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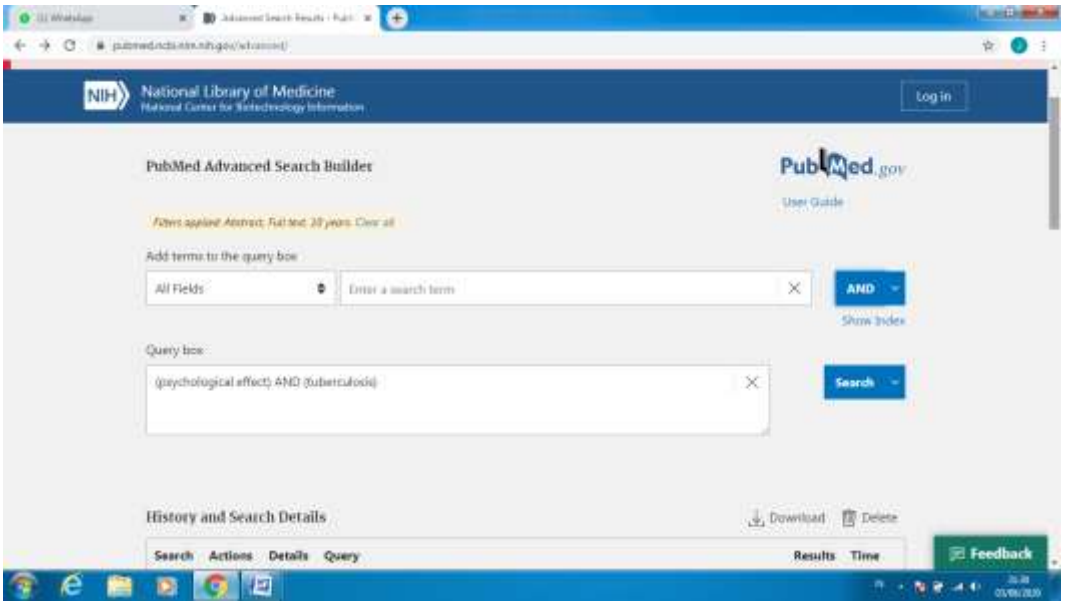

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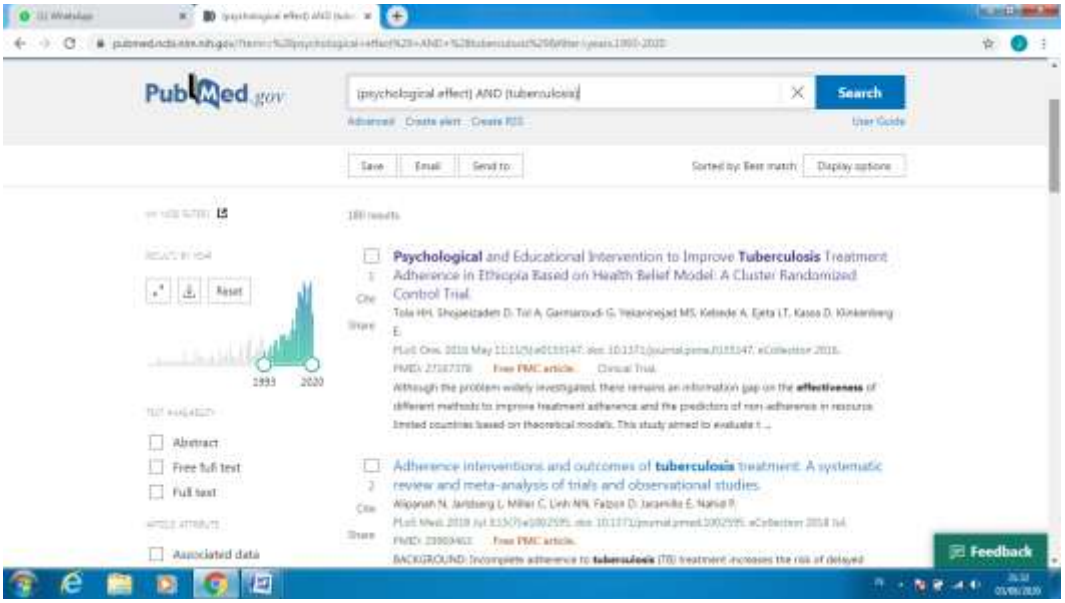

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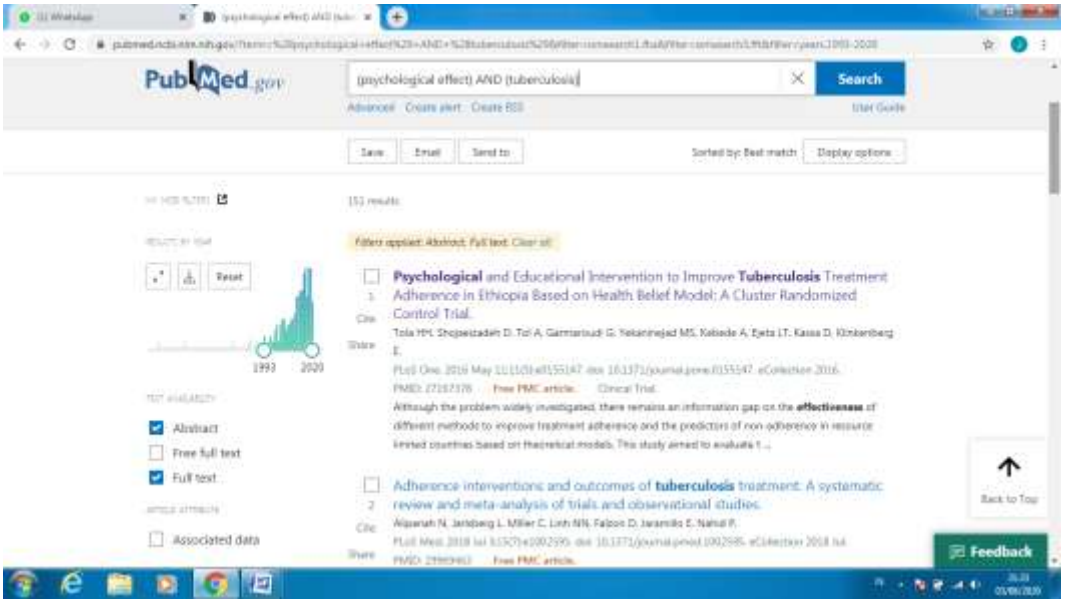
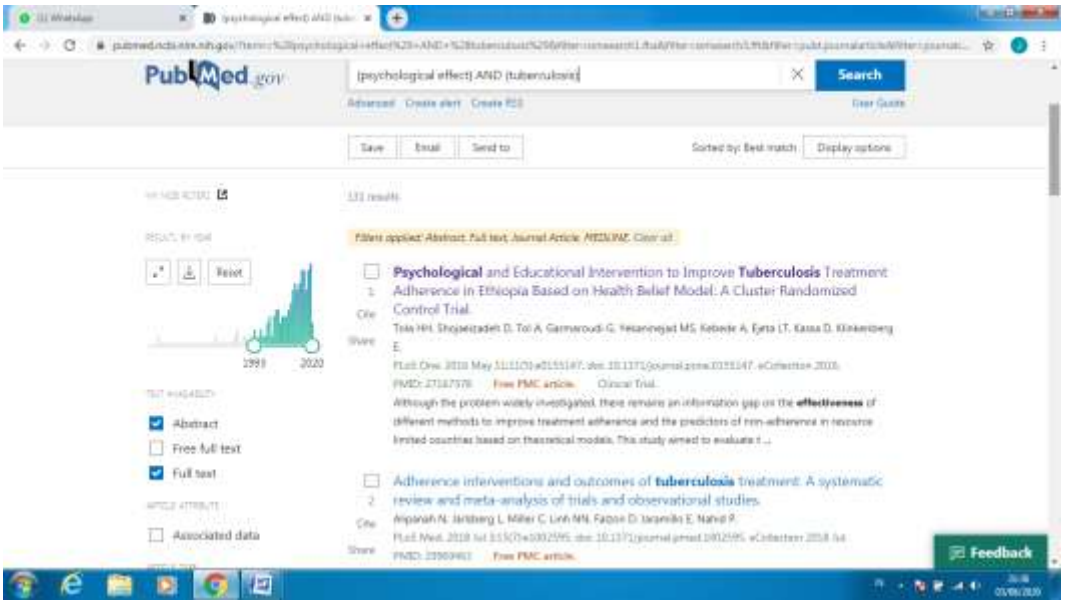
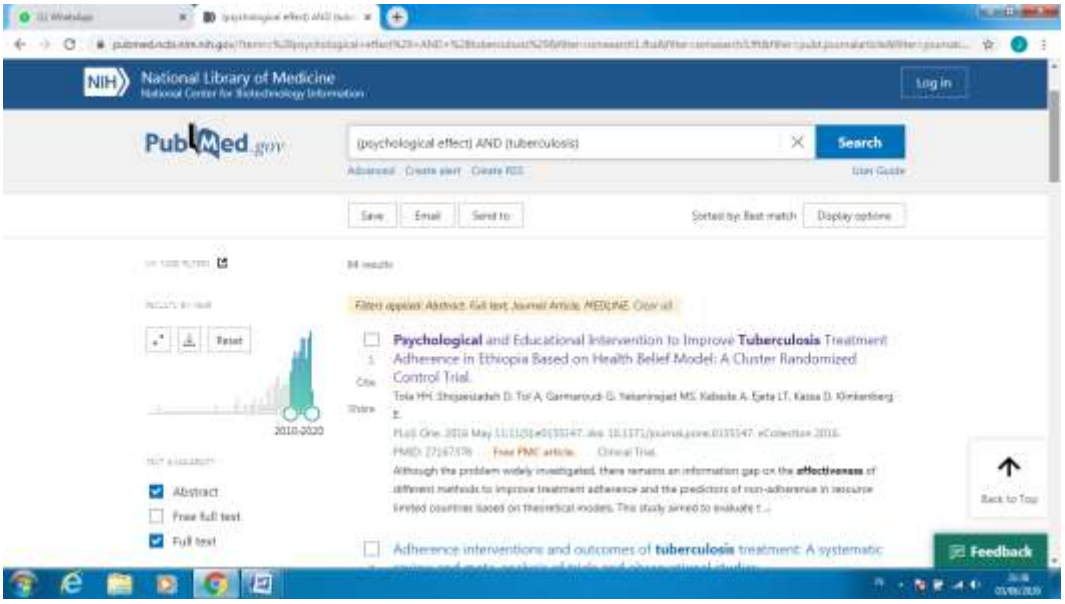


Langkah 4 : Result Database search Pubmed NCBI filter journal categories

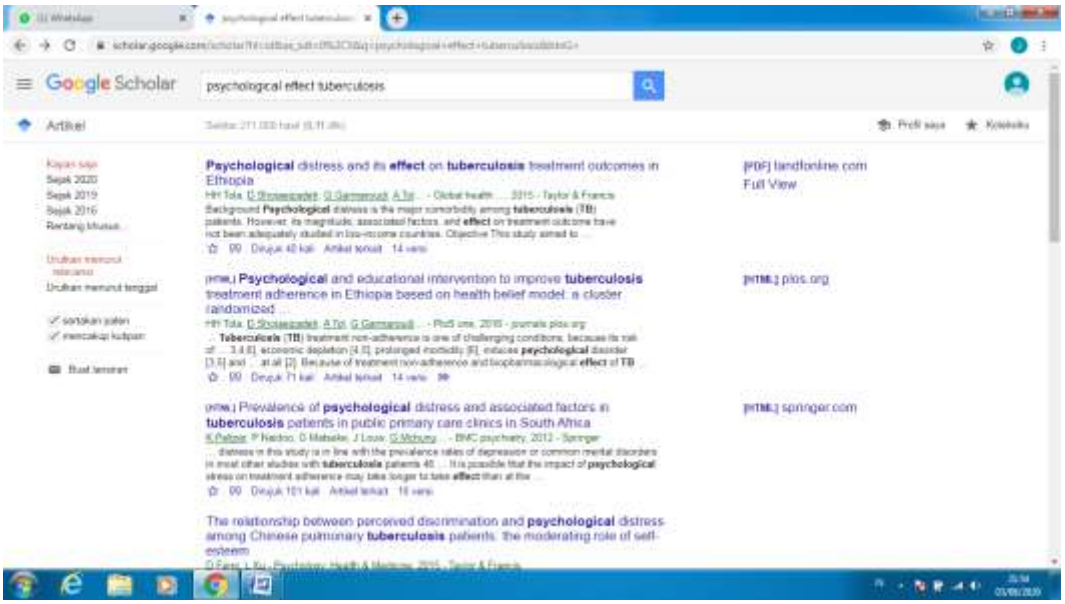


Langkah 5 : Result Database search Pubmed NCBI filter publication date

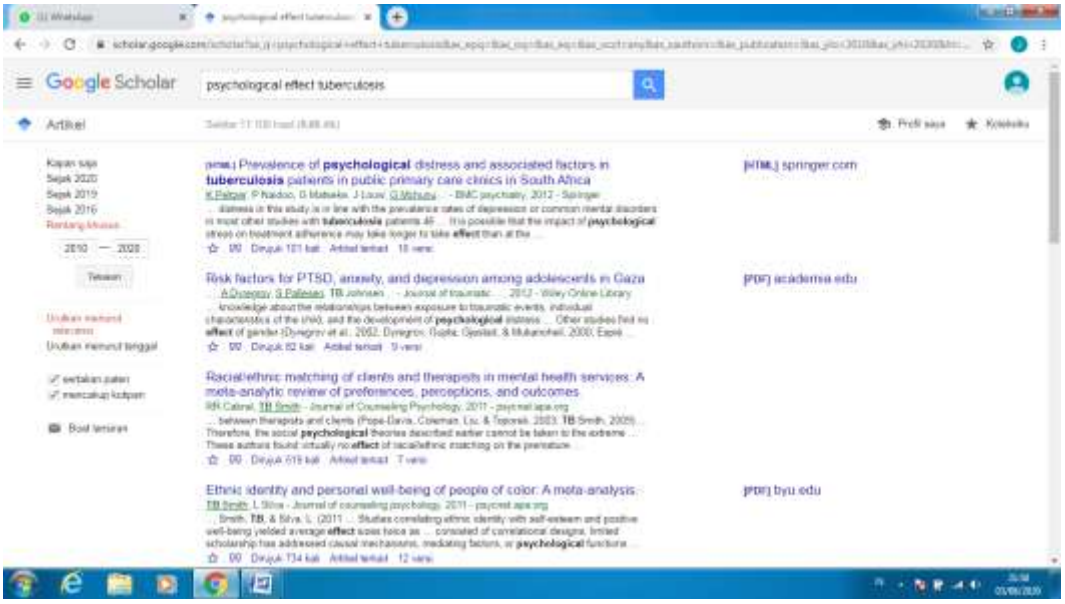


Langkah – langkah Database Search Google Scholar

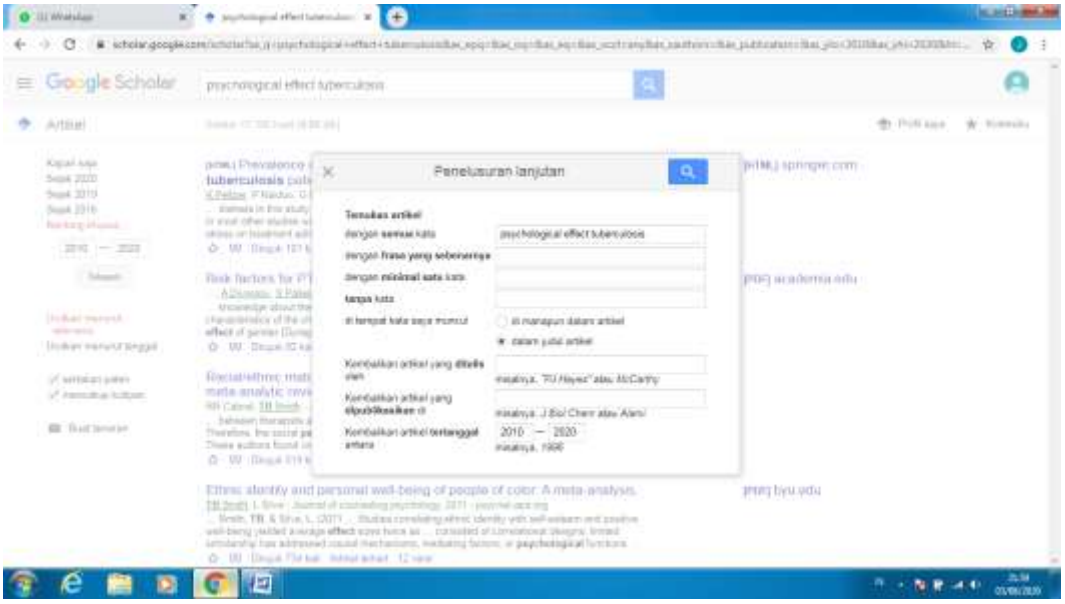
Langkah 1 :Database search Google Scholar



Langkah 2 : Result Database search Google Scholer filter publication date



Langkah 3 : Result Database search Google Scholer filter dalam judul artikel



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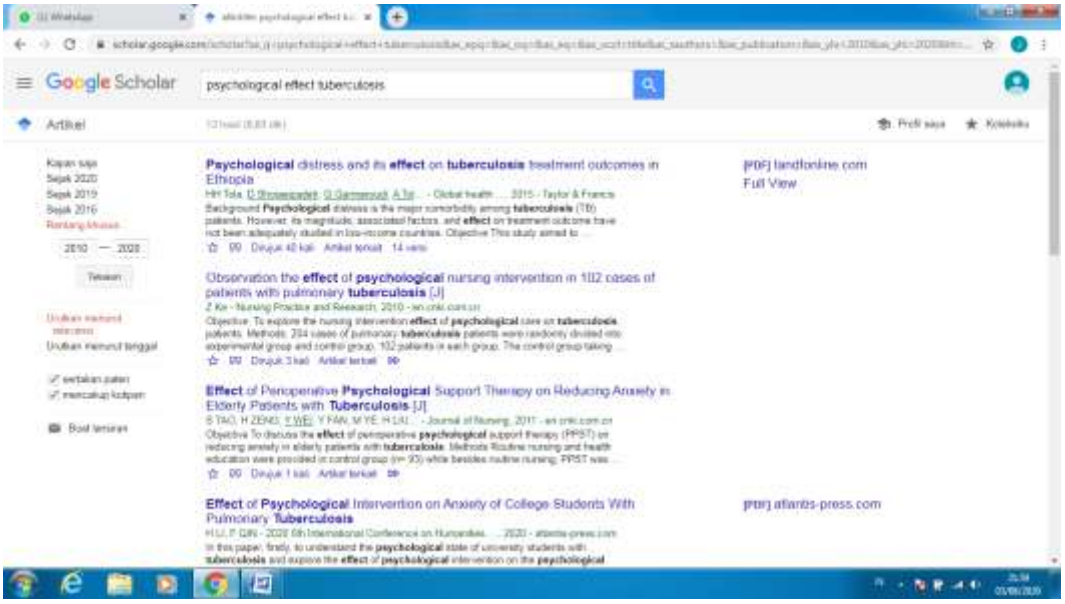


Lampiran 2

Gambar 1 : Artikel 1

Original Article

Prevalence of Depression Among Tuberculosis Patients

Muhammad Anwar Sulehri, Imtiaz Ahmad Dogar, Hamza Sohail, Zain Mehdi, Muhammad Azam, Obaid Niaz, M. Sheraz Javed, Istikhar Ali Sajjad, Zahid Iqbal

ABSTRACT

Objectives: To find out frequency of depression among Tuberculosis (TB) patients, to study the causes of depression in them and its effect on treatment and prognosis of T.B. **Study Design:** Cross-Sectional Study. **Study Area:** Department of Chest Medicine District Head Quarters and Red Crescent T.B Hospital, Faisalabad. **Duration of Study:** March – May 2009. **Study Population:** TB patients admitted in Department of Chest Medicine DHQ & Red Crescent T.B Hospital, Faisalabad. **Sample Size:** Sample size was 60 TB patients. **Sampling Technique:** Convenience sampling technique. **Data Collection Tool:** Beck's Depression Inventory–II(BDI-II in Urdu) semi-structured questionnaire was used for data collection for all TB patients who were able to understand it. Diagnosis was made as per Diagnostic and Statistical Manual of Mental Disorders, Fourth edition (DSM-IV). **Results:** Depression was present in about 80% of the hospitalized TB patient. It was more common in males about 86%, while in the females it was about 71%. According to age, young and elderly patients were found to be more affected. Majority of the TB patients had moderate depression, while some had severe and mild depression. Main causes of depression among the male TB patients 24.7% were due to altered social relationship and among female TB patients 23.33% were due to TB stigma.

Conclusion: It is concluded from this study that 80% patients were suffering from depression. The frequency of depression was found to be 86% among males; while 71% of the female patients were found to be depressed. Main causes of depression among the male TB patients were altered social relationship and among female patients TB stigma. Depression had adverse effect on drug compliance and TB treatment.

Key Words: Tuberculosis, Depression, Mycobacterium tuberculosis.

INTRODUCTION

Tuberculosis (TB) is a major global public health problem mostly in developing and under developed countries. Globally it is responsible for more than three million deaths each year and one of the leading causes of mortality world wide [1]. The world health organization (WHO) reported that one third of the world population that is approximately 2 billion people, is infected with Mycobacterium tuberculosis and there are about 8-10 million new active cases each year. [2] Tuberculosis is particularly common among individuals with mood disorders e.g., anxiety and depression. Because of the frequent co-morbidity of TB and mood disorders; it is important for primary health care physicians, who treat TB patients to be mindful of the clinical manifestations of depression. Because of the highly infective nature of TB, psychiatrists should be aware of diagnostic and treatment considerations of this disease.[2]There were 8.8 million new cases of TB in 2005, the highest rates being in Africa (28% of all TB cases) and half of all new cases in six Asian countries namely Bangladesh, China, India, Indonesia, Pakistan and the Philippines.[3] Awareness about depression and its role in the outcome of chronic disorders like rheumatoid arthritis and COPD has increased over the years.[4] Diabetes like TB is a chronic illness and research in to diabetes has indicated that psychological, particularly depression and the patient's perceptions about their illness predict poor glycaemic control.[5] The efficacy of enhanced psychological treatments on improved diabetes self-care has been demonstrated.[6] In a United Kingdom based sample of TB patients higher rates of depression and anxiety were observed in the

Gambar 2 :Artikel 2

Dasa et al. BMC Psychiatry (2019) 19:82
https://doi.org/10.1186/s12888-019-2042-6

BMC Psychiatry

RESEARCH ARTICLE Open Access

Prevalence and associated factors of depression among tuberculosis patients in Eastern Ethiopia

Tamirat Tesfaye Dasa[1*], Aklilu Abrham Roba[1], Fitsum Weldegebreal[1], Frehiwot Mesfin[1], Abiyot Asfaw[1], Habtamu Mitiku[1], Zelalem Teklemariam[1], Bahubali Jinnappa Geddugol[1], Mahantash Naganuri[1], Hilina Befikadu[2] and Eden Tesfaye[3]

Abstract

Background: Depression among tuberculosis patients, especially in settings with low economic status is common. Screening for depression in all levels of health facilities can identify patients who need support and treatment for depression.

Objective: The aim of this study was to assess the prevalence and associated factors of depression among tuberculosis patients in Eastern Ethiopia.

Methods: An institutional based cross-sectional study was conducted among 403 tuberculosis patients attending in eleven tuberculosis treatment centers in eastern Ethiopia from February to July 2017. Depression was measured using the Patient Health Questionnaire. Data was collected consecutively until the required sample size was obtained. Tuberculosis patients who were under anti tuberculosis treatments for more than one month were included. Data were analyzed with Statistical Package for Social Sciences (SPSS) version 20. Bivariate and multivariate logistic regression models were applied to identify independent factors for dependent variable depression and *P*-values < 0.05 considered statistically significant.

Results: A total of 403 tuberculosis patients were included in the study. The prevalence of depression among tuberculosis patients was 51.9% (95%CI = 42.7, 62.2%) with 34.2% were mild cases. In our logistic regression analysis, odds of developing depression among tuberculosis patients with age less than 25 years were 0.5(50% protective effect) [AOR = 0.5, 95% CI 0.26–0.99] where as patients with a monthly income within the 25thpercentile were four times higher odds to have depression [AOR = 3.98, 95% CI: 2.15–7.39].

Conclusion: The prevalence of depression was high in this study. Age, low monthly income, the category of patients as "new tuberculosis treatment" and the first 3 months of treatment was associated with depression among tuberculosis patients. Health facilities should integrating mental health services with tuberculosis clinics, especially assessing and treating TB patients for depression, is vital.

Keywords: Depression, MDR/ TB patients, Comorbidity, Stress, Anxiety, Eastern Ethiopia

*Correspondence: tamirathemna@gmail.com
[1]Haramaya University, College of Health and Medical Sciences, P.OBox-235, Harar, Ethiopia
Full list of author information is available at the end of the article

Gambar 3 : Artikel 3


Hubungan Tingkat Depresi dengan Mekanisme Koping Penderita Tuberculosis Paru di Wilayah Puskesmas Andong Kabupaten Boyolali

Relationship between Depression Level and Coping Mechanism of Lung Tuberculosis Patients in Andong Health Center Boyolali Regency

[illegible]

ABSTRAK

Latar belakang: [illegible]

Metode penelitian: Desain yang digunakan adalah kuantitatif dengan pendekatan cross sectional. [illegible] menggunakan uji *Chi Square*.

Hasil penelitian: [illegible]

Saran: [illegible]

[illegible]

Gambar 4 : Artikel 4

DEPRESI DAN STIGMA TB DENGAN KUALITAS HIDUP PASIEN TUBERKULOSIS PARU

Depression and TB Stigma with the quality of life of patients with pulmonary tuberculosis

Vika Endria[1], 'Sri Yona[2]
1. Vika Endria: Fakultas Ilmu Keperawatan Universitas Indonesia
2. Sri Yona: Departemen Keperawatan Medikal Bedah, Fakultas Ilmu Keperawatan Universitas Indonesia
Corresponding author: sriyona@ui.ac.id

ABSTRAK

Penyakit tuberkulosis paru dapat menimbulkan penurunan terhadap kualitas hidup pasien TB Paru. Beberapa faktor yang mempengaruhi hal tersebut adanya depresi yang dialami pasien TB Paru akibat proses penyakit dan stigma negatif terhadap penyakit tersebut. Tujuan penelitian ini untuk mengetahui hubungan depresi dan stigma dengan kualitas hidup pasien tuberkulosis paru yang menjalani pengobatan OAT. Penelitian ini merupakan penelitian kuantitatif dengan metode analitik korelatif yang menggunakan pendekatan desain *cross sectional*. Populasi target dalam penelitian ini adalah pasien tuberkulosis paru yang menjalani pengobatan OAT di poli paru RSUP Persahabatan. Teknik pengambilan sampling yang digunakan teknik *concecutive sampling*, dengan jumlah sampel sebanyak 96 responden. Data dianalisis dengan uji analisa univariat dan bivariat, hasil uji bivariat menggunakan *pearson* menunjukan hasil $p = 0{,}000$ ($p < 0{,}05$) Berdasarkan hasil tersebut terdapat adanya hubungan adepresi dan kualitas hidup serta stigma dan kualitas hidup pasien tuberkulosis paru. Hasil penelitian tersebut direkomendasikan untuk melakukan deteksi dini depresi dan stigma pada pasien poliklinik oleh perawat.

