnosisandtreatmentthatcurrentlyrevolvesaround clinical features and microbiology. The disease however adversely affects patients' psychological, economic, and social well-being as well, and therefore our focus also needs to shifttowardsqualityoflife(QOL).PatientswithtuberculosisexperienceaworseningofQOL inparticularbecausetoadecreasedabilitytowork,socialstigma,andpsychologicalproblems.

AlthoughQOLhasregularlybeenfoundtoimprovefollowingroutineanti-tulrculartherapy, many patients still exhibit residual impairment. It is also unclear whether particular circumstances, such as the existence of co-occurring illnesses, treatment resistance, or co-infection with the human immunodeficiency virus, worsen QOL in these people. QOL evaluation should be included as an additional outcome metric in efforts to combat tuberculosis.TocounterQOLimpairment,governments,andprogrammanagersneedtoboost socio-culturalreformsandhealtheducationwhilealsoofferingpatientsmoreincentives.(LiY, Ehiri J, et.al, 2014).[7]

Hypothesis
- H01-Thereisnosignificantcorrelationbetweenself-managementbehaviorandquality of life among pulmonary tuberculosis at 0.05 level of significance.
- H02- There is no significant association between quality of life and self-management behavior with selected demographic variables at 0.05 level of significance.

Method and material
A hospital-based Descriptive co-relational study was conducted between April 1 to July 30,2023, at the Tuberculosis ward, in S.C.B Medical College and Hospital, Cuttack.In this present study sample was pulmonary tuberculosis patients admitted to the Tuberculosis ward in S.C.B Medical College and Hospital, Cuttack.

Inclusion criteria
In this study inclusion criteria were age between 18 years to less than 60 years and those were present at the time of data collection.

Exclusion criteria
Patientswho arenewlydiagnosedwith tuberculosis inless thanonemonth, Patientswhoarenotwillingto participate, and Patientswithmalignancyorotherco-morbidities.

Data collection procedure
Before the actual collection of data, the investigator meets the authority of the Pulmonary tuberculosis department to establish support and cooperation for the accomplishment of the study. The investigator explained the nature of the study to the authority. Formal permission was taken from the medical superintendent of S.C.B Medical College and Hospital, Cuttack, Odisha. The investigator was first introduced to the participant and explained the purpose of the study. They were given assurance that their responses were kept confidential and only be used for research activity. Written informed consent was taken from the participants. Then the research tool was applied to the participants to collect the data.

RESULT
Table 1: Frequency (f) and percentage (%) distribution of study sample according to (age, gender,Religion, occupation, income per month, living, education, a period in the month since diagnosis.

N=200

Items	Frequency(f)	Percentage (%)
AgeinYears		

18–35	50	25.0
36–45	92	46.0
46–60	58	29.0
Gender		
Male	99	47.5
Female	96	48.0
Other	Nil	Nil
Religion		
Hindu	94	47.0
Muslim	95	47.5
Others	11	5.5
Marital status		
Married	99	49.5
Unmarried	16	8.0
Divorced		
Occupation		
Governmentemployee	69	34.5
Privatejob	76	38.0
Unemployed	55	27.5
Incomeper month		
<10.000	72	36.0
10,000–20,000	81	40.5
>20,000	47	23.5
Living		
Urban	92	46.0
Rural	108	54.0
Education		
Illiterate	48	24.0
Up to Primary	69	34.5
Up to Secondary	58	29.0
Graduateandabove	25	12.5
Periodsinmonthsince Diagnosis		
2–6month	74	37.0
6–12month	68	34.0
>12month	Nil	Nil

Section-B:Level of Self-management behavior and quality of life of Pulmonary tuberculosis patients.

Thelevelofself-managementbehaviorswasdoneaccordingtothemedian(23.5)valueofthe variables.so, the level is doneaccordingto thebelowand abovemedian value. Thelevel was categorizedintoaverageself-managementbehavior(≤23)andgoodself-managementbehavior (>23).

Quality of life level was done according to the median (69.5) value of the variables. so, the level is done according to the below and above median value. The level was categorized into satisfactory quality of life (≤69) and average quality of life (>69).

Table 2: Frequency and percentage of the level of self-management behavior in pulmonary tuberculosis patients.

N=200

Self-management	Category	Frequency (f)	Percentage (%)

behaviors			
Average	14-23	97	48.5%
Good	24-42	103	51.5%

Table 2, depicts that 51.5% (103) had good and 48.5% (97) had average self-management behavior.

Table3:FrequencyandpercentageofthelevelofQuality-of-lifepulmonary tuberculosis patients.
N=200

Qualityoflife	Category	Frequency(f)	Percentage (%)
Average	26-69	69	34.5%
Satisfactory	70-130	131	65.5%

Table3:depictsthat65.5%(131)hadsatisfactoryand34.5%(69)hadaveragequalityoflife.

Section-C
Table4:Relationbetweenself-managementbehavioursandqualityoflifeamong pulmonary tuberculosis patients by using Spearman's coefficient formula.
N=200

Variables	Mean±SD	r value	Pvalue
Self-management behavior	24.86±4.659	.727	.000
Qualityof life	74.50±10.6		

*p≤0.05issignificant

Table 4 showed that by using Spearman's correlation coefficient the level of self-management behaviour had of significantly strong positive correlation (r=.727, p=.000) with quality of life. It implies that if the level of self-management behaviourincreases the quality-of-lifealso increases.