Kata Kunci : depresi, stigma, kualitas hidup, tuberkulosis,penyakit paru

ABSTRACT

Pulmonary tuberculosis disease can decrease the quality of life of patients with pulmonary tuberculosis. Several factors such as depression and stigma on TBC also influence the quality of life of TBC .The study aimed to identify relation between depression and stigma with quality of life of patients with tuberculosis cross sectional study was used, using consecutive sampling. 96 respondent involved in this study, with tuberculosis who have undertaking anti-tuberculosis medication in outpatient clinic at RSUP Persahabatan. The data was examined by univariate and bivariate analysis the result of bivariate analysis with pearson showed that $p = 0{,}000$ ($p<0.05$). The finding show that there was correlation between depression and quality of life as well as stigma and quality of life of patients with tuberculosis. It is recommended that it is essesetial to do early detection of depression and stigma performed when patient attend clinic by nurses.

Key words: *depression, lung disease, stigma, tuberculosis quality of life,*

Gambar 5 : Artikel 5

ORIGINAL ARTICLE

Anxiety and Depression in Tuberculosis Can Create Impact on Quality of Life of Patient

Rukhsana Rubeen[1], Nusrat Zareen[2], Sambreen Zameer[3], Anum Ghulam Rasool[4], S. Sawaira Nasim Naqvi[5], Jouhar Iqbal[6]
[1]Associate Professor, Department of Biochemistry, Dow Medical College, DUHS Karachi Pakistan, [2]Professor, Department of Physiology, Liquate College of Dentistry and Medicine, Gulistan-e-Jouhar Karachi Pakistan, [3]Assistant Professor, Department of Pathology, Dow International Medical College, Ojha Campus DUHS Karachi Pakistan, [4]MBBS Dow Medical College, [5]MBBS Dow Medical College, [6]MBBS Dow International Medical College

ABSTRACT

Objective: Despite TB being a major burden in terms of nations' health, social life and economy and growth, it has to be considered for the psychological effects that it bearson individual life. The resulting drastic consequences showing as poor treatment compliance, increasing Mycobacterium strain resistance to first line anti TB drugs, declining health outcome etc. Our study had determined to take a step in revealing a more competent approach in getting a world free of tuberculosis, by estimating the prevalence of psychiatric co morbidities in patients with TB and to comprehend their effects on patient's quality of life. Our aim was to assess the prevalence of depression and anxiety in tuberculosis and its influence on individual perception of well being in patients attending out patient clinic in Karachi, Pakistan. **Method:** A total of 140 subjects were addressed, 70 of each TB and control. "Hospital Anxiety and Depression scale" (HAD) and "Flanagan Quality of Lifescale" was used to assess anxiety and depression and quality of life in these two populations respectively. **Result:** About 37.1% patients diagnosed with TB were labeled as having anxiety and depression according to HAD scale. However the study has shown that the area of an individual life that experienced dramatic effects included perception towards health, relationship with partner, parents, sibling, friends, work as in job or in home, participation in society, attitude towards learning and increasing awareness, understanding about one's strength and weaknesses and expressing oneself creatively. **Conclusion:** Parameters of quality of life that do play a key role in establishing quality including perception relating to health, relationships with spouse, siblings or friend, occupational role and recreation both participatory as well as passive; were found to be dramatically influenced by TB. This entirely enlightens the significance of timely counseling and health education in TB control program for alleviation of mental and social suffering seen in such a high rise.

Keywords: Tuberculosis, Quality of life, Anxiety, Depression

INTRODUCTION

Tuberculosis (TB) is a contagious bacterial infection that involves the lungs, but may spread to other organs. It is caused by the bacteria *Mycobacterium tuberculosis*.[1] Tuberculosis (TB) is second only to HIV/AIDS as the greatest killer worldwide due to a single infectious agent. In 2010, 8.8 million people fell ill with tuberculosis and 1.4 million died from it. TB occurs in every part of the world. In the year 2010, the largest number of new TB cases occurred in Asia, accounting for 60% of new cases globally. In total, in Pakistan every year, tuberculosis causes approximately 70,000 deaths, around 270,000 people per year fall sick of the disease.[2] Tuberculosis (TB) often leaves its impact physically, socially and mentally on patients. Patients tend to be worried, frustrated, or disappointed by their diagnosis, but it is not known how emotional health changes with treatment. Patients with TB may experience depression and anxiety, both of which can make the overall burden of disease more difficult to carry."[1] Depression necessitating assistance from health professionals has a lifetime prevalence of 10%.[3] Chronic disease increases co morbidity with mood and/or anxiety disorders. The lifetime prevalence of mood disorder in patients with chronic disease is 8.9% to 12.9%, with a 6-month prevalence of 5.8% to 9.4%.[4,5] In patients with pulmonary disease in particular, functionality may be severely impaired due to chronic psychogenic and somatic pain[25], frequent hospital admissions and dependency on medical and nursing personnel. Depression may be a very important negative factor to treatment adherence for patients with somatic diseases. Additionally, it may hinder adaptation to chronic disease conditions and it is known that adaptation is a crucial survival factor in chronic diseases.[6] Up to 80% of patients with depression are either treated by non-mental health professionals or receive no treatment at all.[7] Depression in patients with chronic respiratory diseases coexists with anxiety and is related to the chronicity of the disease which has a negative effect on quality of life as well.[8] Despite the

Corresponding Author:
Dr Rukhsana Rubeen Biochemistry Department, DMC DUHS,Babae Urdu Road Karachi 72200, 0092219225754-57 Ext 5544.
Email: rubeen_aijaz@yahoo.com

Gambar 5 : Artikel 6

Depressive syndrome, anxiety and illness perception in Tuberculosis patients

MAN MILENA ADINA*, OCTAVIA LUIZA NECRELESCU**, COSMINA BONDOR*, ANTIGONA TROFOR***, DANA ALEXANDRESCU****,ELENA DANTES*****
*UMF Iuliu Hatieganu Cluj Napoca,**Spitalul Clinic Leon Daniello Cluj Napoca,
***UMF Iasi, ****UMF Brasov ,UMF Constanta
Caraiman 3 Street, Cluj Napoca
Romania
manmilenaadina@yahoo.com

Abstract: - The incidence of tuberculosis varies in different country, and is very high in Romania. There is a high prevalence of mental illness in TB patients, but primary care physicians and pneumologist do not screen this association

The aims of this study were to evaluate the incidence of depressive syndrome and anxiety in tuberculosis patients hospitalized in Leon Daniello Pneumology Clinical and Savadisla Sanatorium between January 2010- October 2010. The subject replied to the questionnaires (Beck Depression Inventory-BDI, State Trait Anxiety Inventory STAI, and Illness Perception Questionnaire -IPQ) in the present of psychologists, familiarized with such tests. Depression and anxiety are very high in patients with tuberculosis, in our study (6, 78 % for severe depression, 32, 20% moderate depression and 32, 20 for severe, 40, 68% for moderate anxiety).For patients at first admission in hospital (new case) the anxiety score is high than for chronic patients or with multiple admission, .Depression was positively correlated with anxiety (p=0.001) for patient with tuberculosis

Evaluation of mental disorders from tuberculosis patients may increase treatment compliance and reduce relapse**.** This can ameliorate the prognosis quality of life of patients with this chronic disease. Pneumologist need to develop systematic strategies to screen the mental disorders symptoms in tuberculosis patients and must ask aide from psychology or psychiatric doctor for treat these co morbidities.

Key-Words: - anxiety, depressive syndrome, illness perception, mental illness, tuberculosis

1. Introduction

The incidence of tuberculosis varies in different country, and is very high in Romania. One third of the world population is latently infected, and remains a leading infectious cause of mortality, despite the availability of therapy and the WHO Programs. (1)

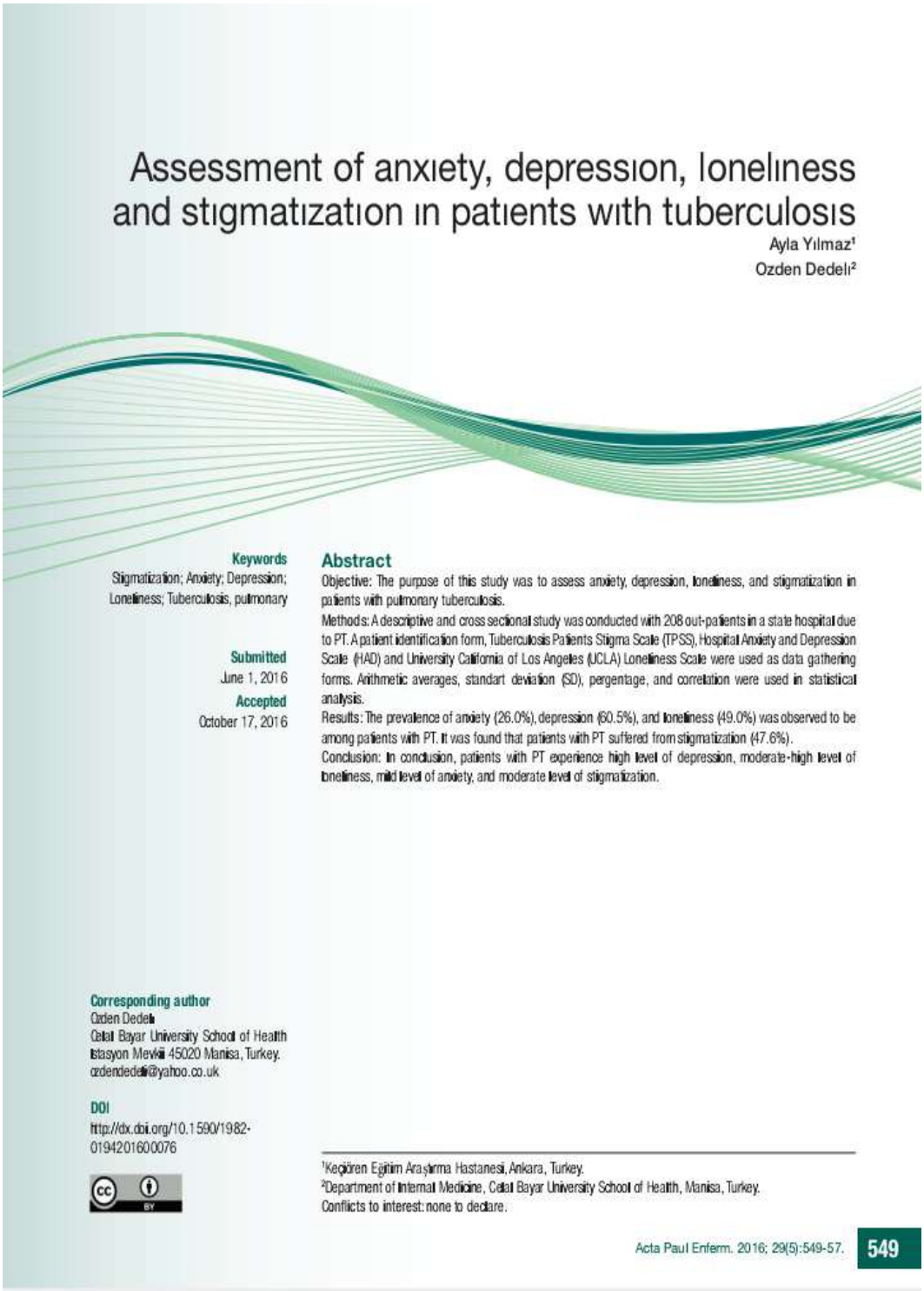
Tuberculosis mortality is an important indicator of the success of TB control. Although tuberculosis mortality has reached very small percentage in developed country, remains one of the highest in the world (higher than other infection disease) 8% overall. (2) A higher rate of death was seen among patients with baseline psychiatric, because they defaulted from treatment

The prevalence of TB has declined in general population, but is high to people who live in country with endemic TB, HIV patients, homeless or with low social conditions, patients with history of alcohol or drug abuse. Chronic disease increases co morbidity with mood and/or anxiety disorders, and tuberculosis with high duration of treatment is one of theme. (3)

There is a high prevalence of mental illness in TB patients, but primary care physicians and pneumologist do not screen this association.

ISBN: 978-960-474-278-3

Gambar 7: Artikel 7



Assessment of anxiety, depression, loneliness and stigmatization in patients with tuberculosis

Ayla Yılmaz[1]
Ozden Dedeli[2]

Keywords
Stigmatization; Anxiety; Depression; Loneliness; Tuberculosis, pulmonary

Submitted
June 1, 2016
Accepted
October 17, 2016

Abstract

Objective: The purpose of this study was to assess anxiety, depression, loneliness, and stigmatization in patients with pulmonary tuberculosis.

Methods: A descriptive and cross sectional study was conducted with 208 out-patients in a state hospital due to PT. A patient identification form, Tuberculosis Patients Stigma Scale (TPSS), Hospital Anxiety and Depression Scale (HAD) and University California of Los Angeles (UCLA) Loneliness Scale were used as data gathering forms. Arithmetic averages, standart deviation (SD), pergentage, and correlation were used in statistical analysis.

Results: The prevalence of anxiety (26.0%), depression (60.5%), and loneliness (49.0%) was observed to be among patients with PT. It was found that patients with PT suffered from stigmatization (47.6%).

Conclusion: In conclusion, patients with PT experience high level of depression, moderate-high level of loneliness, mild level of anxiety, and moderate level of stigmatization.

Corresponding author
Ozden Dedeli
Celal Bayar University School of Health
Istasyon Mevkii 45020 Manisa, Turkey.
ozdendedeli@yahoo.co.uk

DOI
http://dx.doi.org/10.1590/1982-0194201600076

[1]Keçiören Eğitim Araştırma Hastanesi, Ankara, Turkey.
[2]Department of Internal Medicine, Celal Bayar University School of Health, Manisa, Turkey.
Conflicts to interest: none to declare.

Introduction

Tuberculosis (TB) is a chronic infectious disease caused by Mycobacterium tuberculosis. It is one of the leading causes of morbidity and mortality worldwide.[1,2] According to World Health Organization (WHO) 2012 estimate, 2 billion people have latent TB, while another 3 million people worldwide die each year due to TB. It remains a major global health problem and a life-threatening disease among millions of people each year and ranks as the second leading cause of death from an infectious disease worldwide, after HIV/AIDS.[3]

Pulmonary tuberculosis (PT) is a disabling medical condition that may interfere with the sense of confidence both physically and emotionally in social settings. On the other hand, because it is historically known to be contagious and life-threatening, social acceptance of patients with tuberculosis may be compromised widely in society. Negative reactions from others who learn of a TB diagnosis can compound the physical impact of TB disease and the social impact of necessary isolation for patients with PT. TB is a contagious and debilitating disease with many adverse consequences. Various psychosocial conditions including depression, anxiety, feelings of loneliness, feeling stigmatized, and social isolation have been previously reported among these patients. Moreover, in a recent study patients with PT were reported to have higher depression, anxiety, loneliness, stigmatized, and social isolation levels may affect adversely proper anti-tuberculosis treatment compliance.[4-6]

Tuberculosis is known to be a social illness. In addition, tuberculosis is accepted as a stigmatizing disease as well. There are several studies carried out about diagnosis, treatment and prevention strategies of TB, however, few researches focusing on psychosocial outcomes of the disease such as stigmatizing, depression, anxiety, and loneliness.[4-6] This issue is very important for the all health professionals should be aware and can play an important role in the patient's ability to avoid the psychosocial consequences. In regards to how health professionals can help patients with TB to prevent negative psychosocial effects from arising, emphasis will be placed on the importance of the encounter between health professionals and patients. The purpose of this study was to assess anxiety, depression, loneliness and stigmatization in patients with pulmonary tuberculosis.

Methods

The study is a descriptive and cross-sectional survey. This study was carried out form October 2014 to February 2015 among patients with PT who presented to tuberculosis clinics of Dr. Suat Seren Tuberculosis and Chest Disease and Surgery Hospital situated in Izmir, Turkey. Izmir is a metropolitan city in the western extremity of Anatolia and the third most populous city in Turkey, after Istanbul and Ankara. It is one of the most westernized city in Turkey. As for, Dr. Suat Seren Tuberculosis and Chest Disease and Surgery Hospital is the first greatest tuberculosis and chest disease hospital in Izmir also this hospital is the fourth greatest tuberculosis and chest disease hospital in Turkey. This hospital has provided health care services with 7 out-patients clinic and 268 in-patient beds which includes nursing and physicians's care, surgery, therapy, laboratory tests, and medical treatment. During the study period, approximately 500 patients applied to the out-patients clinics. According to The Ministry of Health Public Health Agency of Turkey, the prevalance of TB was observed to be 64.0% in 2012.[7] Odds ratio was used to determine strength of association and was reported with 95% confidence interval. Level of significance for this study was 5%. The minimum required sample size of 208 patients with PT was obtained by using OpenEpi.

Participants were selected according to the following criteria; had been one and over years diagnosis of pulmoner tuberculosis, 18-65 years old, able to speak and read Turkish, to be willing participant. The study purpose, procedural details, the participant's rights and potential benefits and risks of the

Gambar 8 : Artikel 8

Global Health Action

ORIGINAL ARTICLE

Psychological distress and its effect on tuberculosis treatment outcomes in Ethiopia

Habteyes Hailu Tola[1,2]*, Davoud Shojaeizadeh[1], Gholamreza Garmaroudi[1], Azar Tol[1], Mir Saeed Yekaninejad[3], Luche Tadesse Ejeta[1], Abebaw Kebede[2], Mehrdad Karimi[3] and Desta Kassa[2]

[1]Department of Health Education and Promotion, School of Public Health, Tehran University of Medical Sciences International Campus, Tehran, Iran; [2]TB/HIV Directorate, Ethiopian Public Health Institute, Addis Ababa, Ethiopia; [3]Department of Epidemiology and Biostatics, School of Public Health, Tehran University of Medical Sciences International Campus, Tehran, Iran

Background: Psychological distress is the major comorbidity among tuberculosis (TB) patients. However, its magnitude, associated factors, and effect on treatment outcome have not been adequately studied in low-income countries.

Objective: This study aimed to determine the magnitude of psychological distress and its effect on treatment outcome among TB patients on treatment.

Design: A follow-up study was conducted in Addis Ababa, Ethiopia, from May to December 2014. Patients ($N = 330$) diagnosed with all types of TB who had been on treatment for 1–2 months were enrolled consecutively from 15 randomly selected health centers and one TB specialized hospital. Data on sociodemographic variables and economic status were collected using a structured questionnaire. The presence of psychological distress was assessed at baseline (within 1–2 months after treatment initiation) and end point (6 months after treatment initiation) using the 10-item Kessler (K-10) scale. Alcohol use and tobacco smoking history were assessed using WHO Alcohol Use Disorder Identification Test and Australian Smoking Assessment Checklist, respectively. The current WHO TB treatment outcome definition was used to differentiate the end result of each patient at completion of the treatment.

Results: The overall psychological distress was 67.6% at 1–2 months and 48.5% at 6 months after treatment initiation. Multiple logistic regression analysis revealed that past TB treatment history [adjusted odds ratio (AOR): 3.76; 95% confidence interval (CI): 1.67–8.45], being on anti-TB and anti-HIV treatments (AOR: 5.35; 95% CI: 1.83–15.65), being unmarried (AOR: 4.29; 95% CI: 2.45–7.53), having alcohol use disorder (AOR: 2.95; 95% CI: 1.25–6.99), and having low economic status (AOR: 4.41; 95% CI: 2.44–7.97) were significantly associated with psychological distress at baseline. However, at 6 months after treatment initiation, only being a multidrug-resistant tuberculosis (MDR-TB) patient (AOR: 3.02; 95% CI: 1.17–7.75) and having low economic status (AOR: 3.75; 95% CI: 2.08–6.74) were able to predict psychological distress significantly. Past TB treatment history (AOR: 2.13; 95% CI: 1.10–4.12), employment status (AOR: 2.06; 95% CI: 1.06–7.00), and existence of psychological distress symptoms at 6 months after treatment initiation (AOR: 2.87; 95% CI: 1.05–7.81) were found to be associated with treatment outcome.

Conclusions: The overall magnitude of psychological distress was high across the follow-up period; this was more pronounced at baseline. At baseline, past TB treatment history, being on anti-TB and anti-HIV treatments, being unmarried, and having symptoms of alcohol use disorder were associated with psychological distress. However, both at baseline and end point, low economic status was associated with psychological distress. Screening and treatment of psychological distress among TB patients across the whole treatment period is needed, and focusing more on patients who have been economically deprived, previously treated for TB, and on MDR-TB treatment are important.

Keywords: *psychological distress*; *treatment outcome*; *psychological distress trend*; *tuberculosis*

Responsible Editor: Stig Wall, Umeå University, Sweden.

*Correspondence to: Habteyes Hailu Tola, Ethiopian Public Health Institute, P.O. Box: 1242, Addis Ababa, Ethiopia, Email: habtetola@gmail.com

Received: 30 June 2015; Revised: 27 October 2015; Accepted: 28 October 2015; Published: 24 November 2015

Citation: Glob Health Action 2015, 8: 29019 - http://dx.doi.org/10.3402/gha.v8.29019

Gambar 9 : Artikel 9

JURNAL KEDOKTERAN DIPONEGORO
Volume 7, Nomor 2, Mei 2018
Online : http://ejournal3.undip.ac.id/index.php/medico
ISSN Online : 2540-8844

HUBUNGAN TINGKAT STRES DENGAN KUALITAS HIDUP PADA PASIEN TUBERKULOSIS DI RSUP DR. KARIADI SEMARANG

Nurul Eka Putri[1], Fathur Nur Kholis[2], Dwi Ngestiningsih[3]
[1]Mahasiswa Program Pendidikan S-1 Kedokteran Umum, Fakultas Kedokteran, Universitas Diponegoro
[2]Staf Pengajar Ilmu Penyakit Dalam, Fakultas Kedokteran, Universitas Diponegoro
[3]Staf Pengajar Ilmu Biokimia, Fakultas Kedokteran, Universitas Diponegoro
JL. Prof. H. Soedarto, SH., Tembalang-Semarang 50275, Telp. 02476928010

ABSTRAK

Latar Belakang: Terdapat 30% penduduk dunia terinfeksi bakteri Tuberkulosis dan Indonesia merupakan 10 negara dengan insidensi TB terbanyak. Penderita TB memiliki gejala utama yaitu batuk lama, disertai dengan demam, penurunan berat badan, penurunan nafsu makan, kelelahan, serta keringat malam. Pengobatan TB membutuhkan waktu selama 6 bulan dengan banyak jenis obat. Gejala dan pengobatan yang kompleks akan mengakibatkan perubahan pada tingkat stress serta kualitas hidup pasien.
Tujuan: Mengetahui hubungan tingkat stres dengan kualitas hidup pasien Tuberkulosis di RSUP Dr. Kariadi, Semarang.
Metode: Penelitian observasional analitik menggunakan desain *cross sectional* dilaksanakan di Poli DOTS-TB RSUP Dr. Kariadi Semarang. Sampel penelitian merupakan pasien tuberkulosis RSUP Dr. Kariadi Semarang (n=60) yang menajalani pengobatan minimal 1 bulan. Responden diberi *informed consent*, mengisi kuesioner data pribadi, *Depression Anxiety Stress Scale* (DASS), dan *The St George's Respiratory Questionnaire* (SGRQ). Analisis hubungan yang digunakan adalah uji *Chi-square*, uji *Mann-Whitney*, dan uji *Spearman*.
Hasil: Sebanyak 60% responden memiliki tingkat stress normal, 23% tingkat stress ringan, 8% tingkat stress sedang, 5% tingkat stress parah, dan 3% tingkat stress sangat parah. Sebanyak 32% responden memiliki kualitas hidup baik dan 68% memiliki kualitas hidup tidak baik. Terdapat hubungan yang signifikan antara gejala dengan kualitas hidup (p=0,034). Tidak ada hubungan yang signifikan antara usia, lama pengobatan, jenis kelamin, status gizi, pekerjaan, status pernikahan, status ekonomi, dan efek samping obat dengan kualitas hidup. Tidak ada hubungan yang signifikan antara status bakteriologis dengan tingkat stress dan kualitas hidup. Korelasi signifikan ditemukan antara tingkat stress dengan kualitas hidup (p=0,007) dengan korelasi cukup dan searah (r=0,476).
Kesimpulan: Terdapat hubungan yang signifikan antara tingkat stres dengan kualitas hidup pasien tuberkulosis di RSUP Dr. Kariadi Semarang.
Kata Kunci: tuberkulosis, tingkat stress, kualitas hidup.

ABSTRACT

THE RELATIONSHIP OF STRESS LEVEL WITH QUALITY OF LIFE IN TUBERCULOSIS PATIENTS IN RSUP DR. KARIADI SEMARANG
Background: There are 30% of the world's population infected Tuberculosis bacteria and Indonesia are the 10 countries with the highest TB incidence. TB patients have the main symptoms of long cough, accompanied by fever, weight loss, decrease appetite, fatigue, and night sweats. TB treatment takes 6 months with many types of drugs. Complex symptoms and treatment will result in changes in stress levels and quality of life of patients.

Gambar 10 : Artikel 10

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Conference Paper

The relationship of stress level and quality of life among patients with Tuberculosis in Makassar, Indonesia

I Kade Wijaya, Musmulyadi, and Rahmatul Ummah

Department of Nursing, School of Health sciences Panakkukang Makassar, South Sulawesi, Indonesia

Abstract

Background: Pulmonary tuberculosis is caused by Mycobacterium tubekulosis which can affect most organs of the body is the lungs. Chronic pain conditions tend to cause increased stress associated with decreased physical function, treatment and death threats. Physical, environmental and psychosocial conditions are factors that influence life quality of the patients. **Objectives:** the aim of this research was to find out the correlation of the stress level and life quality of the patients with pulmonary tuberculosis at Balai Besar Kesehatan Paru Masyarakat Makassar. **Method:** this is an analytical survey research that employed the approach of cross sectional study. The research was conducted in 21st of January to 7th of February 2019 at Balai Besar Kesehatan Paru Masyarakat Makassar. The sample was selected by using purposive sampling based on the inclusion and exclusion and as many as 37 samples were chosen as the respondents. The data were gathered by questionnaire, data collection instrument for stress level using DASS-14 and life quality using WHOQOL-BREF-26, then processed by SPSS and analyzed by statistical test of *Kolmogorov Smirnov* with the significance degree of 95% (α=0,05). **Result:** the result showed that the mild stress level and good life quality was found in 19 (79.2%) respondents, moderate stress level with good life quality was found in 3 (27.3%) respondents, severe stress level and good life quality was expressed in 0 (0.0%) respondent, mild stress level with bad life quilaity was found in 5 (20.8%) respondents, moderate stress level with bad life quality in 8 (72.7%) respondents, and severe stress level with bad life quality was 2 (100%) respondents. The test result of the value of p = 0.013, means the value of p was lower than α =0.05. **Conclusion:** there were associations between stress level and the life quality of the patients with pulmonary tuberculosis at Balai Besar Kesehatan Paru Masyarakat Makassar.

Keywords: Quality of life, stress level and pulmonary tuberculosis.

Corresponding Author:
I Kade Wijaya
adhe.stikpan@gmail.com

Received: 22 September 2019
Accepted: 4 October 2019
Published: 10 October 2019

Publishing services provided by Knowledge E

Selection and Peer-review under the responsibility of the ICHT 2019 Conference Committee.

1. Introduction

Tuberculosis (TB) lungs is an infectious disease caused by bacterial infection mycobacterium tuberculosis and has become global attention. A source of transmission of which is the patient tuberculosis basil is acid resistant positive through tiny sputum. The

Lampiran 3 : Pernyataan Publikasi, Manuskrip, Lembar Konsultasi dan berita acara

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Nama Mahasiswa : Julfiani Putri Nur Indah Sari

Nama Pembimbing : Anis Rosyiatul Husna, S.Kep.,Ns.,M.Kes

Judul Skripsi : *Psychological Effect* Pada Klien Tuberkulosis

No	Hari, Tanggal	Catatan Pembimbing hal yang direvisi	Hasil Revisi	Tanda Tangan
1.	07 Nov 2019	Konsul judul dan jurnal	Revisi judul	
2.	09 Nov 2019	Konsul judul dan jurnal	Revisi judul	
3.	15 Nov 2019	Konsul judul dan jurnal	Revisi judul	
4.	23 Nov 2019	Acc judul dan Jurnal	Acc judul dan jurnal	
5.	18 Des 2019	Konsul Bab 1-2	Revisi MSKS	
6.	25 April 2020	Konsul Bab 1-2	Revisi MSKS	
7.	16 Mei 2020	Konsul Bab 1-3	Revisi KS dan Bab 2	
8.	23 Mei 2020	Konsul Bab 1-3	Revisi Bab 3	
9.	10 Juli 2020	Konsul Bab 1-3 Literatur Review	Revisi Bab 1 MSKS	
10.	15 Juli 2020	Konsul Bab 1-3 Literatur Review	Revisi Bab 1 KS	

No	Hari, Tanggal	Catatan Pembimbing hal yang direvisi	Hasil Revisi	Tanda Tangan
11.	10 Agust 2020	Konsul Bab 1-3 Literatur Review	Revisi Bab 3 Sintesis temati	
12.	11 Agust 2020	Konsul Bab 1-3 *Literatur Review*	Acc Ujian Proposal	
13.	15 Agust 2020	Konsul Bab 4-5	Revisi hasil dan Matriks	
14.	17 Agust 2020	Konsul Bab 4-5	Revisi Matriks	
15.	21 Agust 2020	Konsul Bab 1-5	Revisi pembahasan	
16.	24 Agust 2020	Konsul Bab 1-5	revisi abstrak dan kesimpulan	
17.	26 Agust 2020	Konsul Bab 1-5 dan lampiran	Acc Ujian Semhas	

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Nama Mahasiswa : Julfiani Putri Nur Indah Sari

Nama Pembimbing : Siti Aisyah, S.Kep., Ns., M.Kes

Judul Skripsi : *Psychological Effect* Pada Klien Tuberkulosis

No	Hari, Tanggal	Catatan Pembimbing hal yang direvisi	Hasil Revisi	Tanda Tangan
1.	07 Nov 2019	Konsul judul dan jurnal	Revisi judul	
2.	09 Nov 2019	Konsul judul dan jurnal	Revisi judul	
3.	23 Nov 2019	Acc judul dan Jurnal	Acc judul dan jurnal	
4.	25 April 2020	Konsul Bab 1-3	Revisi KS dan Bab 2 dan 3	
5.	23 Mei 2020	Konsul Bab 1-3 Literatur Review	Revisi Bab 1 KS dan Sintesis Tematik	
6.	10 Juli 2020	Konsul Bab 1-3 *Literatur Review*	Acc Ujian Proposal	
8.	10 Agust 2020	Konsul Bab 4-5	Revisi hasil dan Matriks	
9.	15 Agust 2020	Konsul Bab 1-5	Revisi pembahasan dan kesimpulan	
10.	26 Agust 2020	Konsul Bab 1-5 dan lampiran	Acc Ujian Semhas	

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Nama Pembimbing : Anis Rosyiatul Husna, S.Kep.,Ns.,M.Kes

Nama Mahasiswa : Julfiani Putri Nur Indah Sari

Nim : 20161660024

Judul Skripsi : *Psychological Effect* Pada Klien Tuberkulosis

No.	PROPOSAL SKRIPSI	HAL	PERBAIKAN
1.	Daftar Pustaka	39	Memperbaiki penulisan beberapa sumber

Surabaya, 1 September 2020

Pembimbing 1

Anis Rosyiatul Husna, S.Kep.,Ns.,M.Kes

BERITA ACARA REVISI SEMINAR HASIL

Nama Pembimbing : Anis Rosyiatul Husna, S.Kep.,Ns.,M.Kes

Nama Mahasiswa : Julfiani Putri Nur Indah Sari

Nim : 20161660024

Judul Skripsi : *Psychological Effect* Pada Klien Tuberkulosis

No.	PROPOSAL SKRIPSI	HAL	PERBAIKAN
1.	BAB 2	4	Penambahan Konsep Teori Dampak Psikologis pada klien tuberkulosis
2.	BAB 4 (Pembahasan)	33	Penambahan opini peneliti
4.	Daftar Pustaka	39	Memperbaiki penulisan beberapa sumber

Surabaya, september 2020

Pembimbing 1

Anis Rosyiatul Husna, S.Kep.,Ns.,M.Kes

BERITA ACARA REVISI SEMINAR PROPOSAL

Nama Pembimbing : Siti Aisyah, S.Kep., Ns., M.Kes

Nama Mahasiswa : Julfiani Putri Nur Indah Sari

Nim : 20161660024

Judul Skripsi : *Psychological Effect* Pada Klien Tuberkulosis

No.	PROPOSAL SKRIPSI	HAL	PERBAIKAN
1.	BAB 1 (Latar Belakang)	1	Penambahan solusi Psychological Effect pada klien tuberkulosis
2.	Daftar pustaka	39	Memperbaiki penulisan beberapa sumber

Surabaya, 1 September 2020

Pembimbing 2

Siti Aisyah, S.Kep., Ns., M.Kes

BERITA ACARA REVISI SEMINAR HASIL

Nama Pembimbing : Siti Aisyah, S.Kep., Ns., M.Kes

Nama Mahasiswa : Julfiani Putri Nur Indah Sari

Nim : 20161660024

Judul Skripsi : *Psychological Effect* Pada Klien Tuberkulosis

No.	PROPOSAL SKRIPSI	HAL	PERBAIKAN
1.	BAB 5 (Kesimpulan)	37	Penambahan opini dari peneliti
2.	Daftar pustaka	39	Memperbaiki penulisan beberapa sumber

Surabaya, 1 September 2020

Pembimbing 2

Siti Aisyah, S.Kep., Ns., M.Kes

BERITA ACARA REVISI SEMINAR PROPOSAL

Nama Pembimbing : Dr. Nur Mukarromah, S.KM.,M.Kes

Nama Mahasiswa : Julfiani Putri Nur Indah Sari

Nim : 20161660024

Judul Skripsi : *Psychological Effect* Pada Klien Tuberkulosis

No.	PROPOSAL SKRIPSI	HAL	PERBAIKAN
1.	Judul	i	Memperbaiki kata-kata judul agar lebih menarik
2.	BAB 1 (Latar Belakang)	1	Penambahan MSKS Psychological Effect pada klien tuberkulosis
3.	Daftar Pustaka	39	Memperbaiki penulisan beberapa sumber

Surabaya, 1 September 2020

Penguji

Dr. Nur Mukarromah, S.KM.,M.Kes

BERITA ACARA REVISI SEMINAR HASIL

Nama Pembimbing : Dr. Nur Mukarromah, S.KM.,M.Kes

Nama Mahasiswa : Julfiani Putri Nur Indah Sari

Nim : 20161660024

Judul Skripsi : *Psychological Effect* Pada Klien Tuberkulosis

No.	PROPOSAL SKRIPSI	HAL	PERBAIKAN
1.	BAB 2	4	Penambahan Konsep Teori Dampak Psikologis pada klien tuberkulosis
2.	BAB 4 (Pembahasan)	33	Penambahan opini peneliti
4.	Daftar Pustaka	39	Memperbaiki penulisan beberapa sumber

Surabaya, 1 September 2020

Penguji

Dr. Nur Mukarromah, S.KM.,M.Kes

ABSTRAK

PSYCHOLOGICAL EFFECT PADA KLIEN TUBERKULOSIS

Literatur Review

Oleh : Julfiani Putri Nur Indah Sari

[1] Julfiani Putri Nur Indah Sari, [2] Anis Rosyiatul Husna, S.Kep., Ns., M.Kes,[3]Siti Aisyah, S.Kep., Ns., M.Kes

[1] Program Studi S1 Keperawatan Fakultas Ilmu Kesehatan, [2,3] Dosen Fakultas Ilmu Kesehatan Universitas Muhammadiyah Surabaya, Kampus FIK UMSurabaya,60113.

Telp.(031) 3811966. Fax (031) 3811967

E-mail : julfianiputri215@gmail.com

Latar Belakang : Klien Tuberkulosis mengalami berbagai macam masalah baik secara fisik maupun psikologis. Dampak dari beban psikologis pada klien akan memperburuk kesehatan fisik dan menimbulkan masalah psikologis, sehingga klien memerlukan penerimaan danperhatian dari keluarga dan lingkungan masyarakat, . **Tujuan** : Untuk mengetahui *Psychological Effect* pada klien Tuberkulosis. **Metode** : *Literatur Review* artikel *Psychological Effect* pada klien tuberkulosis. Pencarian artikel melalui internet dengan database : Pubmed dan Google Scholar. *Review* dimulai tahun 2010-2020, 7 artikel dalam bahasa inggris dan 3 artikel menggunakan bahasa indonesia, dengan *full text* membahas mengenai *Psychological Effect*.**Hasil:**.Penyakit menular tuberkulosis memiliki masalah pada psikologis yang disebabkan oleh berbagai faktor baik faktor internal maupun faktor eksternal yang dapat memberikan stigma negatif pada diri sendiri yang bisa memunculkan perasaan malu, cemas, stres dan depresi. **Kesimpulan:**Klien yang terinfeksi penyakit menular tuberkulosis akan mendapatkan stigma negatif dari lingkungan masyarakat sekitar, sehingga klien akan mengalami berbagai macam masalah psikologis seperti merasa stres, cemas sampai kepada gangguan yang cukup serius seperti depresi berat, sehingga dukungan dari keluarga sangat dibutuhkan oleh penderita tuberkulosis untuk mengurangi *Psychological effect*.

Keyword : *Tuberculosis, Psychological Effect*

ABSTRACT

PSYCHOLOGICAL EFFECT ON TUBERCULOSIS CLIENTS
Literature Review

By : Julfiani Putri Nur Indah Sari

[1] Julfiani Putri Nur Indah Sari, [2] Anis Rosyiatul Husna, S.Kep., Ns., M.Kes

[3]Siti Aisyah, S.Kep., Ns., M.Kes

[1] Program Studi S1 Keperawatan Fakultas Ilmu Kesehatan, [2,3] Dosen Fakultas Ilmu Kesehatan Universitas Muhammadiyah Surabaya, Kampus FIK UMSurabaya,60113.

Telp.(031) 3811966. Fax (031) 3811967

E-mail : julfianiputri215@gmail.com

Background*: Tuberculosis sufferers experience various problems, both physically and psychologically. The impact of the psychological burden on the patient will worsen physical health, so that the patient needs acceptance and attention, from the family and the community.* ***Purpose****: to determine the Psychological Effect on Tuberculosis clients.* ***Methods****: Literature Review of the journal of Psychological Effect on tuberculosis clients. Search for articles via the internet with databases: Pubmed and Google Scholar. The review started in 2010-2020, 7 articles in English and 3 articles in Indonesian, with full text discussing the Psychological Effect.* ***Results****: The higher the psychological effect that occurs on the client, the higher the depression, anxiety and stress on the tuberculosis client.* ***Conclusion****: The psychological and social impact of the patient is caused by the stigma associated with pulmonary tuberculosis and changes in the attitudes of the people around the clients. Resulting in depression, stress and anxiety*

Keyword: *Tuberculosis, Psychological Effect*

Latar belakang

Tuberculosis merupakan suatu penyakit menular langsung yang disebabkan oleh bakteri *Micobacterium tuberculosa* yang lebih sering menginfeksi organ paru-paru dibandikan dengan organ tubuh yang lain. Penderita tuberculosis sering mengalami berbagai macam masalah baik secara fisik seperti efek dari pengobatan yang membuat mereka sering merasa mual, berat badan berkurang hingga mengalami penggelapan pada warna kulit, Sedangkan masalah psikologis klien TBC mengalami perasaan merasa tidak dihormati orang lain, merasa malu, merasa dijauhi oleh lingkungan sekitar, bahkan ada klien tuberkulosis yang tidak diperlakukan dengan baik oleh pasangannya, keluarga, teman dan lingkangan masyarakat(Putri, Kholis 2018).

Menurut World Health Organization (2017) menyatakan bahwa jumlah klien penyakit menular Tuberkulosis didunia pada tahun 2017 diperkirakan sebanyak 10 juta kasus, di

Indonesia sendiri jumlah klien kasus Tuberkulosis pada tahun 2017 sebanyak 360.770 kasus. Jumlah kasus baru BTA+ penyakit menular Tuberkulosis Paru di kota Surabaya pada tahun 2018 sebanyak 3.003 kasus dan jumlah penemuan semua kasus Tuberkulosis sebanyak 7.007 kasus

Mikrobacterium tuberculosis dapat menimbulkan stigma sosial dari lingkungan sehingga mempengaruhi psikologis pada klien yaitu timbulnya depresi, kecemasan, dan stress. Dampak dari beban psikologis pada klien akan memperburuk kesehatan fisik sehingga akan menurunkan kualitas hidup klien. Kestabilan psikologis menjadi salah satu faktor dalam menurunkan kesejahteraan psikologis yang akan berdampa negatif terhadap hidup penderita(Pradanie and Karima, 2016). Dampak psikologis meliputi depresi, cemas dan adanya penurunan fungsi kognitif (Aydin, 2014).

Kondisi klien dan penerimaan orang-orang disekitar klien yang baik akan meningkatkan kesejahteraan klien, sehingga mengurangi *Psychological Effect* pada klien tuberculosis(Pradanie and Karima, 2016).

Berdasarkan data dan fenomena yang ditemukan, peneliti tertarik untuk mendeskripsikan hasil penelitian sebelumnya mengenai "*Psychological Effect* pada klien tuberculosis" dengan *Literatur Review.*

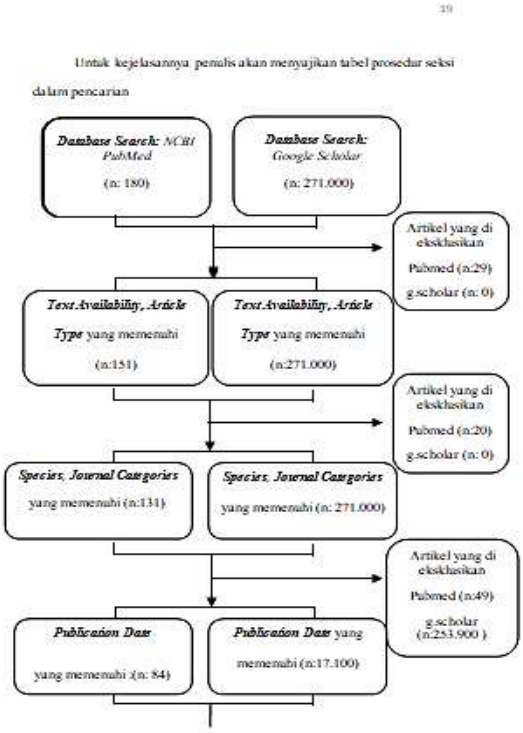
Strategi Atau Data Base

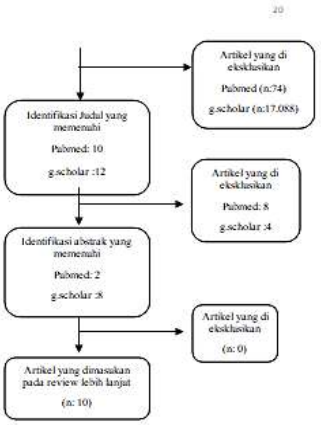
Strategi pencarian bahan artikel yang menggunakan kumpulan data base penelitian diinternet database yang digunakan dalam strstegi pencarian Literatur Review ini menggunakanPubmed dan Google Scholar dari tahun 2010 sampai tahun 2020. Kata kunci yang digunakan dalam pencarian jurnal menggunakan keyword "*Psychological effect and Tuberkulosis".*

Kriteria Insklusi

- Diterbitkan pada tahun 2010 sampai 2020 (10 tahun terakhir)
- Ketersediaan artikel full text
- Populasi yang diteliti yaitu penderita tuberkulosis paru
- Dipublikasikan dalam bahasa inggris dan indonesia
- *Spesies*yang digunakan *human*(manusia)

Sintesis Tematik





Hasil

Kerangka kerja pada pencarian artikel dilakukan penelusuran artikel di database Pubmed dan Google Scholer. Di database Pubmed ditemukan jurnal sebanyak 180 dan Google Scholer ditemukan jurnal sebanyak 271.000. setelah peneliti melakukan skrining melalui judul, Text Availability, Article Type, Spesies, Journal Catagories dan tahun. Selanjutnya artikel dikecualikan dikarenakan tidak memenuhi syarat dari criteria dari database Pubmed 178 dan dari Google Scholar 270.992, dengan demikian hasil akhir yang diperoleh sebanyak 10 artikel yang dibutuhkan dan relevan sesuai dengan topik yang sesuai Kemudian artikel yang didapatkan dalam bentuk full text dan selanjutnya diunduh dan disimpan setelah itu peneliti melakukan analisis untuk mengetahui isi artikel selanjutnya dilakukan Literatur Review.

Pembahasan

Dari sepuluh artikel, terdapat tujuh artikel yang membahas mengenai *Psychological Effect* berupa depresi dan tiga artikel membahas stres. Didapatkan hasil bahwa tingkatan depresi yang terjadi pada klien tuberkulosis dipengaruhi oleh beberapa faktor baik faktor internal maupun eksternal, seperti usia, jenis kelamin, status sosial ekonomi, lamanya pengobatan , perubahan hubungan sosial masyarakat. . Depresi melemahkan kesejahteraan dan mengakibatkan hasil pengobatan yang negatif di antara klien tuberkulosis. Dan juga dapat berdampak negatif pada kualitas hidup terkait kesehatan dari klien tuberkulosis. Selain itu, pasien TB dengan gejala depresi telah mengurangi kontak sosial dan mengalami harga diri rendah dan keputusasaan.

Adanya stigma terhadap seseorang dengan penyakit infeksi yang berefek pada proses pengobatan dan proses penyembuhan, akan menimbukan dampak psikologis terhadap kesejahteraan klien dan menimbulkan depresi pada pasien(Endria[1] and Yona, 2016). Masalah psikologis seperti stigma, isolasi, kurangnya dukungan sosial, ketidakberdayaan, kesepian, dan reaksi psikologis lainnya terhadap pengungkapan penyakit serta efek samping pengobatan, semuanya dapat mempengaruhi pengobatan(Yilmas, 2016)

Tiga dari sepuluh artikel mengenai *Psychologycal Effect* membahas tentang *stress* didapatkan hasil, tekanan psikologis yang terjadi pada klien tuberkulosis hingga menyebabkan stres pada klien dipengaruhi oleh faktor seperti usia, pendidikan formal rendah, kemiskinan dan tidak menikah, berpisah, bercerai atau janda , kemiskinan mental (penggunaan alkohol) dan ketidakpatuhan terhadap obat anti-TB dan atau terapi antiretroviral tidak dikaitkan dengan tekanan psikologis. Menurut I Kade Wijaya, et.al (2019), dampak psikologis dan sosial pasien disebabkan oleh stigma yang terkait dengan tuberkulosis paru dan perubahan sikap orang-orang di sekitarnya. Semakin ringan tingkat stres yang dialami penderita maka semakin baik pula kualitas hidup seseorang

Dukungan keluarga dan orang-orang terdekat klien sangat berperan

penting untuk mengurangi angka depresi pada klien. Semakin rendah tingkat depresi semakin baik untuk meningkatkan kesejahteraan hidup pada klien tuberkulosis.

Kesimpulan

Dari kesepuluh jurnal yang didapatkan hasil bahwa tekanan psikologis yang terjadi pada klien tuberkulosis disebabkan oleh beberapa macam faktor, seperti usia, jenis kelamin, pendidikan, pendapatan ekonomi, lamanya pengobatan penyakit, perubahan hubungan sosial masyarakat dan stigmatisasi tuberkulosis. Klien dengan penyakit tuberculosis akan mengalami berbagai macam perasaan emosi negatif ketika dirinya terinfeksi penyakit tuberkulosis salah satunya yakni perasaan depresi dan stress. Depresi akan timbul pada klien tuberkulosis ketika mereka mengalami keterpurukan, sedih dan menyebabkan keputusasaan dan penurunan daya tahan terhadap infeksi. Perasaan stress pada klien tuberkulosis timbul ketika klien semakin banyak gejala yang dialami klien maka semakin tinggi tingkat stres yang dialami klien sehingga dapat mempengaruhi kualitas hidup klien.

Saran

1. Bagi ilmu keperawatan

   Sebagai bahan untuk meningkatkan profesionalitas serta mutu pelayanan kesehatan khusunya pada klien tuberkulosis. Dengan adanya *Literatur Review* ini diharapkan tim tenaga medis kesehatan dapat memberikan edukasi terhadap keluarga dan klien untuk memberikan dukungan kepada klien sehingga mengurangi *Psychological Effect* pada klein tuberkulosis.

2. Bagi instansi

   Dari hasil penelitian *Literatur Review* ini dapat digunakan untuk referensi informasi hasil penelitian sebelumnya mengenai *Psychological effect* pada klien tuberkulosis sehingga bisa digunakan untuk acuan peningkatanpengetahuan dan penelitian di bidang keperawatan.

3. Bagi peneliti selanjutnya

   Peneliti selanjutnya dapat melakukan penelitian lain mengenai *Psychological effect* yang terjadi pada klien tuberkulosis dengan sampel yang berbeda. Peneliti juga bisa mengembangkan penelitian mengenai *Psychological effect* yang lainnya yang terjadi pada klien tuberkulosis

Tabel 4.1 Hasil *Literature Review*

No	Author"s	Judul	Studi Desain, Sampel, Instrumen, Teknik sampling, Variabel, Analisis	Tujuan	Hasil dan kesimpulan
1.	Muhammad Anwar Sulehri, et.al 2010	Prevalence of Depression Among Tuberculosis Patients	Studi desain *: Cross sectional study* Sampel : 60 pasien terdiagnosa tuberkulosis paru Instrumen : kuesioner Beck's *Depression Inventory –II* (BDI-II diadaptasi) Teknik Sampling : teknik convenience sampling Variabel : Independen: *Prevalence of Depression* Analisis : analisis statistik (SAS) Versi-9 menggunakan uji Chi Cquare danUji Student T	Untuk mengetahui prevelensi resiko terjadinya depresi pada klien tuberkulosis	Dari 60 pasien TB yang diamati dalam penelitian ini, 36 adalah laki-laki dan 24 adalah perempuan. total 48 (80%) pasien ditemukan mengalami depresi; sementara 12 (20%) tidak mengalami depresi di antara 36 pasien TB laki-laki 31 (86%) ditemukan mengalami depresi; sedangkan di antara 24 pasien TB perempuan, 17 (70,83%) ditemukan mengalami depresi dari 31 pasien laki-laki depresi 3 (9,67%) mengalami depresi ringan, 12 (38,70%) mengalami depresi berat dan 16 (51,61%) mengalami depresi sedang. Dari 17 pasien wanita dengan depresi 5 (29,41%) mengalami depresi ringan 6 (35,29%) sedang dan 6 (35,29%) mengalami depresi berat. Di antara total 48 (100%) pasien TB yang depresi 8 (16,7%) mengalami depresi ringan, 22 (45,8%) sedang, dan 18 (37,5%) mengalami depresi berat.
2.	Tamirat Tesfaye Dasa, et.al 2019	Prevalence and associated factors of depression among tuberculosis patients in	Studi desain : Studi cross-sectional Sampel : 403 klien TB Instrumen : kuesioner depresi *Patient Health Questionnaire-9* (PHQ-9). Teknik Sampling : teknik consecutive sampling Variabel :	Untuk mengetahui prevalensi dan faktor terkait depresi di antara pasien tuberkulosis di	Penelitian ini mengungkapkan bahwa 51,9%Pasien TB memiliki kemungkinan depresi. Dalam studi ini, hampir setengah dari pasien TB mengalami gejala ringan sampai sedang depresi sementara 2,7% memiliki bentuk parah yang membutuhkan perawatan, menjalani perawatan ulang untuk TB (aOR = 11,2, 95% CI: 5,2 - 31,1,

		Eastern Ethiopia	Independen *: Prevalence and associated factors of depression* Analisis : dianalisis di SPSS versi 20 mengunakan uji Chi Cquare	Ethiopia Timur.	P <0,001) dan menghentikan pengobatan (aOR = 8,2, 95% CI:1,1 - 23,3, P <0,05) adalah faktor yang terkait dengan peluang lebih tinggi mengalami depresi.
3.	Agung Nugroho, Atiek Murharyati, Innez Karunia Mustikarani, (2018)	Hubungan tingkat depresi dengan mekanisme koping penderita tuberkulosis paru di Wilayah Puskesmas Andong Kabupaten Boyolali	Studi desain : Studi cross-sectional Instrumen : lembar kuisioner dan wawancara Sampel : 43 klien tuberkulosis Teknik Sampling : teknik sampling total Variabel : Independen : tingkat depresi Dependen: mekanisme koping Analisis :analisa data penelitian menggunakan uji Chi Cquare	Untuk mengetahui tingkat depresi dengan mekanisme koping kliren tuberkulosis di Wilayah Puskesmas Andong Kabupaten Boyolali	Pada penelitian ini menggunakan sampel 43 orang di Wilayah Puskesmas Andong Kabupaten Boyolali sebagian besar adalah berusia 30-50 tahun (40%), berjenis kelamin laki-laki (74%), bekerja sebagai buruh (49%), memiliki pendidikan SMP(65%) dan bersatatus menikah (98%). Tingkat depresi pada klien tuberkulosis sebagian adalah depresi sedang (65%).
4.	Vika Endria, Sri Yona, (2016)	DEPRESI DAN STIGMA TB DENGAN KUALITAS HIDUP PASIEN TUBERKULOSIS PARU	Studi desain : menggunakan *cross sectional* Sampel : 96 klien tuberkulosis Instrumen : penelitian ini berupa tiga buah kuesioner, WHOQOL-BREF, BECK *Depression Inventory* dan EMIC-CSS Teknik Sampling : non probability sampling dengan teknik pengambilan concecutive sampling Variabel : Independen: depresi dan stigma Dependen : Kualitas Hidup Analisis : menggunakan analisis univariat dan analisis bivariat dengan uji person	Untuk mengethui hubungan depresi dan stigma dengan kualitas hidup pada klien tuberkulosis	Pada penelitian ini responden didominasi oleh usia dewasa awal (usia 26- 35 tahun) yaitu 65 responden (67.7%). Pada karakteristik jenis kelamin didominasi lakilaki sebanyak 62 orang (64.6%). depresi dari 96 responden sebanyak 34 responden (35.4%) mengalami depresi ringan dan 21 responden (21.9%) mengalami depresi berat. sebanyak 51 responden (53.1%) memiliki stigma rendah dan 45 responden (46.9%) memiliki stigma tinggi terhadap penyakitnya, sedangkan pada variabel kualitas hidup, terdapat 44 (45.8%) dari total 96 responden yang memiliki kualitas hidup yang baik.