Section-D:
Table 5: ANOVA analysis showing the association of self-management behavior with and within socio-demographic variables.
N=200

		Sumof square	Df value	Mean square	F value	ANOVA 'P'value
Periodsin months since diagnosis	Between-group-	2.357	1	2.357	3.789	0.050*
	WithinGroup-	123.143	198	0.622		
	Total-	125.500	199			

*p≤0.05issignificant

ThedatapresentedinTable5,indicatesself-managementbehaviorbased on the periods in months since the diagnosis group,wherethep-valueis0.050*,suggestingamarginalsignificance.The'F'valueassociated with this group is 3.789, indicating a meaningful difference in self-management behavior across different periods since diagnosis.

Table 6: ANOVA analysis showing the association ofQuality oflife with and withinsocio-demographic variables.

N=200

		Sum of square	Df value	Mean square	F value	ANOVA 'P'value
Periodsin month since diagnosis	Between–group–	5.987	1	5.987	9.920	0.002*
	WithinGroup–	119.513	198	0.604		
	Total–	125.500	199			

*p≤0.05 is significant

Thedatain Table6 indicatesthere is a significant variation in the qualityof life based on the period in months since the diagnosis in group (p=**0.002***, F value=9.920).

DISCUSSION

Findings related to the level of self-management behaviour of pulmonary tuberculosis patients

In this present study, there was majority 51.5% had good and 48.5% had average of self-management behavior. The level of self-management behaviors was done according to the median (23.5) value of the variables. so, the level is done according to the below and above median value. One level was average self-management behavior ($\leq$23) and good self-managementbehavior(>23). A similar study was conducted by JinLi,JiePu,et.al,(2021), the mediating role of the predisposing factors (TB knowledge) on the enabling factors (health education) in terms of SMTP behaviors, the enabling factors (health education) had positive predictive effects on the predisposing factors (TB knowledge, β=0.564). when the enabling factors (health education)and thepredisposing factors (TBknowledge)were entered together into the regression equation, the enabling factors (health education) could not significantly predict SMTP behaviors, while the predisposing factors (TB knowledge) had positively predictiveeffectsonSMTPbehaviors(β=0.263). Thetotaleffectoftheenablingfactors(health education) in theprediction o f S M T P behaviorswassignificant(β=0.152). Theaboveresultsdemonstratedthat the enabling factors (health education) had no direct effects on SMTP behaviors and can have indirect effects on SMTP behaviors through the predisposing factors (TB knowledge).[8]

Discussionrelatedtothelevelofqualityof lifeofpulmonarytuberculosispatients

Inthisstudy,therewasmajority65.5%hadsatisfactoryand34.5%hadaveragequality oflife.Qualityoflifelevelwasdoneaccordingtothemedian(69.5)valueofthevariables.so, theislevelisdoneaccordingtothebelowandabovemedianvalues.Onelevelwassatisfactory ($\leq$69)andaveragequalityoflife(>69). A similar study conducted by QuarcoopomeLand Tornu E (2022), respondents' qualityof life was reported by24% (60) as poor, 20.8% (52) as neitherpoornorexcellent,54.4%(136)asgood,and0.8%(2)asverygood.Whenasked,"How satisfiedareyouwithyourhealth?"thepluralityofrespondents,at47.2%(118),saidtheywere notsatisfied.Therewerethreeremainingresponses:neithersatisfiednorsatisfied(59,23.6%),   very dissatisfied (27, 10.8%), and satisfied (46, 18.4%).[9]

Discussion related to the correlation between self-management behavior and quality of life among pulmonary tuberculosis patients

In this present study there was Level of self-management behavior had a of significant positive

correlation (r=0.727, p=.000) with quality of life. It implies that if the level of self-management behavior increases, the quality of life increases. A similar study conducted by JinLi,JiePu,et.al,(2021), theresultsofthe Pearsoncorrelationanalysis showed statistically significant positive correlations between the predisposing,enabling,reinforcingfactorsaself-managementbehavior(P<0.05).

Thecorrelationcoefficientvariedfrom0.114(fortherelationshipbetween familysupportand Self-management behaviors) to 0.301 (for the relationship between TB knowledge and Self-management behaviors). The predisposing, enabling, and reinforcing factors were positively correlated with each other (r=0.123-0.918, $P<0.05$), except for family support and health care workers support (r = 0.093, P ˃ 0.05).[8]

Discussionrelatedto the associationofthelevel of self-managementbehaviorandqualityoflife with selected socio-demographic variables.

In this present studythere was it represents that there was no association between the quality of life with and within socio-demographic status including age, gender, religion, marital status, occupation, income, living, education, periods in month since diagnosis. The calculated ANOVA 'p' value (0.33, 0.73, 0.51, 0.44, 0.55,0.94,0.11, 0.25, 0.002). Respective 'F' value (0.92,0.11,0.43,0.58,0.35,0.005,2.47,1.25,9.92). Only periods in month since diagnosis as calculated value i.e.,0.002 which was not more than 0.05 level of significancewas statisticallysignificant. A similar study conducted by Haryam Yabiz, Hasan Robabi,(2020), The mean and standard deviation of the patient's quality of life scores in the control and intervention groups before self-care education were, respectively, 67.09 (5.03) and 67.56 (5.99), with no significant difference (P = 0.65). However, after receiving self-care training, the means and standard deviations of the control and intervention groups were 67.98 (3.68).[10]

Conclusion

In this study, it was found that most participants had good levels of self-management behavior and average quality of life and there was a positive correlation between self-management behavior and quality of life among pulmonary tuberculosis patients.

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