5.	Rukhsana Rubeen , Nusrat Zareen , Sambreen Zameer , Anum Ghulam Rasool , S. Sawaira Nasim Naqvi , Jouhar Iqbal (2014)	Anxiety and Depression in Tuberculosis Can Create Impact on Quality of Life of Patient	Studi desain : menggunakan *cross sectional* Sampel : 140 orang klien tuberkulosis Instrumen : kuesinoerSkala Kecemasandan Depresi Rumah Sakit (HAD)" dan Skala Kualitas Hidup Flanagan 16 item" untuk menilai Kecemasan & Depresi dan Kualitas Hidup (QoL). Teknik Sampling : teknik sampling acak Variabel : Independen :anxiety and depression Dependen : quality of life of patient Analisis :analisis menggunakan SPSS versi 16	untuk mengetahui prevalensi depresi dan kecemasan pada tuberkulosis dan pengaruhnya terhadap persepsi individu tentang kesejahteraan pada pasien yang mengunjungi klinik rawat jalan di Karachi	Penelitian ini terdapat 140 orang, Dari 70 penderita tuberkulosis, 62,9% berada pada kelompok umur 18-25 tahun, didominasi oleh perempuan (71,4%), hampir semuanya bertempat tinggal di kota (94,3%), hampir separuhnya sudah menikah (57,1%). Dari 48,6% orang mengalami kecemasan dan depresi menurut HADSCALE, sedangkan di 11,4% memiliki skor HAD yang abnormal. Kecemasan pada pasien TB ditemukan sebesar 37,1% (kelompok kontrol- 8,6%), dan depresi adalah 37,1% (kelompok kontrol-2,9%).
6.	MAN MILENA ADINA, OCTAVIA LUIZA NECRELESCU, COSMINA BONDOR, ANTIGONA TROFOR, DANA ALEXANDRESCU,ELENA DANTES (2015)	Depressive syndrome, anxiety and illness perception in Tuberculosis patients	Studi desain : menggunakan *cross sectional* Sampel : 60 klien tuberkulosis Instrumen : kuesioner (*Beck Depression Inventory*-BDI, *State Trait Anxiety Inventory* STAI, and *Illness Perception Questionnaire* -IPQ) Teknik Sampling : teknik total sampling Variabel : Independen : *Depressive syndrome, anxiety and illness perception* Analisis : SPSS 13.0. dengan Uji chi-square	untuk mengetahui kejadian sindrom depresi dan kecemasan pada pasien tuberkulosis yang dirawat inap di Leon Daniello Pneumology Clinical	Pada penelitian in Depresi dan kecemasan sangat tinggi pada pasien tuberkulosis, dalam penelitian kami (6,78% untuk depresi berat, 32,20% untuk depresi sedang dan 32,20% untuk depresi berat, 40,68% untuk kecemasan sedang).Prevalensi depresi yang meningkat (46%) dan skor kecemasan (47%) dikaitkan dengan peningkatan jumlah gejala yang dilaporkan, konsekuensi yang dirasakan lebih serius, dan kurangnya kontrol terhadap penyakitgangguan mental dari

7.	Ayla Yılmaz, Ozden Dedelı, (2016)	Assessment of anxıety, depressıon, lonelıness and stıgmatızatıon ın patıents wıth tuberculosıs	Studi desain :*cross sectional* Sampel : 208 klien tuberkulosis Instrumen : menggunakan kuesioner *Stigma Scale* (TPSS), *Hospital Anxiety and Depression Scale* (HAD), dan *University California of Los Angeles-Loneli- ness Scale* (UCLA Loneliness Scale) Teknik Sampling : teknik consecutive sampling Variabel: Independen *: Assessment of anxıety, depressıon, lonelıness and stıgmatızatıon ın patıents* Analisis : analisis menggunakan SPSS versi 16,0	untuk mengatahui kecemasan, depresi, kesepian, dan stigmatisasi pada penderita tuberkulosis paru.	Pada penelitian ini usia rata-rata peserta adalah 45,5 ± 14,8 (minimum-maksimum: 31-60) tahun, dan sebagian besar peserta penelitian telah menikah (62,0%) dan laki-laki (63,0%). Total skor HAD-A adalah 7,80 ± 4,14 (minimal-maksimal: 0-17), dan skor HAD-D total 8,24 ± 4,30 (minimal-maksimal: 0-21). Prevalensi kecemasan adalah 26,0%, dan depresi 60,5%. Tingkat kesepian sedang dan tinggi dilaporkan oleh 80,2% pasien. Total skor TPSS ditemukan 94,90 ± 10,67 (minimum-maksimum: 62-122) pada pasien dengan PT. 47,6 persen pasien merasakan tingkat stigma sedang.
8.	Karl Peltzer, Pamela Naidoo, Gladys Matseke, Julia Louw, Gugu Mchunu and Bomkazi Tutshana (2012)	Prevalence of psychological distress and associated factors in tuberculosis patients in public primary care clinics in South Africa	Studi desain : menggunakan *cross sectional* Sampel : 4935 orang klien tuberkulosis Instrumen : kuesioner skala item Kessler-10 (K-10), dan wawancara Teknik Sampling : teknik sampling acak Variabel : Independen :*Prevalence of psychological distress* Dependen : *factors in tuberculosis patients* Analisis : dianalisis menggunakan (SPSS) versi 19.0	Untuk mengetahui prevalensi dan prediktor tekanan psikologis sebagai proksi untuk gangguan yang umum di antara pasien tuberkulosis (TB) di Afrika Selatan	penelitian 35 (0,7%) menolak untuk berpartisipasi. Sebagai hasil dari penolakan, sampel akhir terdiri dari 4900. Lebih dari setengah (54,5%) peserta adalah laki-laki dan 45,5% adalah perempuan, dengan usia rata-rata 36,2 tahun (SD = 11,5) dan rentang usia 18 tahun ke atas. 93 tahun. . Prevalensi keseluruhan tekanan psikologis dalam penelitian ini adalah 32,9% (K-10 ≥ 28) dan 81,1% (K-10 ≥ 16). Dari mereka yang diskrining positif untuk tekanan psikologis (kecemasan / depresi) (K-10 ≥ 28), 8,3% menggunakan obat anti-depresi saat ini. Mereka yang menggunakan obat anti-depresi tidak lebih mungkin untuk mendapatkan hasil positif untuk kecemasan / depresi (8,7% vs 6,5%; χ 2 = 1,36, P = 0,244).

9.	Nurul Eka Putri , Fathur Nur Kholis , Dwi Ngestiningsih (2018)	HUBUNGAN TINGKAT STRES DENGAN KUALITAS HIDUP PADA PASIEN TUBERKULOSIS DI RSUP DR. KARIADI SEMARANG	Studi desain : menggunakan *cross sectional* Sampel : 60 orang klien tuberkulosis Instrumen : kuesioner Depression Anxiety and Stress Scale (DASS), dan kuesioner The St. George's Respiratory Questionnaire (SGRQ) Teknik sampling : teknik consecutive sampling Variabel : Independen : *psychological effect distress* Dependen : Kualitas hidup Analisis : menggunakan uji Chi-square, uji Mann-Whitney, dan uji Spearman	Untuk mengetahui hubungan tingkat stres dengan kualitas hidup pasien Tuberkulosis di RSUP Dr. Kariadi, Semarang	Dari penelitian Sebanyak 60% responden memiliki tingkat stress normal, 23% tingkat stress ringan, 8% tingkat stress sedang, 5% tingkat stress parah, dan 3% tingkat stress sangat parah. Sebanyak 32% responden memiliki kualitas hidup baik dan 68% memiliki kualitas hidup tidak baik. Terdapat hubungan yang signifikan antara gejala dengan kualitas hidup (p=0,034). Korelasi signifikan ditemukan antara tingkat stress dengan kualitas hidup (p=0,007) dengan korelasi cukup dan searah (r=0,476).semakin banyak jumlah gejala yang dialami pasien, maka semakin tinggi tingkat stres pasien TB. Sehingga semakin memperburuk kualitas hidup pasien TB.
10.	I Kade Wijaya, Musmulyadi, and Rahmatul Ummah. (2019)	The relationship of stress level and quality of life among patients with Tuberculosis in Makassar	Studi desain : Cross Sectional Sampel : 37 klien tuberkulosis Instrumen : kuesioner tingkat stres menggunakan DASS-14 dan kualitas hidup menggunakan WHOQOL-BREF-26 Teknik Sampling : teknik purposive sampling. Variabel : Independen : *The relationship of stress level* Dependen : *quality of life among patients with tuberkulosis* Analisis : ndengan SPSS dan dianalisis dengan uji statistik Kolmogorov Smirnov.	untuk mengetahui hubungan tingkat stres dan kualitas hidup penderita tuberkulosis paru di Balai Besar Kesehatan Paru Masyarakat Makassar	Penelitian ini 37 responden yang mengalami tingkat stres ringan lebih dominan sebanyak 24 (64,9%) . dari 37 jumlah responden, yang memiliki kualitas hidup lebih dominan sebanyak 22 (59,5%) responden. Dari 37 responden yang mengalami tingkat stres ringan dengan kualitas hidup baik sebanyak 19 (79,2%) responden, sedangkan yang mengalami tingkat stres ringan dengan kebutuhan kualitas hidup sebanyak 5 (20,8%).) responden. Untuk responden yang mengalami tingkat stres mendapat kualitas hidup yang baik sebanyak 3 (27,3%) responden, selain itu tingkat stres yang dialami kurang baik dengan kualitas hidup sebanyak 8 (72,7%) Responden.

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JURNAL 1

Original Article

Prevalence of Depression Among Tuberculosis Patients

Muhammad Anwar Sulehri, Imtiaz Ahmad Dogar, Hamza Sohail, Zain Mehdi, Muhammad Azam, Obaid Niaz, M. Sheraz Javed, Istikhar Ali Sajjad, Zahid Iqbal

ABSTRACT

Objectives: To find out frequency of depression among Tuberculosis (TB) patients, to study the causes of depression in them and its effect on treatment and prognosis of T.B. **Study Design:** Cross-Sectional Study. **Study Area:** Department of Chest Medicine District Head Quarters and Red Crescent T.B Hospital, Faisalabad. **Duration of Study:** March – May 2009. **Study Population:** TB patients admitted in Department of Chest Medicine DHQ & Red Crescent T.B Hospital, Faisalabad. **Sample Size:** Sample size was 60 TB patients. **Sampling Technique:** Convenience sampling technique. **Data Collection Tool:** Beck's Depression Inventory–II(BDI-II in Urdu) semi-structured questionnaire was used for data collection for all TB patients who were able to understand it. Diagnosis was made as per Diagnostic and Statistical Manual of Mental Disorders, Fourth edition (DSM-IV). **Results:** Depression was present in about 80% of the hospitalized TB patient. It was more common in males about 86%, while in the females it was about 71%. According to age, young and elderly patients were found to be more affected. Majority of the TB patients had moderate depression, while some had severe and mild depression. Main causes of depression among the male TB patients 24.7% were due to altered social relationship and among female TB patients 23.33% were due to TB stigma.

Conclusion: It is concluded from this study that 80% patients were suffering from depression. The frequency of depression was found to be 86% among males; while 71% of the female patients were found to be depressed. Main causes of depression among the male TB patients were altered social relationship and among female patients TB stigma. Depression had adverse effect on drug compliance and TB treatment.

Key Words: Tuberculosis, Depression, Mycobacterium tuberculosis.

INTRODUCTION

Tuberculosis (TB) is a major global public health problem mostly in developing and under developed countries. Globally it is responsible for more than three million deaths each year and one of the leading causes of mortality world wide [1]. The world health organization (WHO) reported that one third of the world population that is approximately 2 billion people, is infected with Mycobacterium tuberculosis and there are about 8-10 million new active cases each year. [2] Tuberculosis is particularly common among individuals with mood disorders e.g., anxiety and depression. Because of the frequent co-morbidity of TB and mood disorders; it is important for primary health care physicians, who treat TB patients to be mindful of the clinical manifestations of depression. Because of the highly infective nature of TB, psychiatrists should be aware of diagnostic and treatment considerations of this disease.[2]There were 8.8 million new cases of TB in 2005, the highest rates being in Africa (28% of all TB cases) and half of all new cases in six Asian countries namely Bangladesh, China, India, Indonesia, Pakistan and the Philippines.[3] Awareness about depression and its role in the outcome of chronic disorders like rheumatoid arthritis and COPD has increased over the years.[4] Diabetes like TB is a chronic illness and research in to diabetes has indicated that psychological, particularly depression and the patient's perceptions about their illness predict poor glycaemic control.[5] The efficacy of enhanced psychological treatments on improved diabetes self-care has been demonstrated.[6] In a United Kingdom based sample of TB patients higher rates of depression and anxiety were observed in the

poorly compliant TB patients, as were more negative health beliefs. Depression and lack of perceived control were independently associated with poor adherence. Thus treating psychological problems in patients with tuberculosis may substantially improve treatment adherence, although further research is needed [7]. Estimates suggest that 5.7 million of Pakistan's current population of 170 million suffer from TB, with 260,000 new cases occurring each year.[7]

MATERIAL AND METHODS

It was a cross- sectional study carried out in TB patients admitted in Department of Chest Medicine DHQ & Red Crescent T.B Hospital, Faisalabad from 1st March to 31st May 2009.The study was conducted on 60 diagnosed pulmonary TB patients selected by convenient sampling technique. A semi-structured questionnaire prepared in English and translated into Urdu was the tool for data collection. Beck's Depression Inventory – II comprising of 30 items (BDI-II adapted in Urdu) was used for data collection for all patients who were able to understand it. The questionnaires were filled in by the data collectors by interviewing the TB patients. Diagnosis was made as per Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV). Grading of depression was done according to severity levels: Nil (less than 9 depression scale), mild (depression scale 10-15), moderate (16-24 depression scale) and severe (25 & above). The Illness Perception Questionnaire (IPQ) was used to record patients' personal beliefs about Tuberculosis. Culturally validated translation of IPQ into Urdu was developed to facilitate the patients to understand the questions. Informed consent written or verbal was taken from all the TB patients under study. The Institutional Research Committee approved the study.

STATISTICAL ANALYSIS

The data collected was entered, cleaned and analyzed by using Statistical Analysis Software (SAS) Version-9 program. Student T test was applied to test the correlation among different variables. The multiple logistic regression model was used to determine the predictive strength of depression with nominal variables (sex economic problems, hospital environment, altered, social, relationship, T.B stigma and long duration of treatment). The overall model was tested by using Chi-square test to compare proportion difference and check the association of different characteristics. Confidence level was 95% and P-value <0 05.was considered as significant.

Results

Figure-1
Showing depression among T.B patients

Table 1:
Prevalence of depression among TB patients according to gender

	Patients not Depressed	Patients Found Depressed	Total	p-value
Male	5(13.9%)	31(86.1%)	36(100%)	0.132
Female	7(29.2%)	17(70.8%)	24(100%)	
Total	12(20%)	48(80%)	60(100%)	

Table 2:
Degree of depression among depressed TB patients according to gender

	MILD [a1]	MODERATE [a2]	SEVERE [a3]	Total	p-value
Male	3(9.7%)	16(51.6%)	12(38.7%)	31(100%)	0.198
Female	5(29.4%)	6(35.3%)	6(35.3%)	17(100%)	
Total	8(16.7%)	22(45.8%)	18(37.5%)	48(100%)	

Table 3:
Causes of depression among Male & Female T.B. patients admitted in Hospitals

Causes of depression	Hospital Environment	Economic Problems	Altered Social Relationships	T.B. Stigma	Long Duration of Treatment	Total
No. of Males	5(5.88%)	20(23.52%)	21(24.7%)	20(23.52%)	19(22.35%)	85(100%)
No. of Females	10(16.66%)	15(25%)	10(16.66%)	14(23.33%)	11(18.33%)	60(100%)
Total	15(10.34%)	35(24.15%)	31(21.38%)	34(23.45%)	30(20.68%)	145(100%)
p-value	0.002	0.08	0.54	0.19	0.82	

Table 4:
Prevalence of depression among TB patients according to age

Age Groups Of Patients	11-25 yrs	26-40 yrs	41-55 yrs	Above 56 yrs	Total	p-value
Males	10(32.3%)	12(38.7%)	5(16.1%)	4(12.9%)	31(100%)	0.831
Females	6(35.3%)	8(47.1%)	2(11.8%)	1(5.9%)	17(100%)	
Total	16(33.3%)	20(41.7%)	7(14.6%)	5(10.4%)	48(100%)	

Out of the 60 TB patients observed in the study, 36 were males and 24 were females. According to Fig.1, a total of 48 (80%) patients were found to be depressed; while 12 (20%) were not depressed. According to table.1, depression in TB patients regarding gender, among 36 male TB patients, 31 (86%) were found to be depressed ; while among 24 female TB patients, 17(70.83%) were found to be depressed The difference in proportions of Depression for male and female is not statistically significant as p-value is 0.132. According to table.2, showing degree of depression, out of 31 depressed male patients 3(9.67%) were mildly depressed, 12(38.70%) were severely and 16(51.61%) were moderately depressed. Out of the 17 depressed female patients 5(29.41%) were mildly depressed 6(35.29%) were moderately and 6(35.29%) were severely depressed. Among the total of 48 (100%) depressed TB patients 8 (16.7%) were mildly depressed, 22(45.8%) were moderately and 18(37.5%) were severely depressed. There is no association in gender and degree of depression as p-value is 0.198. According to table.3, showing the causes of depression, according to total responses 145 (100%) , hospital environment accounted for depression among 10.34% of the patients, economic problems 24.15%, altered social relations 21.37%, social stigma due to T.B 23.44% and long duration of the treatment caused depression among 20.68% of the patients. The difference in proportions of Depression for male and female regarding hospital environment is statistically significant as p-value is 0.002. All other responses and results in table.3 are not statistically significant as p-values are more than 0.05, which have no significance in different proportions of depression for male and female. According to table.4 showing the depression among T.B patients regarding age distribution. We divided patients into 4 groups. Out of the total 31 male depressed patients in the first group from 11-25 years were 10(32.25%) patients, in second group from 26-40 years 12(38.70%) patients, 3rd group 41-55 years 5(16.12%) and in the 4th group having age 56 years and above 4 (12.9%) depressed patients. Out of the 17 depressed female patients in the first group from 11-25 years were 6 (35.29%), 2nd group from 26 -40 years 8 (47.05%), 3rd group from 41-55 years 2 (11.76%) patients and in the 4th group above the age of 56 years was only 1 (5.8%) depressed female patient. The prevalence of depression in different age groups has no association with gender as p-value is 0.831.

DISCUSSION

In this study, our objectives were to examine the frequency and degree of depression in patients suffering from tuberculosis admitted in DHQ and Red Crescent TB hospital Faisalabad, Pakistan. A study was done by Lau DT and Nau DP [8] in which poor treatment adherence in medical conditions had resulted in worse clinical outcomes, but also subsequent hospitalization and increased health care costs. There has been a growing interest in psychiatric co-morbidity in physically ill patients and understanding of its consequences particularly poor adherence [8]. In the present study 80% TB patients were found to be suffering from depression also, among whom 45.8% were moderately and 37.5% were severely depressed leading to long stay in hospital and high costs of medicine , so the results of this study are consistent with the above study. In a study conducted by Mirza and others in Karachi in 2004 [9], prevalence of depression and anxiety was about (47%) in TB patients. Mean prevalence of anxiety and depression in Pakistan found to be around 34% (range 29.66% for women and 10.33% for men) in community based population However, the results of our study relating to depression in TB patients are more i.e 80% and also higher in males than females. This may be due to low socio-economic status, the long duration of treatment, stigmatization, fear and threat of high risk that the air-born TB disease could spread to families and communities. Higher prevalence of depression in males could be attributed to more vulnerability to TB and depression due to their mobile life style, exposure to predisposing factors like smoking, alcohol intake and drug abuse. They have to bear more economic burden and stress of excessive responsibilities of their families. They have to face more stigmatization due to more exposure in the community. A study conducted at DHQ hospital Faisalabad in Dermatology Department.[10] Showed that 51.97% patients were found to have psychiatric co-morbidity depression and it was more in females 85% as compared to males 15%. Another study was done in a Tertiary Care Hospital of Pakistan [11] and it showed that in diagnosed cancer patients 52% had symptoms of Anxiety and depression or both. In the current study depression among TB patients is 80%, it may be due to the long duration of treatment, stigmatization and threat of high risk to infect other family members of the TB patients who were in contact with him. A study conducted at hemodialysis units of Shalimar and Shaikh Zyed Hospital Lahore in 2006 [12] showed that the patients getting regular hemodialysis for more than three months, majority of them 56.1% were moderately to severely depressed. Major causes of renal failure in these patients were chronic diseases like diabetes, hypertension and chronic glomerulonephritis. An other study was conducted by Dogar I A and others [13] to asses the co-morbidity of anxiety and depression in the patients suffering from various hepatic diseases in liver center of DHQ hospital, Faisalabad and 88.2% patients were found to have anxiety and depression. In the present study 83% patients were found to have moderate to severe depression, so the results of current study are nearly consistent with the above studies. The important and interesting fact is that all the three studies conducted in Faisalabad about prevalence of depression in different chronic diseases, depression was found to be present in more than 80% patients.

CONCLUSION

It is concluded that 80% patients suffering from TB were depressed. The prevalence of depression was found to be more among males (86%) than the female TB patients having (71%) depression. The degree of depression was related to various factors like age, sex, socioeconomic status, duration of treatment of the disease, altered social relationship of the society and TB stigmatization. Depression leads to hopelessness and decreased resistance to infections, so it adversely affects the patient's compliance to TB treatment. It is important to diagnose and treat depression in time to get the desired results of TB treatment all over the world and especially in under developing countries like Pakistan.

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AUTHORS

- **Dr. Muhammad Anwar Sulehri**
  M. Phil (Community Medicine)
  Assistant Professor Community Medicine
  Punjab Medical College, Faisalabad
- **Dr. Imtiaz Ahmad Dogar**
  FCPS (Psychiatry)
  Associate Professor (Psychiatry)
  Punjab Medical College, Faisalabad
- **Hamza Sohail** **M.B.B.S 4th Year 2009**
- **Zain Mehdi** **M.B.B.S 4th Year 2009**
- **Muhammad Azam** **M.B.B.S 4th Year 2009**
- **Obaid Niaz** **M.B.B.S 4th Year 2009**
- **M. Sheraz Javed** **M.B.B.S 4th Year 2009**
- **Istikhar Ali Sajjad** **M.B.B.S 4th Year 2009**
- **Zahid Iqbal** **M.B.B.S 4th Year 2009**

Correspondence
Dr. Muhammad Anwar Sulehri
Assistant Professor (Community Med)
Punjab Medical College, Faisalabad
anwarsulehri73@hotmail.com

JURNAL 2

Dasa et al. BMC Psychiatry (2019) 19:82
https://doi.org/10.1186/s12888-019-2042-6

BMC Psychiatry

RESEARCH ARTICLE Open Access

Prevalence and associated factors of depression among tuberculosis patients in Eastern Ethiopia

Tamirat Tesfaye Dasa[1*], Aklilu Abrham Roba[1], Fitsum Weldegebreal[1], Frehiwot Mesfin[1], Abiyot Asfaw[1], Habtamu Mitiku[1], Zelalem Teklemariam[1], Bahubali Jinnappa Geddugol[1], Mahantash Naganuri[1], Hilina Befikadu[2] and Eden Tesfaye[3]

Abstract

Background: Depression among tuberculosis patients, especially in settings with low economic status is common. Screening for depression in all levels of health facilities can identify patients who need support and treatment for depression.

Objective: The aim of this study was to assess the prevalence and associated factors of depression among tuberculosis patients in Eastern Ethiopia.

Methods: An institutional based cross-sectional study was conducted among 403 tuberculosis patients attending in eleven tuberculosis treatment centers in eastern Ethiopia from February to July 2017. Depression was measured using the Patient Health Questionnaire. Data was collected consecutively until the required sample size was obtained. Tuberculosis patients who were under anti tuberculosis treatments for more than one month were included. Data were analyzed with Statistical Package for Social Sciences (SPSS) version 20. Bivariate and multivariate logistic regression models were applied to identify independent factors for dependent variable depression and *P*-values < 0.05 considered statistically significant.

Results: A total of 403 tuberculosis patients were included in the study. The prevalence of depression among tuberculosis patients was 51.9% (95%CI = 42.7, 62.2%) with 34.2% were mild cases. In our logistic regression analysis, odds of developing depression among tuberculosis patients with age less than 25 years were 0.5(50% protective effect) [AOR = 0.5, 95% CI 0.26–0.99] where as patients with a monthly income within the 25thpercentile were four times higher odds to have depression [AOR = 3.98, 95% CI: 2.15–7.39].

Conclusion: The prevalence of depression was high in this study. Age, low monthly income, the category of patients as "new tuberculosis treatment" and the first 3 months of treatment was associated with depression among tuberculosis patients. Health facilities should integrating mental health services with tuberculosis clinics, especially assessing and treating TB patients for depression, is vital.

Keywords: Depression, MDR/ TB patients, Comorbidity, Stress, Anxiety, Eastern Ethiopia

*Correspondence: tamirathenna@gmail.com
[1]Haramaya University, College of Health and Medical Sciences, P.OBox-235, Harar, Ethiopia
Full list of author information is available at the end of the article

Background

Depressionis a common mental disorder characterised by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration. It can be long-lasting or recurrent, substantially impairing an individual's ability to cope with daily life and can also lead to suicide. At a global level, over 300 million people are estimated to suffer from depression, equivalent to 4.4% of the world's population. In Ethiopia, a total of 4,480,113 people are estimated to suffer from depression, which is equivalent to 4.7% the total population [1]. The problem is highly reported from eastern Ethiopia. In one study, the magnitude depression was 14.9% among the adult population in Harari region, eastern Ethiopia [2].

People with tuberculosis (TB) are often suffer from depression [3, 4].The prevalence of depression among TB patients was reported variable from different studies which is in Nigeria(41.1%) [5], Cameron (61.1%) [6] andPakistan (56%) [7]. InEthiopia, the prevalence depression among TB patients was reported as 43.4% from Wolaita Sodo, South Ethiopia and 54% different areasSouth Ethiopia (13).Depression is more common in Multi drug resistant TB patients than other pulmonary TB patients [8].

Depression weakens the psychosocial welfare and results in negative treatment outcomes among TB patients [9, 10]. It can also negatively affects health-related quality of life of TB of patients [11]. In addition, TB patients with depressive symptoms have reduce social contact and ignore social responsibilities especially at the stage of coughing that leads to low self-esteem and hopelessness [12].

Several factors were associated with the occurrence of depression among TB patients. Human Immune deficiency Virus (HIV) infection, poor social support and perceived stigma have a higher risk of developing depression among TB patients [13–15]. Other risk factors-like side effects of the drugs, and the financial constraints, Older age, female sex, duration of illness, level of education were also identified [16, 17].

There was high prevalence report of TB from presumptive TB patients attending in Ethiopia [18]. However, there is a dearth of information on the comorbidity of depression with tuberculosis in eastern part of Ethiopia. Therefore, this study was tried to assess the magnitude of depression and associated factors among TB patients in eastern Ethiopia.

Methods and materials

Study setting

This study was conducted in eight hospitals and three health centers in eastern Ethiopia including Jugal, Hiwot Fana, Karamara, Dil Chora, Sabian, Haramaya, Deder and Chiro hospitals. The health centers were Number One, Legahare and Amir Nur. The study area has an urban, semi-urban and rural setting with diverse geo-climatic conditions that incorporate low, mid and high lands, and peoples with diverse lifestyles including farmers, agro-pastoralists, pastoralists and urban dwellers.

Study design and period

An institution-based cross-sectional study was conducted from February to July 2017.

Study population

Four hundred and three TB patients who were under anti TB treatments for more than one month (after started medication for month) were participated in this study. They have communication problems and had completed treatment were excluded.

Sample size and sampling technique

The sample size calculated by Open Epi version 3 online software with the following assumptions: population size (for finite population correction factor or fpc) (N) =1000,000, hypothesized frequency of outcome factor in the population (p) =54+/− 5 [17], margin of error 5, 95% CI, and non-response rate = 5%. The final calculated sample size including 5% non-response rate was 403 TB patients. Study participants were proportionally allocated for each health facilities according to patients flow by referred the previous year annual reports. TB patients that fulfilled the inclusion criteria were included in the study by consecutively. TB patients that fulfilled the inclusion criteria were selected by consecutive sampling techniques. All eligible TB patients were included to participate in the study until the required sample size obtained.

Study variables

Presence of depression among TB patients was our dependent variable. The independent variables included age, sex, residence, religion, ethnicity, marital status, occupational status, educational status, family size, TB treatment duration, type of medication, level of TB treatment and quality of life.

Operational definition

Percentile of income = (number of people behind of your income /total number of people in study income) × 100. That means (25^{th} percentile can be defined as the lowest income score that is greater than 25% of the income, for others like 50^{th} and 75^{th}).

Data collection

Data was collected in the local language of the patients, using face-to-face interviews, by 8 psychiatric nurses, in outpatient TB clinics, after informed voluntary and signed consent were obtained. Depression was measured

using the Patient Health Questionnaire (PHQ-9) and patients with a cut-off value of five or more [19] considered to have a depressive disorder.

Data collection instruments

Data was collected by structured interview questionnaire and it has two parts. The 1st part contains: sociodemographic characteristics of participants and clinical conditions; the 2nd part contains Patient Health Questionnaire-9 (PHQ-9) depression scale. Depression was assessed using (PHQ-9), questionnairewas prepared in English and translated to local languages (Amharic and Afan Oromo). (PHQ-9) scale has been formally validated in Ethiopia in threedifferent studiesat different setting [20, 21]. Measured using the score from PHQ-9, a nine-item depression-screening instrument that asks about the frequency of symptoms of depression in the past 2 weeks [11, 22]. Response categories of "not at all," "several days," "more than half the days," and "nearly every day" are given a score of 0 to 3. Summary scores ranged from 0 to 27. Depression was defined using a score of 10 or higher, a well-validated cut point used in health care settings [22].

Data processing and analysis

Data entered into Epi Data software version 3.1 and exported to SPSS version 20 for analysis. Descriptive statistics were used to describe the frequency, median, mean and standard deviation. The prevalence of depression was defined as the proportion of those TB patients with depression. Bivariate and multivariate logistic regression models were applied to identify independent factors for dependent variable, depression and *P*-values <0.05 considered statistically significant.

Results

Socio-demographic characteristics

A total of 403 TB patients participated in this study with response rate of 100%. Median age of the study participants was 30 years with a range of 7–74 yearsand with interquartile range of 18 years. Majority of TB patients were young adults and adolescents in age group less than 35 years (61.5%), Urban dweller (70.2%), married (53.6%) males in sex (59.3%) and without any formal education and attended only primary schools were (61.3%) and with family size. 67% (67%) of TB patients were newly diagnosed and 70% TB patients were on the treatment for more than 3 months (13.6%) were HIV positive.The prevalence among MDR-TB patients among TB patients was 24.8% (Table 1).

Table 1 Socio-demographic characteristics of participants attending TB clinics in health facilities of Eastern Ethiopia, 2017 (n = 403)

Characteristics		No.	%
Age	≤24	125	31.0
	25–34	123	30.5
	≥35	155	38.5
Gender	Male	239	59.3
	Female	162	40.7
Residence	Urban	283	70.2
	Rural	120	29.8
Marital status	Married	216	53.6
	Single	147	36.5
	Separated / Widowed	40	9.9
Educational status	No formal education	104	25.8
	Primary education	143	35.5
	Secondary and above	156	38.7
Occupations	Employed	56	13.9
	Private	131	32.5
	Student	69	17.1
	Farmer/Daily laborers	147	36.5
Family size	1–2	90	22.3
	3–5	205	50.9
	More than 5	108	26.8
Monthly income	25th percentile	124	30.8
	50th percentile	109	27.0
	75th percentile	170	42.2
Level of TB treatment	New treatment TB	272	67.5
	Retreatment and MDR- TB	131	32.5
TB treatment duration	< 3 months	119	29.5
	3–6 months	215	53.3
	> 6 months	69	17.1

Magnitude of depression

The prevalence of depression in people with TB using a cut-off value of five and above was 51.9% (95%CI = 42.7, 62.2%) (Table 2).

Factors associated with depression among TB patients

In Multivariate logistic regression analysis, we found out statistically significant associations between dependent and independent variables. Among tuberculosis patients age group less than 25 years, the odds of developing depression were 50% lower than those older than 35 years (50% protective effect not to develop depression) [AOR = 0.5, 95% CI 0.26–0.99]. Whereas patients with a monthly income fall in the 25th percentile were four times higher odds to have depression [AOR = 3.98, 95% CI: 2.15–7.39].Similarly, TB patients within the 25th to 50th percentile were twice as likely to develop depression [1.93, 95th CI 1.08–3.44) (Table 3).

Discussions

There were very limited studies that assessed the burden of depression among TB patients globally. When compared to the available evidences, magnitude of

Table 2 Depression scoring scale among in TB patients among Eastern Ethiopia, 2017($n = 403$)

Depression Categories	Scoring	Frequency	Percent (%)	95% Confidence Interval
No depression	0–4	194	48.1	[43.4, 52.9]
Mild depression	5–9	138	34.2	[30.38.7]
Moderate depression	10–14	60	14.9	[11.7,18.6]
Moderately severe depression	15–19	10	2.5	[1,4.2]
Severe depression	20–27	1	-	[0.0,0.7]
Total		403	100	

Table 3 Socio-demographic factors associated with depression among TB patients (AOR with 95% CI) in eastern Ethiopia from February to July 2017 ($n = 403$)

Variables	Categories	Depression		COR (95% CI)	P-Value	AOR (95% CI)	P-Value
		Yes	No				
Age	≤24	52	73	0.45 (0.28–0.73)	**0.001**	0.5 (0.26–0.99)	**0.047***
	25–34	62	61	0.64 (0.40–1.04)	007	0.58 (0.335–092)	0.05*
	≥35	95	60	1		1	
Residence	Urban	136	147	1.68 (1.09–259)	0019	0.82 (0.47–143)	0.11
	Rural	73	47	1		1	
Marital status	Married	125	91	1.52(0.77–299)	022	2 (0.93–44)	0.28
	Single	65	82	0.88(0.44–1.77)	071	1.8 (0.77–3.49)	0.076
	Separated / Widowed	19	21	1		1	
Educational status	No formal education	63	41	1.61(0.98–267)	006	0.69 (0.36–134)	0.08
	Primary education	70	73	1.01(0.64–1.59)	097	0.81 (0.47–139)	0.99
	Secondary and above	76	80	1		1	
Occupations	Gov't Employee/ NGO	29	27	0.61(0.33–1.13)	012	1.0 (046–2.29)	0.15
	Private/merchant	65	66	0.56(0.34–090)	002	0.72(0.39 131)	0.06
	Student	21	48	0.25(0.13–046)	**0.000**	025 (0.11–057)	**0.04***
	Farmer/ Housewife/ Daily laborers	94	53	1		1	
Family size	1–2	40	50	0.60(0.34–1.04)	070	0.66 (0.34–13)	0.12
	3–5	107	98	0.81(0.51–1.30)	038	1.0 (0.6–1.8)	0.29
	More than 5	62	46	1		1	
Monthly Income	25th percentile	80	44	2.42(1.50–389)	**0.000**	398 (2.15–739)	**0.000***
	50th percentile	56	53	1.40(0.87–228)	017	1.93 (1.08–344)	**0.026***
	75th percentile	73	97	1		1	
Level of TB treatment	New treatment TB	134	138	0.73(0.48–1.10)	**0.13**	0442 (0.24–083)	**0.010***
	Retreatment/MDR TB	75	56	1		1	
HIV status	HIV positive	28	27	0.96(0.54–1.69)	087	0.99 (0.51–192)	0.92
	HIV negative	181	167	1		1	
TB treatment duration	< 3 months	74	45	1.60(0.88–291)	013	3.86 (1.6–9.3)	**0.003***
	3–6 months	100	115	0.85(.49–145)	054	1.57 (0.72–34)	0.58
	> 6 months	35	34	1		1	

N B) *indicates a *p*-value < 0.05 which is statistically significant

depression in our study is comparable to most of sub-Saharan African studies but higher than other settings. This study revealed that 51.9% of TB patients have probable depression. The finding was comparable with other studies carried out in southern Ethiopia such as 43.4% in Wolayta zone [23], and 54% Gurage and Silte zone [24]. It is also similar with other studies conducted sub-Saharan Africa 49.4% in Angola [25] and 61.1% findings of the Southwest Region of Cameroon [26]. The prevalence of depression among TB patients in this study is slightly higher than other similar studies elsewhere like 35% in India [27], 19% in Turkey [28].

Severity of depression ranges from a mild form that may not need any medical treatment to the most severe presentations that may require thorough assessment and appropriate management. In this study, almost half of the TB patients were presented with mild to moderate depression while 2.7% have severe form that requires appropriate treatments. Diagnosing the severity may be important because individuals with advanced forms of depressions may be less likely to adhere to anti-TB drugs which increased risk of drug-resistance [11, 29], poorer quality of life and greater disability [11], lack of adherence to anti-TB treatment and Poor treatment outcomes including death.

In this study, age was found to be one of the risk factors for depression. As similar to another Ethiopian study [17], age less than 35 years was protective for depression among TB patients. This may be at younger age people may engage in different activities to earn money which may increase social interaction and most probably get support from colleagues or relatives. At older age, life in poor countries may be challenging as the habit of saving was low, engagement to economical activities may be stressful beside the challenges of tuberculosis like stigma, discrimination, anti-Tb side effects [30]. These stressful life events and chronicity of tuberculosis were associated with depression in studies conducted in Nigeria and Ethiopia [17, 31].

Low monthly income and depression were significantly associated in this study. Low income in TB patients has the adverse effect on depression. This is similar to a study conducted in China [32], South Africa [33], shanty towns in Lima [34]. In settings with a high burden of tuberculosis, the low income generated will result in difficulty of covering costs for treatment, even if the anti-TB drugs are provided freely. The expenses for additional nutritional needs, transportation and missed work days due to fatigue, chest pain and symptoms of tuberculosis result in lower earnings, and lower earnings will result in psychological distress due to the inability to satisfy the demands of the individual and their household [35].

We found that newly diagnosed patients for TB were associated with depression (aOR = 0.39 (0.21–074). This is similar to a study in Lima, capital city of Peru, in which depression was highly prevalent among newly diagnosed TB patients [34]. This may be associated with the sign and symptoms of TB especially during the first 3months in which patients are not familiar with the condition and psychological interventions are almost absent [17]. Another study indicated that being on retreatment for TB (aOR = 11.2, 95% CI: 5.2–31.1, $P < 0.001$) and having discontinued treatment (aOR = 8.2, 95% CI: 1.1–23.3, $P < 0.05$) were factors associated with having a higher chance of being depressed [36].

Tuberculosis patients are challenged by mental health problems too. It is difficult to them to lead socially and economically productive life with the health status currently they have due to social isolation [37], depression and an enormous economic burden [38–40]. Therefore, programs designed to control/eliminate tuberculosis in community setting at local, national or international level should also screen and manage depression in addition to financial and social support. For patients admitted to health institutions due to tuberculosis or its complication, it's better to screen for depression and treat it. This may improve treatment outcome and play a positive role in effort to control and eliminate tuberculosis.

Some limitations associated with this study include missing of some important variables not included in PHQ-9 tools such as substance use and smoking which are found to be associated with depression. From co-morbid diseases, only HIV was assessed. On the other hand, the included patients were at any stage of follow-up rather than a specific point in treatment in which true prevalence may be masked by the effect of treatment.

Conclusion

The burden of depression among tuberculosis patient is high (51.9%). Financial constraint, older age and new TB patients are risk to develop depression. Depression should be assessed in all TB treatment centres and health professionals should provide appropriate psychological and medical treatment.

Abbreviations

CI: Confidence Interval; DM: Diabetes Mellitus; HIV: Human Immune deficiency Virus; MDR/TB: Multidrug Resistant Tuberculosis; PHQ: Patients Health questionnaire; TB: Tuberculosis; WHO: world health organization

Acknowledgments

We thank the study participants for their cooperation in providing the necessary information. The staffs in all health facilities and the data collectors are also acknowledged for their supports during the study period. We would like to thank Haramaya University for financial support. Last, but not least, we thank Dr. Nicole Mohajer for editing the paper.

Author contributions

TTD, AAR, AA and FW designed the study, acquisition of the data, analysis and interpretation, drafting and critical revision and final approval of the manuscript. RM, HW, ZT, MN and BJG designed the study, acquisition of the data, drafting and critical revision and final approval of the manuscript. HB and ET designed the study, analysis and interpretation, critical revision and final approval of the manuscript. All authors read and approved the final manuscript.

Consent to publication
Not applicable

Funding
This work was supported by Haramaya University Office of Research Affairs by thematic code- HUGR-2016-02-02.

Availability of data and materials
All data pertaining to the findings are presented in this paper. However, the data can be obtained from the corresponding author at any time on request.

Ethics approval and consent to participate
Ethical clearance was obtained from the Institutional Health Research and Ethics Review Committee of Haramaya University, College of Health and Medical Sciences. Participants were informed about the purpose, benefits, risks, and the right to participate, refuse and withdraw from the study any time. Throughout the study period, the confidentiality of the data was strictly followed. Informed written and signed consent was obtained from all participants after the participant information sheet was read and/or they read it in their own language. All data collectors were provided information about depression for all participants after collecting data. After data analysis, medical registration numbers (MRN) of TB patients with severe depression were given to health personnel working in TB clinics in order to assess and manage depression. Finally, the finding was presented to all health facilities and responsible individuals to screendepression statues of TB patients in TB clinics.

Competing interests
All authors declared no conflicts of interest.

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Author details
[1]Haramaya University, College of Health and Medical Sciences, P.OBox-235, Hrar, Ethiopia. [2]Haramaya University, College of Social Sciences and Humanities, P.OBox-138, Dire Dawa, Ethiopia. [3]Haramaya University, College of Natural and Computational Sciences, P.OBox-138, Dire Dawa, Ethiopia.

Received: 14 August 2018 Accepted: 28 January 2019
Published online: 01 March 2019

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JURNAL 3

Hubungan Tingkat Depresi dengan Mekanisme Koping Penderita Tuberculosis Paru di Wilayah Puskesmas Andong Kabupaten Boyolali

Relationship between Depression Level and Coping Mechanism of Lung Tuberculosis Patients in Andong Health Center Boyolali Regency

Agung Nugroho [1], [illegible] [2], [illegible] [3]
[1] Mahasiswa Program Studi Sarjana Keperawatan
[illegible]@gmail.com
[2,3] Dosen Prodi Sarjana Keperawatan

ABSTRAK

Latar belakang: Penyakit tuberculosis paru masih menjadi penyakit yang utama di masyarakat dimana Indonesia menjadikan negara dengan jumlah kasus baru terbanyak kedua di dunia setelah India. Masalah utama pasien tuberculosis paru adalah munculnya rasa rendah diri, ketakutan, [illegible] yang mengarah terjadi timbulnya depresi. Salah satu faktor utama keberhasilan pengobatan tuberculosis paru adalah mekanisme koping yang baik pada pasien terhadap proses pengobatan tersebut, dimana salah satu faktor yang berhubungan dengan mekanisme koping pasien tuberculosis paru adalah kondisi psikologis pasien. Tujuan penelitian ini adalah untuk mengetahui hubungan antara tingkat depresi dengan mekanisme koping penderita tuberculosis paru di wilayah Puskesmas Andong Kabupaten Boyolali.

Metode penelitian: Desain yang digunakan adalah kuantitatif dengan pendekatan cross sectional. Populasi penelitian adalah penderita tuberkulosis paru di Puskesmas Andong sebanyak 43 penderita, sedangkan sampel penelitian sebanyak 43 pasien dengan teknik sampling *total sampling*. Pengumpulan data penelitian menggunakan kuesioner, sedangkan analisis data penelitian menggunakan uji *Chi Square*.

Hasil penelitian: Terdapat hubungan antara tingkat depresi dan mekanisme koping penderita penyakit tuberculosis paru di wilayah Puskesmas Andong Kabupaten Boyolali yaitu semakin tinggi tingkat depresi pasien, maka mekanisme kopingnya cenderung maladaptive (p= 0,016).

Saran: Petugas puskesmas diharapkan melakukan langkah-langkah menurunkan tingkat depresi tersebut, misalnya dengan memberikan motivasi dan peningkatan pengetahuan kepada pasien tuberculosis paru terhadap pola pengobatan dan tentang cara komunikasi pada pasien tuberculosis paru.

Kata kunci: pasien Tuberculosis paru, depresi, mekanisme koping
Referensi : 14 (1998 – 2014)

ABSTRACT

Background: Tuberculosis is still the main disease in the community where Indonesia is a country with the second largest number of new cases in the world after India. The main problem of Tuberculosis patients is the emergence of feelings of inferiority, stress, fear and others that lead to the onset of depression. One of the main factors in the success of pulmonary Tuberculosis treatment is a good coping mechanism for patients with the trial process, where one of the factors associated with the coping mechanism of pulmonary Tuberculosis patients is the psychological condition of the patient. The purpose of this study was to analyze the relationship between the level of depression and the coping mechanism of pulmonary tuberculosis patients in the Andong Health Center area of Boyolali Regency.

Method: The design used is quantitative with cross sectional approach. The population of the study were 43 patients with pulmonary tuberculosis in Andong Community Health Center, while the study sample consisted of 43 patients with a total sampling sampling technique. Data collection research uses a questionnaire, while the analysis of research data using Chi Square test.

Results: There was a relationship between the level of depression and the coping mechanism of participants in pulmonary Tuberculosis disease in the Andong Health Center area of Boyolali Regency, namely the higher the level of depression of patients, the coping mechanism tended to be maladaptive (p = 0.016).

Recomendation: Puskesmas officers are expected to take steps to reduce the level of depression, for example by providing motivation and increasing knowledge to pulmonary Tuberculosis patients on the pattern of treatment and possible cure in pulmonary Tuberculosis patients.

Keywords: Tuberculosis patients, depression, coping mechanism

Reference : 19 (1998 – 2018)

I. PENDAHULUAN

Penyakit tuberculosis paru merupakan penyakit menular yang dapat menimbulkan berbagai masalah yang sangat kompleks dan luas, dimana masalah yang ditimbulkan bukan hanya dilihat dari segi medis saja, tetapi bisa meluas sampai kepada masalah ekonomi, sosial budaya, keamanan, dan ketahanan sosial serta masalah psikologis. Penyakit tuberculosis paru juga menimbulkan dampak atau masalah baik pada penderita sendiri, keluarga, dan masyarakat serta pada negara (Depkes RI, 2011). Data WHO dalam *Global Tuberculosis Control* menyatakan bahwa terdapat 9,4 juta insiden tuberculosis paru dengan 1,1 juta penderita meninggal dunia. Jumlah insiden tuberculosis paru tertinggi terdapat di Asia Tenggara sebanyak 35 %

dari insiden total Tuberculosis paru di dunia dengan prevalensi 280 per 100.000 penduduk. Tuberkulosis paru merupakan penyakit yang menjadi perhatian global. Sesuai dengan tujuan pembangunan berkelanjutan 2030, WHO menargetkan untuk menurunkan kematian akibat tuberkulosis sebesar 90% dan menurunkan insidens sebesar 80% pada tahun 2030 dibandingkan dengan tahun 2014 (WHO, *Global Tuberculosis Control*, 2014).

Angka kejadian tuberculosis paru BTA positif Kabupaten Boyolali pada Tahun 2016 dan 2017 menunjukkan angka sebesar 504 dan 534 kasus secara berurutan dan terjadi kenaikan penderita tuberculosis paru positif sebanyak 30 kasus atau 6 %. Puskesmas Andong pada rentang tahun 2016 dan 2017 ditemukan kasus penderita tuberculosis paru BTA positif sebanyak 22 kasus, meningkat 55 % dari 34 kasus pada tahun 2017 (Profil Kesehatan Boyolali, 2017).

Masalah terhadap diri penderita penyakit tuberculosis paru pada umumnya merasa rendah diri, merasa tertekan batin, takut terhadap keluarga dan masyarakat sekitarnya, sehingga penderita cenderung untuk hidup sendiri, apatis (masa bodoh), bersikap ketergantungan pada orang lain, kehilangan peran dimasyarakat (dikucilkan), kehilangan mata pencaharian atau pekerjaan, tidak mau sekolah (pada anak- anak), segan berobat karena malu pada masyarakat sekitarnya serta adanya perilaku keluarga dan masyarakat mengucilkan atau menyingkirkan penderita tuberculosis paru mengakibatkan stres sampai munculnya depresi yang akan memperlambat penyembuhan (Depkes RI, 2011).

Depresi merupakan gangguan kejiwaan pada alam perasaan (*affective/ mood disorder)* yang ditandai dengan gejala kemurungan, kelesuan, tidak ada gairah hidup, merasa tidak berguna, kekecewaan yang mendalam, rasa putus asa, pikiran kematian, dan keinginan bunuh diri (Hawari, 2010). Menurut *American Psychiatric Association* (2000), seseorang dapat dikatakan menderita gangguan depresi jika lima (atau lebih) gejala depresi telah ada selama periode dua minggu dan merupakan perubahan dari keadaan biasa seseorang. Depresi yang dialami oleh penderita tuberculosis paru akan mendorong penderita tersebut untuk melakukan adaptasi dengan cara mengatasi masalah yang muncul dengan menggunakan strategi pemecahan masalah berupa mekanisme koping (Depkes RI, 2011).

Mekanisme koping adalah berbagai usaha yang dilakukan individu untuk menanggulangi depresi yang dihadapinya (Stuart dan Sundeen, 1998). Mekanisme koping yang dilakukan oleh individu atau seseorang dapat berupa mekanisme koping berfokus pada masalah (*problem focused coping*), meliputi usaha untuk memperbaiki suatu situasi dengan membuat perubahan atau mengambil beberapa tindakan dan usaha segera untuk mengatasi ancaman pada dirinya, antara lain : koping aktif, *planning*, *suppresion of competition activities*, *restraint coping*, dan *seeking social support for instrumental reason*. Mekanisme koping yang kedua mekanisme koping berfokus pada emosi (*emotional focused coping*), meliputi usaha-usaha dan gagasan yang mengurangi distres emosional. Mekanisme koping berfokus pada emosi tidak memperbaiki situasi tetapi seseorang sering merasakan lebih baik (Kozier, 2004). Mekanisme

koping yang dilakukan oleh seseorang dipengaruhi oleh peran dan hubungannya, gizi dan metabolisme, tidur dan istirahat, rasa nyaman dan aman, pengalaman masa lalu dan tingkat pengetahuan seseorang (Hasibuan, 2012).

Berdasarkan hasil penelitian Basuki (2013) menjelaskan ada hubungan yang bermakna antara tingkat depresi dengan kepatuhan minum obat, dimana semakin berat tingkat depresi maka semakin rendah kepatuhan minum obat penderita tuberculosis paru. Nurkhalesa (2014) didapatkan *significancy* lama pengobatan tuberculosis paru dengan tingkat depresi adalah terdapat hubungan lama pengobatan Tuberkulosis paru dengan tingkat depresi pada penderita tuberculosis paru. Hasil penelitian Pratiwi (2016) menjelaskan bahwa terdapat hubungan yang signifikan antara dukungan sosial keluarga dengan mekanisme koping. Hasil penelitian Ramadhan (2012) menggambarkan bahwa mekanisme koping merupakan faktor penting bagi penderita tubercolosis paru dan terdapat hubungan positif antara tingkat pengetahuan dengan mekanisme koping penderita tuberculosis paru.

Data yang diperoleh dari hasil studi pendahuluan dengan melakukan wawancara kepada petugas di Puskesmas Andong dan 20 orang penderita tuberculosis paru, dijelaskan bahwa informasi dari petugas di Puskesmas Andong reaksi penerimaan terhadap penyakit dari beberapa orang yang baru mengetahui menderita tuberculosis paru seperti sedih dan menyangkal yang berakibat memunculkan depresi. Hal tersebut dapat menyebabkan pasien tidak mau menjalani pengobatan sampai sembuh berakibat pengobatan gagal yang memunculkan tuberculosis paru kategori 2 bahkan tuberculosis paru MDR.

II. METODOLOGI PENELITIAN

Jenis penelitian ini mengunakan desain kuantitatif dengan pendekatan *cross sectional*. Populasi penelitian adalah penderita tuberkulosis paru di Puskesmas Andong sebanyak 43 penderita, sedangkan sampel penelitian sebanyak 43 pasien dengan teknik sampling *total sampling*. Pengumpulan data penelitian menggunakan kuesioner, sedangkan analisis data penelitian menggunakan uji *Chi Square*. Penelitian ini dilakukan pada tanggal 08 – 31 Oktober 2019 di wilayah kerja Puskesmas Andong Kabupaten Boyolali.

III. HASIL DAN PEMBAHASAN

A. Hasil Penelitian

1. Analisis Univariat

a. Karakteristik demografi responden

No	Umur	Frekuensi	Persentase (%)
1.	20 – 40 tahun	14	33
2.	41 – 65 tahun	29	67
	Total	43	100

No	Jenis kelamin	Frekuensi	Persentase (%)
1.	Perempuan	11	26
2.	Laki-laki	32	74
	Total	43	100

No	Pekerjaan	Frekuensi	Persentase (%)
1.	Buruh	21	49
2.	Swasta	11	26
3.	Tani	9	21
4.	Ibu rumah tangga (IRT)	2	5
	Total	43	100

No	Pendidikan	Frekuensi	Persentase (%)

1.	SD	5	12
2.	SMP	26	65
3.	SMA	10	23
	Total	43	100

No	Status Perkawinan	Frekuensi	Persentase (%)
1.	Duda/Janda	1	2
2.	Menikah	42	98
	Total	43	100

Karakteristik demografi responden menunjukkan sebagian besar responden berumur 41 - 65 tahun keatas yaitu sebanyak 39 responden (67%) dan 20 – 40 tahun sebanyak 14 responden (33%). Karakteristik jenis kelamin responden menunjukkan distribusi tertinggi adalah laki-laki yaitu sebanyak 32 responden (74%) dan perempuan sebanyak 11 responden (26%). Karakteristik pekerjaan responden menunjukkan distribusi tertinggi adalah buruh yaitu sebanyak 21 responden (49%) dan terendah adalah Ibu rumah tangga sebanyak 2 responden (5%). Karakteristik pendidikan responden menunjukkan distribusi tertinggi adalah SMP yaitu sebanyak 26 responden (65%) dan terendah adalah SD sebanyak 5 responden (12%).

Karakteristik status perkawinan responden menunjukkan distribusi tertinggi adalah masih menikah atau masih memiliki pasangan hidup yaitu sebanyak 42 responden (98%) dan sisanya 1 responden (2%) berstatus duda/janda.

b. Gambaran tingkat depresi

No	Tingkat Depresi	Frekuensi	Persentase (%)
1.	Depresi	28	65
2.	sedang Depresi berat	15	35
	Total	43	100

Gambaran tingkat depresi responden menunjukkan distribusi tertinggi adalah depresi sedang yaitu sebanyak 28 responden (65%) dan depresi berat sebanyak 15 responden (35%).

c. Gambaran mekanisme koping

No	Mekanisme Koping	Frekuensi	Persentase (%)
1.	Maladaptif	18	42
2.	Adaptif	25	58
	Total	43	100

Gambaran mekanisme koping responden menunjukkan distribusi tertinggi adalah adaptif, yaitu sebanyak 25 responden (58%) dan maladaptif sebanyak 18 responden (42%).

2. Analisis Bivariat

Tingkat Depresi	Mekanisme Koping				
	Maladaptif	Adaptif	Total		
	Frek	Frek	Frek		
Sedang	8	20	28	χ^2_{hit}	=5,824
	29%	71%	100%		
Berat	10	5	15	*p-value*	=0,016
	67%	33%	100%		
Total	18	25	43		
	42%	58%	100%		

Hasil uji Chi Square diperoleh nilai χ^2_{hitung} sebesar 5,824 dengan nilai signifikansi (*p-value*) 0,016. Nilai signifikansi uji (*p-value*) lebih kecil dari 0,05 atau 0,016 < 0,05 maka keputusan uji adalah H_0 ditolak, yang berarti terdapat hubungan depresi terhadap mekanisme koping pasien tuberculosis paru di Puskesmas Andong Boyolali.

Selanjutnya berdasarkan tabulasi silang hubungan depresi terhadap mekanisme koping pasien tuberculosis paru di Puskesmas Andong Boyolali, menunjukkan adanya kecenderungan bahwa semakin tinggi tingkat depresi, maka mekanisme koping responden semakin maladaptif.

Hal tersebut ditunjukkan pada responden dengan tingkat depresi sedang sebagian besar memiliki mekanisme koping yang adaptif yaitu sebanyak 20 responden (71%), sedangkan pada responden dengan tingkat depresi berat sebagian besar yaitu 10 responden (67%) memiliki mekanisme koping maladatif.

B. Pembahasan

1. Karakteristik Demografi Responden Penderita Tuberculosis paru

Hasil penelitian diperoleh karakteristik umur responden sebagian besar berumur 51 tahun keatas (40%), selanjutnya 20 – 40 tahun dan 41 – 50 tahun yaitu masing-masing 30%. Penelitian ini menunjukkan bahwa semua responden merupakan kelompok usia produktif dan kelompok lansia. Hal ini disebabkan pada usia yang produktif seseorang akan cenderung lebih aktif dalam berinteraksi sosial sehingga keterpaparan terhadap infeksi tuberculosis paru akan semakin besar pula. Penyakit tuberculosis paru banyak terjadi di usia yang produktif seiringnya orang usia produktif bersosialisasi dan berkomunikasi dengan orang banyak, sehingga peluang untuk tertular droplet (percikan dahak) dari orang sekitarnya semakin besar. Hasil penelitian ini mendukung pernyataan Ratnasari (2012) yang mengungkapkan dari hasil penelitian yang dilakukannya, bahwa responden dalam penelitiannya merupakan kebanyakan terjadi pada usia yang produktif (82%) dibandingkan usia yang non produktif (18%).

Karakteristik jenis kelamin responden sebagian besar adalah laki-laki yaitu sebanyak 32 responden (74%) dan perempuan sebanyak 11 responden (26%). Penelitian ini menunjukkan bahwa laki-laki memiliki risiko lebih tinggi mengalami penyakit tuberculosis paru dibandingkan perempuan. Besarnya resiko penyakit tuberculosis paru pada laki-laki mungkin disebabkan laki-laki memiliki mobilitas lebih tinggi daripada perempuan, sehingga laki-laki berada berbagai lingkungan, dimana dimungkinkan lingkungan yang didatangi oleh laki-laki terpapar oleh virus tuberculosis paru. Sebagian besar responden laki-laki mempunyai riwayat merokok. Hasil penelitian ini sesuai dengan pernyataan Bachtiyar (2015) yang dalam penelitiannya diperoleh jenis kelamin laki laki (79%) juga memiliki persentase yang lebih tinggi dibandingkan perempuan (22%).

Karakteristik pekerjaan responden sebagian besar adalah buruh (49%), selanjutnya swasta (26%), tani (21%) dan ibu rumah tangga (5%). Pada penelitian ini menunjukkan bahwa tidak terdapat kecenderungan pekerjaan tertentu yang dapat menyebabkan timbulnya penyakit tuberculosis paru. Kondisi ini disebabkan bahwa terpaparnya bakteri tuberculosis paru tidak hanya berfokus ditempat para responden bekerja saja melainkan terpaparnya infeksi tuberculosis paru ini bisa dimana saja. Selain itu juga kemungkinan ada faktor lain selain pekerjaan yang dapat terjadinya penyebaran infeksi tuberculosis paru seperti tempat tinggal di lingkungan padat hunian. Ada beberapa hal yang perlu diperhatikan sehubungan dengan penularan tuberculosis paru adalah terkait perumahan yang terlalu padat atau kondisi kerja yang buruk. Rumah atau ruangan yang terlalu padat penghuninya akan kekurangan O2 sehingga menyebabkan menurunnya daya tahan dan memudahkan terjadinya penularan penyakit. Jadi dari hasil penelitian dapat dilihat bahwa persebaran infeksi tuberculosis paru tidak didominasi hanya ditempat para responden bekerja

tetapi responden yang tidak bekerja namun memiliki rumah atau ruangan yang padat hunian pun dapat menjadi salah satu faktor penyebarannya infeksi tuberculosis paru. Hasil penelitian ini sebagaimana yang disebutkan oleh Ratnasari (2012) bahwa tidak terdapat perbedaan yang terlalu jauh antara responden yang bekerja (56%) dengan responden yang tidak berkerja (44%).

Karakteristik pendidikan responden sebagian besar adalah SMP (65%), selanjutnya SMA (23%) dan sisanya SD (12%). Hasil penelitian ini menunjukkan bahwa sebagian besar responden memiliki tingkat pendidikan yang rendah. Notoatmodjo (2010) menjelaskan bahwa tingkat pendidikan seseorang berkaitan dengan pengetahuan tentang kesehatan. Ketika pendidikan responden rendah, maka pemahaman atau pengetahuan responden tentang penyakit tuberculosis paru juga rendah, khususnya tentang pola penularan penyakit tuberculosis paru. Hasil penelitian ini mendukung apa yang disebutkan oleh Novitasari (2014), bahwa responden dalam penelitiannya merupakan kebanyakan terjadi pada pendidikan rendah (79%) dibandingkan dengan yang memiliki pendidikan tinggi (21%).

Karakteristik status perkawinan responden menunjukkan distribusi tertinggi adalah masih menikah atau masih memiliki pasangan hidup (98%) dan sisanya (2%) berstatus duda/janda. Status perkawinan responden sebagian besar menunjukkan masih menikah atau masih memiliki pasangan hidup. Kondisi ini menunjukkan bahwa kemungkinan mendapatkan dukungan dari orang lain khususnya dari keluarga cukup besar kepada responden. Dukungan yang diperoleh dari keluarga akan membantu responden lepas dari kegelisahan terhadap kondisi dirinya, sehingga dapat menekan timbulnya depresi pada responden. Pentingnya dukungan sosial atau keluarga terhadap pasien tuberculosis paru sebagaimana dikemukakan oleh Pratiwi (2016) bahwa pasien penyakit kronis seperti tuberculosis perlu mendapat dukungan sosial lebih dari orang-orang di sekitarnya, dengan dukungan sosial dari orang-orang tersebut secara tidak langsung dapat menurunkan beban psikologi.

2. Gambaran Tingkat Depresi Penderita Tuberculosis paru

Tingkat depresi responden menunjukkan distribusi tertinggi adalah depresi sedang (65%) dan depresi berat (35%). Hasil penelitian ini menunjukkan bahwa sebagian besar responden memiliki tingkat depresi, yaitu sedang ke berat. Respon penderita tuberculosis paru saat didiagnosis sangat beragam, diantaranya merasa penyakit yang diderita sangat berat ditandai dengan napas sesak sehingga menganggap gambaran dirinya bermasalah. Respon kedua responden merasa harapan untuk sembuh sangat kecil sehingga mempengaruhi ideal diri. Sebagian besar penderita berjenis kelamin laki-laki merasa sudah tidak bisa memberikan nafkah bagi keluarga dikarenakan lamanya proses pengobatan dan hanya bisa istirahat di rumah menunggu kesembuhan, sehingga peran sebagai kepala keluarga tidak bisa dijalankan. Respon lainnya takut keluarga dan masyarakat akan tahu kalau responden menderita tuberculosis paru yang merupakan penyakit menular yang dapat menyebabkan harga diri yang rendah saat bergaul dengan keluarga dan masyarakat. Respon selanjutnya berupa perasaan ketidakmapuan mengurus dirinya sendiri saat menjalani pengobatan tuberculosis paru berakibat terganggunya identitas diri responden. Depresi yang

dialami oleh responden lebih disebabkan oleh keterkejutan responden terhadap kenyataan bahwa dirinya mengalami penyakit tuberculosis paru. Selanjutnya adalah bahwa adanya ketakutan yang dialami oleh responden terhadap dampak penyakit tuberculosis paru bagi kehidupan responden di masa yang akan datang.

Penyakit tuberculosis paru menimbulkan permasalahan seperti terapi yang lama dan kompleks, komplikasi penyakit serta banyak kekhawatiran lain yang dapat memicu munculnya depresi. Tuberculosis Paru memerlukan pengobatan selama 6-8 bulan. Pengobatan tersebut memerlukan waktu yang lama maka penderita tuberculosis paru sangat mungkin mengalami depresi sehingga selain diperlukan pengobatan secara medis juga diperlukan dukungan sosial dari keluarga maupun orang di sekitarnya (Issa, Yusuf dan Kurangga, 2012).

Gangguan depresi pada penderita tuberculosis paru dapat timbul akibat berbagai faktor baik internal maupun eksternal, seperti dukungan keluarga yang kurang, adanya halangan bagi penderita dalam melakukan aktivitas sehari-hari serta halangan untuk berinteraksi dengan masyarakat. Hal ini juga bisa disebabkan oleh faktor-faktor lain seperti adanya perasaan menolak kenyataan mengenai penyakit tuberculosis paru dan akibat dari stigma masyarakat yang negatif mengenai tuberculosis (Adem, Markos, and Mohammed, 2013).

Penelitian ini menunjukkan bahwa tingkat depresi responden sebagian besar adalah sedang dan berat. Kondisi ini dapat disebabkan adanya faktor jenis kelamin responden dan tingkat pendidikan responden. Jenis kelamin responden adalah laki-laki, dimana pada masyarakat Indonesia umumnya dan Jawa khususnya merupakan sebagai tulang punggung keluarga dalam mencari nafkah bagi keluarga. Adanya penyakit tuberculosis paru yang dialami oleh kaum laki-laki serta keharusan menjalani pengobatan tuberculosis paru yang memakan waktu cukup lama, menyebabkan terhambatnya produktivitas laki-laki dalam bekerja atau mencari nafkah bagi keluarga. Kondisi ketidakmampuan atau keterhambatan dalam mencari nafkah bagi keluarga tersebut, menyebabkan timbulnya depresi pada pasien laki-laki penderita tuberculosis paru. Hal ini sebagaimana ditunjukkan dalam penelitian Khamdi (2014) yang meneliti tingkat depresi pada pria penderita tuberculosis di rumah sakit paru di Kabupaten Jember. Penelitian tersebut menunjukkan bahwa sebagian besar responden laki-laki penderita tuberculosis paru memiliki tingkat depresi ringan (58%), sedang (24%) dan berat (2%).

Faktor lain yang dianggap menimbulkan tingkat depresi responden yang cukup tinggi adalah faktor tingkat pendidikan. Tingkat pendidikan berhubungan dengan kemampuan individu dalam memahami suatu situasi. Pemahaman suatu situasi secara umum dilandasi dari pengetahuan yang dimiliki oleh individu tersebut. Tingkat pendidikan responden yang sebagian besar rendah menyebabkan responden kurang memahami langkah-langkah pengobatan yang harus dijalani dan peluang kesembuhan yang dapat diraihnya. Ketidak tahuan yang dialami oleh responden menyebabkan timbulnya kekhawatiran terhadap kondisi penyakitnya dan akan berdampak pada timbulnya depresi. Hal ini sebagaimana ditunjukkan dalam penelitian Khamdi (2014) yang menyebutkan bahwa salah satu faktor yang berhubungan dengan munculnya depresi pada laki-

laki penderita tuberculosis paru adalah tingkat pendidikan yang rendah.

3. Gambaran Mekanisme Koping Penderita tuberculosis Paru

Mekanisme koping responden sebagian besar adalah adaptif (58%) dan maladaptif (42%). Hasil penelitian ini menunjukkan walaupun sebagian besar responden memiliki mekanisme koping yang adaptif, namun jumlah responden yang memiliki mekanisme koping maladaptif cukup tinggi. Mekanisme koping adaptif yang dimiliki oleh responden, dalam penelitian ini bersumber dari adanya pengetahuan responden tentang pengobatan tuberculosis paru dan adanya harapan sembuhterhadap penyakitnya, selain itu adanya dukungan keluarga yang baik, membantu responden untuk membentuk mekanisme koping adaptif. Sedangkan pada responden yang memiliki mekanisme koping maladaptif lebih banyak disebabkan responden bingung terhadap apa yang harus dikerjakannya dalam mengatasi penyakitnya tersebut, dimana kondisi ini disebabkan oleh masih kurangnya pengetahuan yang dimiliki responden tentang penyakit tuberculosis paru dan pengobatannya.

Penelitian ini menunjukkan bahwa sebagian besar responden memiliki mekanisme koping yang adaptif, ditunjukkan dengan selalu bertanya kepada petugas puskesmas mengenai penayakit yang diderita, meminum obat secara teratur sesuai dengan dosis yang diberikan serta selalu datang sesuai jadwal kunjungan untuk pengambilan obat dan peningkatan berat badan responden. Hal ini sejalan dengan penelitian Yunie dan Desi (2013) mekanisme koping yang adaptif ditunjukan dengan upaya pasien untuk mencoba berbicara dengan orang lain, mencoba mencari informasi yang lebih banyak tentang masalah yang sedang dihadapi, menghubungkan situasi atau masalah yang sedang dihadapi dengan kekuatan supranatural seperti melakukan kegiatan ibadah dan berdoa, melakukan latihan fisik untuk mengurangi ketegangan, membuat berbagai alternatif tindakan untuk megurangi situasi, dan mengambil pelajaran atau pengalaman masa lalu.

Pasien yang melakukan mekanisme koping adaptif merupakan pasien yang telah terbiasa dengan proses terapi tuberculosis paru dan juga mendapatkan dukungan keluarga yang baik dimana peran yang penting dalam memberikan pandangan atau respon yang adaptif bagi pasien, sejalan dengan penelitian (Yemima,dkk, 2013).

Penelitian ini menunjukkan masih adanya 42% responden yang memiliki mekanisme koping maladaptif. Kondisi ini salah satunya disebabkan adanya faktor tingkat pendidikan yang rendah pada pasien. Tingkat pendidikan yang rendah, menyebabkan kemampuan responden dalam memahami kondisi kesehatannya menjadi berkurang, khususnya dalam pola pengobatan pasien tuberculosis paru. Kurang pahamnya responden dengan penyakit tuberculosis paru dikarenakan tingkat pendidikan rendah terhadap pola perawatan tuberculosis paru yang menyebabkan respon mereka dalam pengobatan tuberculosis paru menjadi gagal atau rendah. Hal ini sebagaimana ditunjukan dalam penelitian Bombay (2016) yang menunjukkan bahwa salah satu faktor yang berhubungan dengan mekanisme koping maladaptif pada gagal ginjal kronik adalah tingkat pendidikan pasien yang rendah.

4. Hubungan Antara Tingkat Depresi Dengan Mekanisme Koping Pasien Tuberculosis Paru Di Puskesmas Andong Boyolali

Hasil uji Chi Square diperoleh nilai χ^2_{hitung} sebesar 5,824 dengan nilai signifikansi (*p-value*) 0,016, maka keputusan uji adalah H_0 ditolak, yang berarti terdapat hubungan depresi terhadap mekanisme koping pasien tuberculosis paru di Puskesmas Andong Boyolali, dimana terdapat kecenderungan bahwa semakin tinggi tingkat depresi, maka mekanisme koping responden semakin maladaptif. Faktor emosional seperti kesadaran, stres dan gangguan psikologis berkontribusi terhadap mekanisme koping seseorang dengan penyakit kronis (Oderberg, 2013). Intensitas serangan depresi yang tinggi pada pasien tuberculosis paru yang menjalani pengobatan dan respon penerimaan depresi yang kurang baik berkorelasi terhadap kemampuan mengatasi masalah (mekanisme koping) pasien.

Hasil penelitian ini yaitu adanya hubungan depresi dengan mekanisme koping pasien tuberculosis paru, sejalan dengan penelitian Sari, Elita dan Nova (2011) yang menunjukkan bahwa ada hubungan tingkat stres dengan strategi koping pasien yang menjalani hemodialisis. Penelitian lain yang dilakukan oleh Bombay (2016) yang meneliti hubungan tingkat depresi dengan mekanisme koping pasien gagal ginjal kronik menyimpulkan bahwa terdapat hubungan yang kuat tingkat depresi dengan mekanisme koping pasien gagal ginjal kronik. Penelitian selanjutnya dilakukan oleh Yunie dan Desi (2014) yang meneliti faktor-faktor yang berkorelasi dengan mekanisme koping pasien CKD yang menjalani hemodialisis. Sehingga disimpulkan bahwa depresi memiliki korelasi terhadap mekanisme koping pasien CKD yang menjalani hemodialisis.

Selanjutnya berdasarkan tabulasi silang hubungan depresi terhadap mekanisme koping pasien tuberculosis paru di Puskesmas Andong Boyolali, menunjukkan adanya kecenderungan bahwa semakin tinggi tingkat depresi, maka mekanisme koping responden semakin maladaptif. Hal tersebut ditunjukkan pada responden dengan tingkat depresi sedang sebagian besarmemiliki mekanisme koping yang adaptif yaitu sebanyak 20 responden (71%), sedangkan pada responden dengan tingkat depresi berat sebagian besar yaitu 10 responden (67%) memiliki mekanisme koping maladatif.

IV. KESIMPULAN DAN SARAN

A. Kesimpulan

Berdasarkan hasil penelitian yang telah dilakukan, maka dapat ditarik kesimpulan sebagai berikut :

1. Karakteristik pasien tuberculosis paru di wilayah Puskesmas Andong Kabupaten Boyolali sebagian besar adalah berusia 30-50 tahun (40%), berjenis kelamin laki-laki (74%), bekerja sebagai buruh (49%), memiliki pendidikan SMP (65%), dan berstatus masih menikah (98%).
2. Tingkat depresi pasien tuberculosis paru di wilayah Puskesmas Andong Kabupaten Boyolali sebagian besar adalah depresi sedang (65%).
3. Mekanisme koping pasien tuberculosis paru di wilayah Puskesmas Andong Kabupaten Boyolali sebagian besar adalah adaptif (58%).
4. Terdapat hubungan antara tingkat depresi dan mekanisme koping penderta penyakit tuberculosis paru di wilayah Puskesmas Andong Kabupaten Boyolali, dengan *p-value = 0,016* yaitu semakin tinggi tingkat

depresi pasien, maka mekanisme kopingnya cenderung maladaptif.

B. Saran

Berdasarkan hasil penelitian yang diperoleh, maka disarankan beberapa hal yang bisa menjadikan pedoman dan tindak lanjut dari hasil penelitian ini.

1. Bagi institusi pendidikan

   Hasil penelitian ini dapat dapat dijadikan salah satu referensi khususnya tentang hubungan tingkat depresi terhadap mekanisme koping pasien tuberculosis paru.

2. Bagi pelayanan kesehatan

   Hasil penelitian menunjukkan bahwa tingkat depresi pasien tuberculosis paru di wilayah Puskesmas Andong Kabupaten Boyolali masih cukup tinggi, hal ini menjadi masukan bagi petugas puskesmas untuk melakukan langkah-langkah menurunkan tingkat depresi tersebut, misalnya dengan memberikan motivasi dan peningkatan pengetahuan kepada pasien tuberculosis paru terhadap pola pengobatan dan kemungkinan kesembuhan pada pasien tuberculosis paru.

3. Bagi pasien tuberculosis paru

   Pasien tuberculosis paru diharapkan senantiasa meningkatkan motivasi mereka untuk mau memeriksakan dirinya kepada petugas kesehatan, sehingga dengan sering memeriksakan diri atau memeriksakan diri secara rutin, perkembangan kesehatan pasien dapat terpantau, serta pasien akan mendapatkan informasi-informasi dari petugas kesehatan yang dapat meningkatkan pemahaman pasien terhadap pola perawatan pasien tuberculosis paru yang baik, sehingga proses penyembuhan dapat berjalan lebih maksimal.

4. Bagi peneliti lain

   Peneliti-peneliti lain yang ingin meneliti dengan tema yang sama, diharapkan melakukan penelitian dengan faktor-faktor yang lain, misalnya faktor pengetahuan, sikap, perilaku dan lain sebagainya sehingga diketahui faktor apakah yang paling dominan berhubungan dengan mekanisme koping pasien tuberculosis paru.

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Jurnal 4

DEPRESI DAN STIGMA TB DENGAN KUALITAS HIDUP PASIEN TUBERKULOSIS PARU

Depression and TB Stigma with the quality of life of patients with pulmonary tuberculosis

Vika Endria[1], 'Sri Yona[2]
1. Vika Endria: Fakultas Ilmu Keperawatan Universitas Indonesia
2. Sri Yona: Departemen Keperawatan Medikal Bedah, Fakultas Ilmu Keperawatan Universitas Indonesia
Corresponding author: sriyona@ui.ac.id

ABSTRAK

Penyakit tuberkulosis paru dapat menimbulkan penurunan terhadap kualitas hidup pasien TB Paru. Beberapa faktor yang mempengaruhi hal tersebut adanya depresi yang dialami pasien TB Paru akibat proses penyakit dan stigma negatif terhadap penyakit tersebut. Tujuan penelitian ini untuk mengetahui hubungan depresi dan stigma dengan kualitas hidup pasien tuberkulosis paru yang menjalani pengobatan OAT. Penelitian ini merupakan penelitian kuantitatif dengan metode analitik korelatif yang menggunakan pendekatan desain *cross sectional*. Populasi target dalam penelitian ini adalah pasien tuberkulosis paru yang menjalani pengobatan OAT di poli paru RSUP Persahabatan. Teknik pengambilan sampling yang digunakan teknik *concecutive sampling*, dengan jumlah sampel sebanyak 96 responden. Data dianalisis dengan uji analisa univariat dan bivariat, hasil uji bivariat menggunakan *pearson* menunjukan hasil p = 0,000 (p < 0,05) Berdasarkan hasil tersebut terdapat adanya hubungan adepresi dan kualitas hidup serta stigma dan kualitas hidup pasien tuberkulosis paru. Hasil penelitian tersebut direkomendasikan untuk melakukan deteksi dini depresi dan stigma pada pasien poliklinik oleh perawat.

Kata Kunci : depresi, stigma, kualitas hidup, tuberkulosis,penyakit paru

ABSTRACT

Pulmonary tuberculosis disease can decrease the quality of life of patients with pulmonary tuberculosis. Several factors such as depression and stigma on TBC also influence the quality of life of TBC .The study aimed to identify relation between depression and stigma with quality of life of patients with tuberculosis cross sectional study was used, using consecutive sampling. 96 respondent involved in this study, with tuberculosis who have undertaking anti-tuberculosis medication in outpatient clinic at RSUP Persahabatan. The data was examined by univariate and bivariate analysis the result of bivariate analysis with pearson showed that p = 0,000 (p<0.05). The finding show that there was correlation between depression and quality of life as well as stigma and quality of life of patients with tuberculosis. It is recommended that it is essesetial to do early detection of depression and stigma performed when patient attend clinic by nurses.

Key words: *depression, lung disease, stigma, tuberculosis quality of life,*

PENDAHULUAN

Penyakit tuberkulosis merupakan penyakit infeksi yang menempati urutan kedua di dunia sebagai penyakit infeksi dan jumlah individu yang sakit akibat terinfeksi bakteri ini meningkat setiap tahunnya. Kondisi tersebut menjadikan tuberkulosis sebagai masalah global dan menjadi salah satu agenda dari program *Sustainable Development Goals* 2030, dengan target pada tahun 2030 dunia bebas dari penyakit ini.

Berdasarkan data dari WHO melalui *Global Tuberculosis Report* (2016) pada tahun 2015 terdapat 10,4 juta kasus tuberkulosis diseluruh dunia. Jumlah tersebut meningkat dibanding tahun 2014 dengan jumlah kasus 9.6 juta. Di Indonesia tuberkulosis paru merupakan penyebab kematian nomor tiga setelah penyakit jantung dan saluran pernafasan, serta menempati urutan pertama penyebab kematian untuk penyakit infeksi. Setiap tahunnya ditemukan 61.000 kematian akibat penyakit ini (Kemenkes RI, 2015).

Berdasarkan data Kemenkes RI (2015) tahun 2014 terdapat 460.000 kasus baru tuberkulosis paru pertahunnya, dan jumlah ini meningkat ditahun 2015 menjadi satu juta kasus baru pertahunnya (kemenkes RI, 2016). Kondisi ini menjadikan Indonesia berada di urutan kedua dengan jumlah kasus tuberkulosis terbanyak setelah India, dan menyumbang 10% dari total kasus tuberkulosis di dunia.

Penelitian yang dilakukan di *Wolaita Sodo University Hospital and Sodo Health center* (Duko, et al, 2015) dihasilkan data bahwa dari keseluruhan pasien tuberkulosis paru yang diteliti, sebanyak 41,5% mengalami kecemasan, dan 43,4% mengalami depresi. Penelitian lain yang dilakukan oleh *School of Medical Science and Research India* (Kumar, et al, 2016) didapatkan hasil penelitian bahwa dari 100 pasien tuberkulosis paru yang diteliti sebanyak 78 kasus memiliki masalah kesehatan mental, dimana sebanyak 35 kasus menderita depresi dan 39 kasus menderita kecemasan berat. Hal ini disebabkan karena proses penyakit dan pengobatan yang lama berdampak pada perubahan fisik dan psikis.

Adaanya stigma negatif terhadap penyakit ini juga menambah depresi pasien. Menurut Courthwright, dan Turner (2010) dalam jurnal penelitiannya menjelaskan bahwa stigma negatif ini muncul karena adanya persepsi bahwa tuberkulosis adalah penyakit yang sangat menular, berbahaya, kotor dan terkait dengan kemiskinan.

Stigma negatif sangat berpengaruh pada program pengobatan tuberkulosis paru. Dalam jurnal yang berjudul *The stigma of tuberculosis* (Davis, & Juniati, 2010) terdapat dua masalah utama dalam pengobatan tuberkulosis paru, yaitu keterlambatan dalam pengobatan dan putus obat, salah satu penyebab dari masalah ini adalah adanya penghindaran pasien tuberkulosis paru untuk berobat karena stigma negatif.

Kondisi depresi akibat proses penyakit tuberkulosis dan pengobatannya, serta stigma negatif terhadap penyakit tuberkulosis ini akan semakin memperberat kondisi pasien, baik fisik dan psikis. Kondisi fisik dan psikis ini akan sangat mempengaruhi kualitas hidup pasien, karena keduanya merupakan domain dari kualitas hidup (Nursalam, 2015), sehingga tidak jarang pasien dengan penyakit tuberkulosis mempunyai nilai kualitas hidup yang rendah dikarenakan depresi yang dialami pasien, serta diperberat dengan stigma negatif terhadap penyakit (Davis, & Juniarti, 2010).

Kualitas hidup yang rendah akibat adanya depresi dan sigma tentunya akan mempengaruhi bagaimana pasien tuberkulosis paru menjalani proses penyakitnya serta proses pengobatannya yang secara keseluruhan akan berpengaruh terhadap berhasil atau tidaknya pengobatan.

Berdasarkan hal ini peneliti merasa penelitian ini penting untuk dilakukan sehingga peneliti tertarik untuk meneliti lebih jauh bagaimana hubungan depresi, stigma dan kualitas hidup pasien tuberkulosis paru yang menjalani pengobatan OAT serta hubungan antara depresi dan kualitas hidup serta stigma dan kualitas hidup pasien tuberkulosis paru yang menjalani OAT.

METODE

Desain yang digunakan dalam penelitian ini adalah *cross sectional*. Dalam penelitian ini populasi merupakan pasien tuberkulosis paru yang sedang menjalani pengobatan OAT di poli paru di RSUP Persahabatan dengan jumlah responden 96. Variabel independen dalam penelitian ini meliputi depresi dan stigma, sedangkan variabel dependen adalah kualitas hidup. Penelitian ini

menggunakan metode sampling *non probability sampling* dengan teknik pengambilan *concecutive sampling*.

Kriteria inklusi penelitian meliputi Pasien TB paru yang menjalani pengobatan OAT minimal 1 bulan dan usia diatas 18 tahun. Kriteria eksklusi meliputi Pasien TB paru dengan kondisi sesak nafas berat, pasien TB paru dengan riwayat putus obat dan pasien dengan gangguan kognitif.

Instrumen yang digunakan dalam penelitian ini berupa tiga buah kuesioner, WHOQOL-BREF, BECK *Depression Inventory* dan EMIC-CSS. Masing-masing kuesioner tersebut untuk mengukur kualitas hidup, tingkat depresi dan stigma.

Pengumpulan data dalam penelitian ini menggunakan data primer dan data sekunder. Data primer diperoleh dari pasien sebagai responden yang secara langsung mengisi kuisioner penelitian. Setelah data terkumpul peneliti melakukan editing, coding, processing, dan cleaning.

Proses analisis data pada penelitian ini menggunakan analisis univariat untuk mengetahui gambaran distribusi frekueansi setiap variabel dan analisis bivariat dengan uji *person* untuk mengetahui hubungan antar variabel independen dan dependen.

Penelitian ini dilakukan dengan prinsip etis yang dapat dipertangung jawabkan dan mengutamakan prinsip etis keadilan, manfaat, dan menghormati orang lain dengan menghargai harkat dan martabat serta kerahasiaan dengan menjaga segala informasi yang diberikan oleh responden

Penelitian mengenai hubungan depresi dan stigma dengan kualitas hidup pasien TB paru yang menjalani pengobatan OAT dilakukan pada bulan Juni 2017 terhadap 96 responden penelitian.

HASIL

Pada Tabel 1 menunjukan data demografi responden penelitian ini. Berdasarkan uji analisis terhadap karakteristik responden didapatkan data pada karakteristik usia, responden didominasi oleh usia dewasa awal (usia 26-35 tahun) yaitu 65 responden (67.7%). Pada karakteristik jenis kelamin didominasi laki-laki sebanyak 62 orang (64.6%).

Demografi	Karakteristik	frekuensi	persen
Usia	Remaja Akhir	21	21.9
	Dewasa Awal	65	67.7
	Dewasa Akhir	10	10.4
	Total	96	100
Jenis Kelamin	Laki-laki	62	64.6
	Perempuan	34	35.4
Status Pernikahan	Menikah	78	81.3
	Belum Menikah	18	18.8
Pendidikan	SMP	3	3.1
	SMA	54	56.3
	DIII	31	32.3
	Perguruan Tinggi	8	8.3
Pekerjaan	Tidak Bekerja/ IRT	20	20.8
	Pedagang	24	25.0
	Swasta	42	43.8
	PS/TNI/Porli	10	10.4

Distribusi frekuensi karakteristik responden berdasarkan status penikahan didapatkan data 78 responden (81.3%) sudah menikah. Pendidikan didominasi oleh lulusan SMA yaitu sebanyak 54 responden (56.3%), Sedangkan pada pekerjaan didominasi oleh pekerja swasta yaitu sebanyak 42 responden (43.7%).

Tabel 1

Variabel independen dalam penelitian ini meliputi depresi dan stigma, sedangkan variabel dependen adalah kualitas hidup.

Gambaran karakteristik dari masing-masing variabel dapat dilihat di tabel 2.

Pada variable independen depresi dari 96 responden sebanyak 34 responden (35.4%) mengalami depresi ringan dan 21 responden (21.9%) mengalami depresi berat.

Variabel Independen	Frekuensi	Persen
Depresi		
Minimal	18	18.8
Ringan	34	35.4
Sedang	23	24.0
Berat	21	21.9
Stigma		
Rendah	51	53.1
Tinggi	45	46.9
Variabel Dependen		
Kualitas Hidup		
Buruk	15	15.6
Sedang	30	31.3
Baik	44	45.8
Sangat baik	7	7.3

Tabel 2

Variabel stigma sebanyak 51 re-

menggunakan metode sampling *non probability sampling* dengan teknik pengambilan *concecutive sampling*.

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Demografi	Karakteristik	frekuensi	persen
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Sedang	23	24.0
Berat	21	21.9
Stigma		
Rendah	51	53.1
Tinggi	45	46.9
Variabel Dependen		
Kualitas Hidup		
Buruk	15	15.6
Sedang	30	31.3
Baik	44	45.8
Sangat baik	7	7.3

Tabel 2

Variabel stigma sebanyak 51 re-

sponden (53.1%) memiliki stigma rendah dan 45 responden (46.9%) memiliki stigma tinggi terhadap penyakitnya, sedangkan pada variabel kualitas hidup, terdapat 44 (45.8%) dari total 96 responden yang memiliki kualitas hidup yang baik

Analisa bivariat pada penelitian ini menjelaskan hubungan antara depresi dengan kualitas hidup pada pasien tuberkulosis paru yang menjalani pengobatan OAT dan hubungan stigma dengan kualitas hidup pada pasien tuberkulosis paru yang menjalani pengobatan OAT.

Berdasarkan tabel 3 responden yang mengalami depresi minimal memiliki kualitas hidup baik sebanyak 11 (61.1%) responden. Pada depresi berat, sebanyak 12 (57.1%) responden memiliki kualitas hidup yang buruk.

Hasil uji korelasi bivariat nilai koefisien korelasi -0,606. Nilai ini menunjukan adanya hubungan kuat dan negatif atau berlawanan antara variabel depresi dan variabel kualitas hidup.

Dari hasil uji tersebut didapatkan nilai signifikan 0.000, dengan menetapkan nilai kemaknaan sebesar 5% (α = 0.05) maka *P* value < 0.05, sehingga terdapat hubungan yang bermakna dengan arah berlawanan antara depresi dan kualitas hidup pada pasien tuberculosis paru yang menjalani Pengobatan OAT.

Depresi	Kualitas Hidup				Total		
	Buruk	Sedang	Baik	Sangat Baik		P value	r
Minimal	0 0.0 %	4 22.2%	11 61.1 %	3 16.7 %	18 100.0 %	0.000	-0.606
Ringan	1 2.9 %	8 23.5%	21 61.8 %	4 11.8 %	34 100.0 %		
Sedang	2 8.7 %	11 47.8%	10 43.5 %	0 0.0 %	23 100.0 %		
Berat	12 57.1 %	7 33.3%	2 9.5 %	0 0.0 %	21 100.0 %		
Total	15 15.6%	30 31.3 %	44 45.8%	7 7.3 %	96 100.0 %		

Tabel 3

Hubungan antara variabel stigma dan kualitas hidup didapatkan hasil dari 96 responden sebanyak 51 responden menunjukan stigma rendah dan dari 51 responden tersebut sebanyak 31 responden (60.8%) memiliki kualits hidup baik dan dua responden (3.9%) memiliki kualitas hidup buruk. Pasien yang memiliki stigma tinggi terhadap penyakitnya sebanyak 45 responden dan 17 responden (37.8%) dari jumlah tersebut memiliki kualitas hidup yang sedang dan 13 responden (28.9%) dengan kualitas hidup yang buruk.

Hasil uji bivariat *pearson* didapatkan nilai koefisien korelasi sebesar -0,421 yang menunjukan adanya hubungan cukup kuat dan berlawanan arah antara variabel stigma dan variabel kualitas hidup.

Dari hasil uji tersebut didapatkan nilai signifikan 0.000. Dengan menetapkan nilai kemaknaan 5% (α = 0.05) maka nilai *p* value < 0.05 sehingga terdapat hubungan signifikan (bermakna) antara kedua variabel.

Berdasarkan data di atas dapat disimpulkan bahwa terdapat hubungan bermakna dengan arah yang berlawanan antara stigma dan kulaitas hidup pada pasien tuberculosis paru yang menjalani Pengobatan OAT.

Stigma	Kualitas Hidup				Total		
	Buruk	Sedang	Baik	Sangat Baik		P value	r
Rendah	2 3.9 %	13 25.5 %	31 60.8 %	5 9.8 %	51 100.0 %		-0.421
Tinggi	13 28.9 %	17 37.8 %	13 28.9 %	2 4.4 %	45 100.0 %		
Total	15 15.6 %	30 31.3 %	44 45.8 %	7 7.3 %	96 100.0 %		

Tabel 4

PEMBAHASAN

Gambaran Karakteristik Responden

Berdasarkan hasil penelitian dominasi responden tuberkulosis paru berada pada usia

dewasa awal atau usia produktif. Hasil penelitian tersebut didukung oleh penelitian sebelumnya yang dilakukan oleh Badan Litbang Kesehatan, Kemenkes RI (Nurjana, 2013), didapatkan hasil dari 522.670 responden tuberkulosis paru di seluruh Indonesia, sebanyak 76 % dari responden berada pada usia produktif dengan rentang usia 15 tahun hingga 40, selain itu kejadian tuberkulosis paru lebih tinggi pada laki-laki di banding dengan perempuan disebabkan tingginya aktivitas dan tingkat sosial pada laki-laki dibanding dengan perempuan (Qhatani, 2014).

Penyakit tuberkulosis paru juga sering dikaitkan dengan kemiskinan akibat pekerjaan dengan penghasilan rendah. Menurut WHO (2003), 90% individu denga tuberkulosis paru di dunia menyerang kelompok dengan penghasilan rendah atau miskin dan hubungan keduanya bersifat timbal balik. Selain pekerjaan dengan penghasilan yang rendah tingkat pendidikan juga mempengaruhi angka kejadian tuberculosis paru. Rendahnya tingkat pendidikan akan mempengaruhi pengetahuan terhadap penyakit, sehingga resiko untuk terjangkit penyakit ini sangatlah tinggi.

Analisa bivariat pada penelitian ini menjelaskan hubungan antara depresi dengan kualitas hidup pada pasien tuberkulosis paru yang menjalani pengobatan OAT dan hubungan stigma dengan kualitas hidup pada pasien tuberkulosis paru yang menjalani pengobatan OAT.

Dari hasil uji variabel, didapatkan data dari 96 responden yang terlibat dalam penelitian, sebanyak 34 responden (35.4%) mengalami depresi ringan, 23 responden (24%) depresi sedang, 21 responden (21.9%) berat dan 18 responden (18.8%) mengalami depresi minimal.

Berdasarkan data dari WHO (2017) bahwa sekitar 40-70% pasien tuberkulosis megalami masalah kesehatan mental dan 40% dari masalah tersebut adalah depresi ringan hingga berat.

Penelitian mengenai hubungan depresi dan penyakit tuberculosis paru juga dilakukan oleh Amreen dan Rizvi (2016) di Karachi, Pakistan dengan melibatkan 100 responden. Dari hasil penelitian tersebut terdapat 21 responden mengalami depresi minimal, 23 responden mengalami depresi ringan, 29 responden mengalami depresi sedang dan 8 responden mengalami depresi berat.

Penelitian lain juga dilakukan oleh Pokhara University, Khatmandu, Nepal (Devkota, Narmada, Shyam, 2016). Penelitian melibatkan 150 responden yang menderita tuberkulosis paru. Dari penelitian tersebut terdapat 27 responden (18%) yang mengalami depresi ringan hingga berat dengan rincian depresi ringan sebanyak 16 responden (11%), depresi sedang sebanyak 6 responden (4%), dan depresi berat sebanyak 5 responden (3%).

Penelitian mengenai kondisi depresi yang dialami oleh pasien tuberkulosis juga dilakukan oleh Yilmaz dan Ozden (2016) di Ankara, Turky. Penelitian ini melibatkan 208 responden, dari responden tersebut sebanyak 125 responden (60.5%) mengalami depresi.

Berdasarkan hasil penelitian dan penelitian-penelitian sebelumnya dapat disimpulkan bahwa pasien dengan tuberkulosis paru mengalami masalah kesehatan mental. Salah satu kondisi yang sering dialami adalah depresi dari rentang depresi ringan hingga depresi berat.

Selain depresi pasien tuberculosis paru diperberat dengan adanya stigma terhadap penyakit tersebut. Stigma yang ditujukan pada pasien TB paru mempunyai dampak negatif. Perasaan malu, rendah diri, isolasi sosial hingga depresi dapat terjadi akibat stigma ini (Juniarti, & Evans, 2010). Kondisi ini mengakibatkan terhambatnya proses pengobatan akibat adanya penghindaran dari pasien. Akibatnya tidak jarang pasien mangalami putus obat. kondisi ini akan mengakibatkan peningkatan mobiditas hingga mortilitas pasien (Crispim, et all, 2015), hal senanda juga dikemukakan oleh Courtwright dan Turner (2010) bahwa adanya stigma terhadap individu dengan penyakit ini berefek pada proses pengobatan dan proses penyembuhan.

Kondisi tersebut tentunya akan berdampak menyeluruh terhadap kualitas hidup pasien tuberkulosis paru. Hal dapat terjadi karena perubahan berbagai aspek dari individu yang terstigma akan menimbulkan penurunan pada domain kualitas hidup, terutama domain psikis yang tentunya akan mempengaruhi domain lain sehingga terjadi perubahan kualitas hidup pada individu tersebut.

Pada penelitian ini, ditemuan sebanyak 51 responden (53.3%) yang memiliki stigma rendah terhadap penyakit tuberkulosis paru, dan sebanyak 45 responden (46.9%) memiliki stigma tinggi. Berdasarkan hasil penelitian tersebut dapat digambarkan bahwa sebagain

responden memiliki stigma rendah terhadap penyakit tuberkulosis paru.

Hasil penelitian tersebut berlawanan dengan hasil penelitian dilakukan oleh Priyanka dan Dahal (2016) di Palpa District Hospital, Tansel, Palpa, Nepal. Penelitian ini menggunakan instrumen yang sama (EMIC-CSS) dengan melibatkan 89 responden tuberkulosis paru yang sedang menjalani pengobatan OAT. Hasil dari penelitian terdapat 64% dari responden yang memiliki stigma tinggi terhadap pasien tuberkulosis paru.

Di Indonesia pernah dilakukan penelitian oleh Suandi (2012) mengenai stigma terhadap pasien tuberkulosis paru. Responden yang terlibat dalam penelitian ini sebanyak 88 orang yang merupakan bagian dari keluarga pasien tuberkulosis paru yang menjalani pengobatan OAT minimal 1 bulan. Didapatkan hasil 81,25 % dari total reponden memiliki stigma tinggi terhadap penyakit tersebut.

Berdasarkan hasil dari penelitian didapatkan data terdapat tujuh responden (7.3%) yang memiliki kualitas hidup baik sekali, sebanyak 44 responden (45.8%) memiliki kualitas hidup baik, 30 reponden (31.3%) memiliki kulaitas hidup sedang dan sebanyak 15 responden (15.6%) yang memiliki kualitas hidup buruk.

Pengukuran kualitas hidup terdiri dari empat domain yang meliputi domain fisik, psikis, hubungan sosial dan lingkungan. jika dilihat hasil penelitian berdasarkan domain tersebut maka untuk untuk domain fisik sebanyak 49 reponden (51%) bernilai buruk, sedangkan pada domain psikis, hubungsn sosial dan lingkungan memiliki nilai sedang dengan jumlah 41 responden (42.7%), 37 responden (38,5%), 38 reponden (38.%).

Hubungan Depresi dengan kualitas hidup

Pada penelitian ini telah dilakukan uji korelasi bivariat *pearson* antara variabel depresi dan variabel kualitas hidup, nilai koefisien korelasi antara keduanya -0,606. Nilai ini menunjukan adanya hubungan negatif antara variabel depresi dan variabel kualitas hidup. Dapat diartikan semakin rendah tingkat depresi yang dialami pasien maka akan semakin meningkat kualitas hidup pasien.

Hal tersebut dapat dibuktikan dengan hasil penelitian ini bahwa pada tingkat depresi ringan dari 34 responden terdapat 21 responden yang memiliki kualitas hidup baik, delapan empat responden dengan kualitas hidup sangat baik dan satu responden dengan kualitas hidup buruk. Pada tingkat depresi berat dari 21 responden 12 responden memiliki kualitas hidup buruk , Tujuh responden dengan kualitas hidup sedang, dua responden dengan kualitas hidup baik dan tidak ada responden yang memiliki kualitas hudp sangat baik.

Hasil uji bivariat juga didapatkan signifikansi bernilai 0.000. Tingkat kemaknaan yang di tetapkan pada penelitian ini sebesar 5% (α =0.05), maka nilai tersebut lebih kecil dari tingkat kemaknaan ($p < \alpha$) sehingga korelasi antara dua variabel tersebut signifikan (bermakna).

Hubungan stigma dan kualitas hidup

Dari hasil penelitian pada stigma rendah dari 51 pasien terdapat 31 responden dengan kualitas hidup baik dan hanya 2 responden yang memiliki kualitas hidup buruk. Pada tingkat stigma tinggi dari 45 responden sebanyak 17 responden memiliki kualitas hidup sedang dan 13 responden memiliki kualitas hidup buruk.

Korelasi signifikan dari hasil uji bivariat tersebut 0,000 dengan tingkat kemaknaan (α) 0,05, menunjukan bahwa *p* value < α sehingga terdapat korelasi yang signifikan (bermakna) antara kedua variabel

Dapat disimpulkan bahwa stigma terhadap penyakit ini akan memepengaruhi kualitas hidup pasien tuberkulosis paru hal ini terkait dengan hasil penelitian terdapat hubungan yang bermakna dengan arah berlawanan (negatif) antara stigma dan kualitas hidup pasien tuberkulosis paru yang menjalani pengobatan OAT, kualitas hidup akan meningkat jika stigma terhadap penyakit ini rendah dan sebaliknya.

KESIMPULAN

Hasil penelitian ini berhasil membuktikan hubungan antara depresi dengan kualitas hidup pasien tuberkulosis paru yang menjalani pengobatan OAT dan hubungan stigma dengan kualitas hidup pasien tuberkulosis paru yang menjalani pengobatan OAT.

Pada hubungan antara depresi dan kualitas hidup paling banyak responden mengalami depresi ringan yaitu 34 responden (35.4%). 21 responden dari jumlah tersebut memiliki kualitas hidup yang baik. Responden dengan tingkat depresi berat pada penelitian ini sebanyak 21 responden (21.9%). Dari jumlah tersebut didominasi oleh 12 responden yang memiliki kualitas hidup yang buruk, hal ini menunjukan se-

makin rendah tingkat depresi semakin meningkat kualitas hidup.

Pada hubungan stigma dengan kualitas hidup, paling banyak responden memiliki stigma rendah terhadap penyakitnya yaitu 51 responden (53.1%). Dari jumlah tersebut 31 responden memiliki kualitas hidup yang baik sedangkan pada pasien yang memiliki stigma tinggi 45 (46.9%) paling banyak 17 rsponden memiliki kualitas hidup sedang. Dari data tersebut menunjukan bahwa semakin tinggi stigma semakin rendah kualitas hidup.

Ucapan Terima Kasih

Penulis ingin mengucapkan terima kasih kepada rang tua dan keluarga yang telah memberikan semangat kepada penulis agar tetap berusaha menyelesaikan skripsi ini. Seluruh staf Poli paru RSUP Persahabatan beserta seluruh responden penelitian.

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Jurnal 5

ORIGINAL ARTICLE

Anxiety and Depression in Tuberculosis Can Create Impact on Quality of Life of Patient

Rukhsana Rubeen[1], Nusrat Zareen[2], Sambreen Zameer[3], Anum Ghulam Rasool[4], S. Sawaira Nasim Naqvi[5], Jouhar Iqbal[6]
[1]Associate Professor, Department of Biochemistry, Dow Medical College, DUHS Karachi Pakistan, [2]Professor, Department of Physiology, Liquate College of Dentistry and Medicine, Gulistan-e-Jouhar Karachi Pakistan, [3]Assistant Professor, Department of Pathology, Dow International Medical College, Ojha Campus DUHS Karachi Pakistan, [4]MBBS Dow Medical College, [5]MBBS Dow Medical College, [6]MBBS Dow International Medical College

ABSTRACT

Objective: Despite TB being a major burden in terms of nations' health, social life and economy and growth, it has to be considered for the psychological effects that it bearson individual life. The resulting drastic consequences showing as poor treatment compliance, increasing Mycobacterium strain resistance to first line anti TB drugs, declining health outcome etc. Our study had determined to take a step in revealing a more competent approach in getting a world free of tuberculosis, by estimating the prevalence of psychiatric co morbidities in patients with TB and to comprehend their effects on patient's quality of life. Our aim was to assess the prevalence of depression and anxiety in tuberculosis and its influence on individual perception of well being in patients attending out patient clinic in Karachi, Pakistan. **Method:** A total of 140 subjects were addressed, 70 of each TB and control. "Hospital Anxiety and Depression scale" (HAD) and "Flanagan Quality of Lifescale" was used to assess anxiety and depression and quality of life in these two populations respectively. **Result:** About 37.1% patients diagnosed with TB were labeledas having anxiety and depression according to HAD scale. However the study has shown that the area of an individual life that experienced dramatic effects included perception towards health, relationship with partner, parents, sibling, friends, work as in job or in home, participation in society, attitude towards learning and increasing awareness, understanding about one's strength and weaknessesand expressing oneself creatively. **Conclusion:** Parameters of quality of life that do play a key role in establishing quality including perception relating to health, relationships with spouse, siblings or friend, occupational role and recreation both participatory as well as passive; were found to be dramatically influenced by TB. This entirely enlightens the significance of timely counseling and health education in TB control program for alleviation of mental and social suffering seen in such a high rise.

Keywords: Tuberculosis, Quality of life, Anxiety, Depression

INTRODUCTION

Tuberculosis (TB) is a contagious bacterial infection that involves the lungs, but may spread to other organs. It is caused by the bacteria *Mycobacterium tuberculosis*.[1] Tuberculosis (TB) is second only to HIV/AIDS as the greatest killer worldwide due to a single infectious agent. In 2010, 8.8 million people fell ill with tuberculosis and 1.4 million died from it. TB occurs in every part of the world. In the year 2010, the largest number of new TB cases occurred in Asia, accounting for 60% of new cases globally. In total, in Pakistan every year, tuberculosis causes approximately 70,000 deaths, around 270,000 people per year fall sick of the disease.[2] Tuberculosis (TB) often leaves its impact physically, socially and mentally on patients. Patients tend to be worried, frustrated, or disappointed by their diagnosis, but it is not known how emotional health changes with treatment. Patients with TB may experience depression and anxiety, both of which can make the overall burden of disease more difficult to carry."[1] Depression necessitating assistance from health professionals has a lifetime prevalence of 10%.[3] Chronic disease increases co morbidity with mood and/or anxiety disorders. The lifetime prevalence of mood disorder in patients with chronic disease is 8.9% to 12.9%, with a 6-month prevalence of 5.8% to 9.4%.[4,5] In patients with pulmonary disease in particular, functionality may be severely impaired due to chronic psychogenic and somatic pain[25], frequent hospital admissions and dependency on medical and nursing personnel. Depression may be a very important negative factor to treatment adherence for patients with somatic diseases. Additionally, it may hinder adaptation to chronic disease conditions and it is known that adaptation is a crucial survival factor in chronic diseases.[6] Up to 80% of patients with depression are either treated by non-mental health professionals or receive no treatment at all.[7] Depression in patients with chronic respiratory diseases coexists with anxiety and is related to the chronicity of the disease which has a negative effect on quality of life as well.[8] Despite the

Corresponding Author:
Dr Rukhsana Rubeen Biochemistry Department, DMC DUHS,Babae Urdu Road Karachi 72200, 0092219225754-57 Ext 5544.
Email: rubeen_aijaz@yahoo.com

fact that clinical experience accepts high co morbidity in pulmonary patients, studies assessing and comparing anxiety and depression levels with different pulmonary diseases are lacking in current literature. There has been relatively little research on Quality Of Life (QOL) in TB patients and even less in developed countries. In our study we aim to assess the prevalence of depression and anxiety in tuberculosis and its influence on individual perception of well being in patients attending outpatient clinic in Karachi, Pakistan.

METHOD

A cross sectional study was conducted from August 2012 to May 2013. A total of 140 individuals were included, half of which were TB patients and the other half healthy individuals. Our target population for Tuberculosis was above 18, diagnosed TB case and started with Anti Tuberculosis Therapy. All those patients previously diagnosed with anxiety/depression/other psychiatric illness before acquiring TB were excluded from our study sample. In addition, a healthy population meeting the same criteria except for having TB was taken as a control group. Through convenient sampling, patients attending TB clinics at two different hospitals i.e. Jinnah Postgraduate Medical Centre and Ojha institute of Chest Disease were approached. Questionnaire based data was collected using "Hospital Anxiety and Depression (HAD) Scale" and" Flanagan 16 item Quality of life scale" for assessing Anxiety & Depression and Quality of Life (QoL) respectively. Data was entered into and analyzed via SPSS 16 software. Ethical issues were considered respectively. All the willing participants were invited to fill the questionnaire. For all those unable to do so, the questionnaires were read and explained for them.

RESULT

Out of 70 tuberculosis patients, 62.9% were in the age group 18-25 years, predominantly females (71.4%), almost all having residence in city (94.3%), nearly half of them married (57.1%) (Table 1).

Of these, 48.6% people had anxiety and depression according to HAD SCALE, while in healthy population only 11.4% had abnormal HAD Score. Anxiety in TB patients was found to be 37.1% (control group- 8.6%), and depression was 37.1% (control group-2.9%) (Table 2).

Considering duration of treatment, highest scores(52.9%) were found in patients, started with medications for less than 3 months which gradually declined to 45.5% and 42.9% for 3-6 months period and greater than 6 months duration respectively (Table 3).

Table 1: Comparing Variables: Age, gender, dwelling and marital status among TB and control Groups (70)

Variables	TB (70)	Control
Age (in years)		
18-25	62.9%(44)	34.3%(24)
26-35	17.1%(12)	11.4 (8)
36-45	2.9%(2)	28.6 (20)
46-55	17.1%(12)	28%(14)
56-65	0%(0)	2.9%(2)
65<	0%(0)	2.9%(2)
Gender		
Male	28.6 (20)	40%(28)
Female	71%(50)	60%(42)
Dwelling		
Urban	94.3%(66)	91.4%(64)
Rural	5.7%(4)	8.6%(6)
Marital status		
Married	57.1%(40)	80%(56)
Single	42.9%(30)	20%(14)

Table 2: Comparing HAD score among TB and control Group

Overall score	0-7 (Normal)	34.3%(24)	60%(42)
	8-10(Borderline abnormal)	17.1%(12)	28.6 (20)
	11-21(abnormal)	48.6%(34)	11.4%(8)
Anxiety	0-7(Normal)	45.7%(32)	62.9%(44)
	8-10(Borderline abnormal)	17.1%(12)	28.6%(20)
	11-21 (Abnormal)	37.1%(26)	8.6%(6)
Depression score	0-7(Normal)	48.6%(34)	74.3%(52)
	8-10(Borderline abnormal)	14.3%(10)	22.9%(16)
	11-21 (Abnormal)	37.1%(26)	2.9%(2)

Table 3: Overall HAD score of TB patients in relation to duration of treatment of tuberculosis

Duration of treatment	Overall HAD Score		
	0-7 (Normal)	8-10 (Borderline abnormal)	11-21 (Abnormal)
<3 months	35.3%(12)	11.8%(4)	52.9%(18)
3-6 months	36.4%(8)	18.2%(4)	45.5%(10)
>6 months	28.6%(4)	28.6%(4)	42.9%(6)

Taking Quality Of Life(QOL) into consideration, every domain included in Flanagan's Quality of Life Scale was separately analyzed for TB patients and physically fit people and each of them was leveled from terrible to delightful on Likert's scale ranging 1 to 7 according to the intensity of perception that one has towards that particular aspect of life. Most patients (31.4%) were satisfied with material comfort in contrast to general population where majority (40%) was pleased. Considering physical fitness and health, 57.1% patients were unhappy and felt physically weak in comparison to healthy individuals who were mostly satisfied (42.9%). Relationship to folks came out as unhappy(31.4%) for TB patients, on the other hand, in healthy people 42.9% and 31.4% were delighted

and pleased respectively. In patients having TB, 54.3% were such who gave no response when questioned about having and rearing children, but who did answer were mainly pleased (14.3%), like in control group (28.6%). 45.7% of TB patients did not comment on relationship with spouse as 42.9% in total were singles, 20.9% were satisfied in contrary to the outcome in healthy patients who were mostly delighted (31.4%). TB patients were dissatisfied(42.9%) while control group was pleased(40%) and satisfied (25.7%) about their association with close friends. Helping and encouraging peoples was an aspect having nearly same result in the two groups, 45.7% were satisfied in tuberculosis patients and 42.9% felt delightful among healthy persons. 45.7% and 28.6% patients could not answer for participation in public affairs and learningrespectively, while 25.7% and 40% healthy people were pleased about their participation in organizations/ public affairs and learning respectively. Work was very much affected in people been diagnosed as having TB as 40% were unhappy and 25.7% were dissatisfied but in general public 54.3% were pleased, 20% were delighted. 48.6% non diseased population was satisfied about understanding themselves and their lives in contrast to diseased people where 25.7% were dissatisfied. People ailing due to TB were unhappy (57.1%) about expressing themselves creatively contradicting analysis in control population where 37.1% were pleased. Taking into account socializing, general people were pleased (34.3%) but ill persons were dissatisfied (42.8%). Reading, listening to music, participation in active recreation and independence were among the domains that were almost same in two groups being compared in the study with a little difference that TB patients were satisfied while normal people were pleased and delighted about these attitudes of life (Table 4).

DISCUSSION

World Health Organization's goal of tuberculosis control program remains elusive[9,10] especially in developing nations like in Pakistan, accounting for 61% of the TB burden in the WHO Eastern Mediterranean Region. Additionally, Pakistan is also estimated to have the fourth highest prevalence of multidrug-resistant TB (MDR-TB) globally, says WHO.[11] This failure has been blamed on numerous factors such as inadequate emphasis on human dimension of tuberculosis control which includes nonadherence with medication resulting in multidrug resistance and therapeutic failure.

The psychological aspect of this enormous pool of TB remains the mainstream of conversations and debates and the remarkable presence of such instability observed in our study could be explained by the social stigma attached to the condition plus the unawareness regarding the course of the disease. Now this could be accredited for the high prevalence of non adherence of TB patients towards the therapy as it is witnessed by the various studies that indicate that up to half of all of patients with TB do not complete treatment.[12]

TB is not unique in being rewarded with this condition but the other chronic illnesses have also been enlisted with such co-morbidities like Diabetes, Rheumatoid Arthritis, most importantly other pulmonary diseases like Asthma and COPD. Presence of such medical illness,[13] stigma, and discrimination[14] are thought to be the major determinants of mental disorders, especially mood and anxiety disorders. On the other hand, the commonly shared risk factors for the development of a variety of psychiatric and medical disorders (smoking, low socioeconomic status, etc.) could also be a cause for their concurrence. For patients with tuberculosis in particular, the reasons for the frequent cooccurrence of psychiatric disorders and medical illnesses could be merely a reaction to disease or that they may represent direct consequences of the illness or complications of treatments (INH-induced psychosis).[15, 16] Failure to manage such mental health problems conditions increases the patients' probability of suffering from complications of the disease with which he is suffering from, which can prove to be lethal.[17]

The persistent association between tuberculosis and psychological disturbance has been explored in previous studies that evaluated the question regarding the causal relationship between mental disorders and tuberculosis. To put light into it, it's is too complex to be resolved. The hypothesis whether tuberculosis may cause mental illness or that mental illness predisposes one to acquire TB remains not less than a dilemma till yet. A substantial number of research articles suggest that severe mental disorders are associated with high risk of tuberculosis acquisition and transmission[18] and with poorer adherence to anti-TB treatment. Some even say, psychiatric patients are not only at risk of getting TB infection, as they are often homeless or have unstable housing conditions and lack food and security, but they also frequently fail to comply with the treatment for the same reasons.[17] As it is evidenced on the other side with innumerable studies, supporting diagnosis with tuberculosis increases risk of psychiatric comorbidity.[19,20] Besides, the correlation of mood disorders and the duration of treatment it holds an important part in our analysis. The declining figures of HAD score observed along with the increasing time period of therapy may help to hint the significance of adaptation to the illness with time and relief of symptoms in the approach that the health professional should take towards TB patients.

Table 4: Comparing the domains of quality of life in TB and control Groups On Likert's scale (1-7, 0 for no response)

Domains of quality of life	Population Groups	Terrible (1)	Unhappy (2)	Dissatisfied (3)	Mixed (4)	Satisfied (5)	Happy (6)	Delightful (7)	No response (8)
Material comfort	TB	0 0%	8 11.4%	10 14.3%	8 11.4%	22 31.4%	18 25.7%	4 5.7%	0 0%
	Control	2 2.9%	4 5.7%	0 0%	10 14.3%	14 20%	28 40%	12 17.1%	0 0%
Health	TB	4 5.7%	40 57.1%	12 17.1%	4 5.7%	6 8.6%	4 5.7%	0 0%	0 0%
	Control	0 0%	6 8.6%	0 0%	4 5.7%	30 42.9%	18 25.7%	12 17.1%	0 0%
Relationship- parents, sibling and other relatives	TB	8 11.4%	22 31.4%	2 2.9%	6 8.6%	16 22.9%	12 17.1%	4 5.7%	0 0%
	Control	2 2.9%	0 0%	2 2.9%	8 11.4%	6 8.6%	22 31.4%	30 42.9%	0 0%
Having and Rearing Children	TB	0 0%	2 2.9%	4 5.7%	2 2.9%	10 14.3%	10 14.3%	4 5.7%	38 54.3%
	Control	0 0%	0 0%	6 8.6%	2 2.9%	6 8.6%	20 28.6%	20 28.6%	16 22.9%
Close relationship with spouse or significant others	TB	0 0%	4 5.7%	4 5.7%	2 2.9%	14 20.9%	10 14.3%	4 5.7%	32 45.7%
	Control	0 0%	0 0%	8 11.4%	2 2.9%	12 17.1%	10 14.3%	22 31.4%	16 22.9%
Close Friends	TB	4 5.7%	4 5.7%	30 42.9%	4 5.7%	20 28.6%	2 2.9%	6 8.6%	0 0%
	Control	0 0%	2 2.9%	4 5.7%	4 5.7%	18 25.7%	28 40%	14 20%	0 0%
Helping and encouraging others, volunteering, giving advice	TB	0 0%	6 8.6%	6 8.6%	4 5.7%	32 45.7%	18 25.7%	4 5.7%	0 0%
	Control	0 0%	0 0%	0 0%	12 17.1%	10 14.3%	18 25.7%	30 42.9%	0 0%
Participating in organization and public affairs	TB	2 2.9%	4 5.7%	10 14.3%	6 8.6%	10 14.3%	4 5.7%	2 2.9%	32 45.7%
	Control	2 2.9%	6 8.36%	8 11.4%	4 5.7%	12 17.1%	18 25.7%	6 8.6%	14 20%
Learning, getting additional knowledge.	TB	4 5.7%	6 8.6%	8 11.4%	4 5.7%	10 14.3%	14 20%	4 5.7%	20 28.6%
	Control	0 0%	0 0%	6 8.6%	6 8.6%	8 11.4%	28 40%	14 20%	8 11.4%
Understanding yourself	TB	0 0%	6 8.6%	18 25.7%	14 20%	16 22.9%	10 14.3%	4 5.7%	2 2.9%
	Control	0 0%	0 0%	6 8.6%	10 14.3%	34 48.6%	10 14.3%	10 14.3%	0 0%
Work-job or in home	TB	2 2.9%	28 40%	18 25.7%	6 8.6%	10 14.3%	2 2.9%	4 5.7%	0 0%
	Control	0 0%	0 0%	2 2.9%	2 2.9%	14 20%	38 54.3%	14 20%	0 0%
Expressing yourself creatively	TB	0 0%	40 57.1%	8 11.4%	4 5.7%	14 20%	4 5.7%	0 0%	0 0%
	Control	0 0%	8 11.4%	4 5.7%	6 8.6%	14 20%	26 37.1%	12 17.1%	0 0%
Socializing	TB	2 2.9%	10 14.3%	30 42.9%	6 8.6%	18 27.5%	0 0%	4 5.7%	0 0%
	Control	0 0%	4 5.7%	8 11.4%	10 14.3%	8 11.4%	30 42.9%	20 28.6%	0 0%
Reading, listening to music	TB	2 2.9%	16 22.9%	8 11.4%	2 2.9%	24 34.3%	6 8.6%	12 17.1%	0 0%
	Control	0 0%	2 2.9%	0 0%	10 14.3%	8 11.4%	30 42.9%	20 28.6%	0 0%
Participating in active recreation	TB	2 2.9%	12 17.1%	1 22.9%	2 2.9%	18 25.7%	10 14.3%	13 14.3%	0 0%

Contd...

Table 4: Contd...

Domains of quality of life	Population Groups	Terrible (1)	Unhappy (2)	Dissatisfied (3)	Mixed (4)	Satisfied (5)	Happy (6)	Delightful (7)	No response (8)
	Control	2	4	4	6	6	20	28	0
		2.9%	5.7%	5.7%	8.6%	8.6%	28.6%	40%	0%
Independence, doing for yourself	TB	6	2	12	4	28	16	2	0
		8.6%	2.9%	17.1%	5.7%	40%	22.9%	2.9%	0%
	Control	2	0	8	4	14	16	26	0
		2.9%	0%	11.4%	5.7%	20%	22.9%	37.1%	0%

As far as quality of life is concerned, its measure has become a vital and often required part of health appraisal especially in case of TB that is usually interpreted as an interruption in life, physically, psychologically, economically, and socially.[17] Quality of life is a nebulous term (Campbell, 1981) and covers broad domains including physical, psychological, economic, spiritual and social well being,[21] Various studies have been undertaken to understand quality of life in patients with the TB like the one in India.[22] which demonstrate that poor health persist despite microbiological cure of the disease.

The behavior of TB patients has always been a subject of interest for health professionals as they have been psychoanalyzed by Jelliffe and Evans.[23] who concluded that they were "childish, selfish, self-centered, irritable, dissatisfied, and ungrateful". This may of course justifies their non interesting attitude towards adapting and complying with the disease which is why the very dimension of QoL that is significantly influenced in our study sample was patients' perception about their own health. According to Lawn.[24] "patient perception about TB is usually stained, and patients permanently hold negative feelings towards the disease and this in turn is influenced by the existing health-related beliefs in the community, the culture of the community which a TB patient lives in, and the expected health behavior of a patient by the community.[17]

Another important dimension that holds a central place in quality of life and has been victimized by the lasting effects of TB is; relationship to parents, folks and importantly the marital life. It is usually believed that most TB patients even after full recovery from the illness can never be completely cured. Disease-related stigma occurs when individuals with an illness are deemed undeserving of assistance and support from other individuals in the society (Schulte).[25] Over time, certain illnesses, such as TB, have been associated with reduced social status, and these negative reactions may impede coping and recovery.[26] According to Fife and Wright, the psychological adjustments to illness by a patient are negatively influenced primarily by the negative perceptions that other people within the society might hold.[26]

Undoubtedly, a reaction to the stressful situation brought about by the illness negatively affects an individual's ability to work as well. Isolation, lowered self-esteem, fear of spreading the illness to others, helplessness brought out by incapacitation due to chronic illness, and social stigma attached to this illness could all be the plausible causes that can explain for disturbed functionality in TB patients.

As it is evidenced from the vast literature and figures updated from our study, TB patients should not only be treated for their physical health, but a more holistic approach should be undertaken that is the patients should be reassured meticulously about their health and the nature of the diseases so that the impact on patients mental life could be minimized. Or else a quite benign curable disease would put one in a vicious cycle of terrible psychological sufferings like anxiety and depression leading to non adherence to treatment and poor caring, which will deteriorate the wellbeing of the patient.

Similar study was conducted in JPMC in 2008 which highlighted the correlation between illness perception and rising depression in TB patients.[19] Taking a step forward, our study has not only provided the health-related systems in knowing the current estimates of anxiety and depression in tuberculosis but also its significance in the management of disease, witnessed by the various deterred domains of quality of life in TB patients despite their ongoing recovery of physical health.

CONCLUSION

To sum up, psychiatric illnesses like anxiety and depression are a major threat against elimination of TB. Drastic effects have been found to be far beyond then the comparable magnitude seen in control. Parameters of quality of life that do play a key role in establishing quality including perception relating to health, relationships with spouse, siblings or friend, occupational role and recreation both participatory as well aspassive; were found to be dramatically influenced by TB. This entirely enlightens the significance of timely counseling and health education in TB control program for alleviation of mental and social suffering seen in such a high rise.

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How to Cite: Rubeen R, Zareen N, Zameer S, Rasool AG, Naqvi SSN, Iqbal J. Anxiety and Depression in Tuberculosis Can Create Impact on Quality of Life of Patient. Acta Medical International 2014;1(2):93-98.

Source of Support: Nil, **Conflict of Interest:** None declared.

Jurnal 6

Depressive syndrome, anxiety and illness perception in Tuberculosis patients

MAN MILENA ADINA*, OCTAVIA LUIZA NECRELESCU**, COSMINA BONDOR*, ANTIGONA TROFOR***, DANA ALEXANDRESCU****,ELENA DANTES*****
*UMF Iuliu Hatieganu Cluj Napoca,**Spitalul Clinic Leon Daniello Cluj Napoca,
***UMF Iasi, ****UMF Brasov ,UMF Constanta
Caraiman 3 Street, Cluj Napoca
Romania
manmilenaadina@yahoo.com

Abstract: - The incidence of tuberculosis varies in different country, and is very high in Romania. There is a high prevalence of mental illness in TB patients, but primary care physicians and pneumologist do not screen this association

The aims of this study were to evaluate the incidence of depressive syndrome and anxiety in tuberculosis patients hospitalized in Leon Daniello Pneumology Clinical and Savadisla Sanatorium between January 2010- October 2010. The subject replied to the questionnaires (Beck Depression Inventory-BDI, State Trait Anxiety Inventory STAI, and Illness Perception Questionnaire -IPQ) in the present of psychologists, familiarized with such tests. Depression and anxiety are very high in patients with tuberculosis, in our study (6, 78 % for severe depression, 32, 20% moderate depression and 32, 20 for severe, 40, 68% for moderate anxiety).For patients at first admission in hospital (new case) the anxiety score is high than for chronic patients or with multiple admission, .Depression was positively correlated with anxiety (p=0.001) for patient with tuberculosis

Evaluation of mental disorders from tuberculosis patients may increase treatment compliance and reduce relapse. This can ameliorate the prognosis quality of life of patients with this chronic disease. Pneumologist need to develop systematic strategies to screen the mental disorders symptoms in tuberculosis patients and must ask aide from psychology or psychiatric doctor for treat these co morbidities.

Key-Words: - anxiety, depressive syndrome, illness perception, mental illness, tuberculosis

1. Introduction

The incidence of tuberculosis varies in different country, and is very high in Romania. One third of the world population is latently infected, and remains a leading infectious cause of mortality, despite the availability of therapy and the WHO Programs. (1)

Tuberculosis mortality is an important indicator of the success of TB control. Although tuberculosis mortality has reached very small percentage in developed country, remains one of the highest in the world (higher than other infection disease) 8% overall. (2) A higher rate of death was seen among patients with baseline psychiatric, because they defaulted from treatment

The prevalence of TB has declined in general population, but is high to people who live in country with endemic TB, HIV patients, homeless or with low social conditions, patients with history of alcohol or drug abuse. Chronic disease increases co morbidity with mood and/or anxiety disorders, and tuberculosis with high duration of treatment is one of theme. (3)

There is a high prevalence of mental illness in TB patients, but primary care physicians and pneumologist do not screen this association.

ISBN: 978-960-474-278-3

Although anxiety and depression occur frequently in persons with chronic lung diseases, and other chronic lung diseases, depression is recognized in < 50% of depressed patients, this is why The United States Preventive Services Trash Force recommend screening for depression in primary case(4). A survey of 100 hospitalized TB patients in South Africa indicated that 68% had some degree of clinical depression(5), but other study indicated 28-58%.Up to 80% of patients with depression, are either treated by non mental health professionals or receive no treatment at all. In general population depression has a point prevalence of 2, 3% to 4. Prevalence of mood disorder in patients with chronic disease is 8, 9% to 12, 9 %(3.6)

2. Problem Formulation

The aims of this study were to evaluate the incidence of depressive syndrome and anxiety in tuberculosis patients hospitalized in Leon Danielle Pulmonary Clinical and Savadisla Sanatorium between January 2010-October 2010. Study assessing depression level among TB patients are lacking in Rumanian literature.

At the baseline appointment, level of depression was assessed using the Beck Depression Inventory(BDI) commonly used, and the level of anxiety with State Trait Anxiety Inventory STAI) proposed by Spielberger in 1970.

The subject replied to the questionnaires in the present of psychologist, familiar with such tests.

2.1. Materials

We made a cross sectional assessment of depression and anxiety in persons with tuberculosis. TB was diagnosed using national TB guidelines

Inclusion criteria patients with tuberculosis hospitalized in our Clinic or Savadisla Sanatorium (new cases or relapse tuberculosis) who received antituberculosis treatment.

Exclusion criteria: patients with associated cerebrovascular disorder, patients who use antidepressants or anxiolytic medication for psychiatric comorbidites.

2.2Methods

Clinical dates were obtained from medical records. We compared demographic characteristic (sex, age, education level, marital status, homelessness, habitation) diseases clinical stage.(new cases, relapse, chronic diseases) sputum smears and culture, treatment presence of co morbidities (diabetes , history of alcoholism , tobaccos abuse), level of depression and anxiety (depressive symptoms were rated by BDI , STAI and questionnaire for illness perception (Illness Perception Questionnaire - IPQ)

The Beck Depression Inventory (BDI) is questionnaire for measure the intensity, severity, and depth of depression. Its long form is composed of 21 questions but we used shorter form is composed of 13 questions.

Clinically significant level of depression and anxiety were defined by score of BDI: 0-4 Normal, 5-7 mild, 8-15 moderate, >16 sever depression

STAI, or State-Trait Anxiety Inventory, is an instrument that quantifies adult anxiety. It is questionnaire used to simplify the separation between state anxiety and trait anxiety, feelings of anxiety and depression. We used S-Anxiety scale STAI ST and the T-Anxiety scale STAI TR, each having 20 items. These tests are answered on the basis of a 1-4 scale, with the focused areas including: worry, tension, apprehension, and nervousness.

Value 40-60 interpreted like moderate and more than 60 sever symptoms.

For perception of diseases we use the **Illness Perception Questionnaire (IPQ)** short form with 10 questions. Four major cognitive components are identified: Identity - the symptoms the patient views as being part of the disease;

Cause - personal ideas about etiology which may include simple single causes or more

Time-line - how long the patient believes the illness will last. (Acute, chronic or episodic);

Consequences - expected effects and outcome;

Cure/control - how controls the disease.

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High score signify feared perception of disease

Statistical analyses were performed using SPSS 130. Software version variable, with a P= 0, 05, was considered as having statistically significant. The Pearson's chi-square test was used to evaluate the association between exposure variables. 95% confidence interval was used to report the result.

3. Problem Solution

Between January 2010 and October 2010, 60 patients treated for tuberculosis in Pulmonary Leon Daniello Hospital Cluj-Napoca or Sanatorium Savadisla replied to the questionnaires in the presence of psychologist.

We evaluated the proportion of patients with no symptoms or mild symptoms, comparing from to the proportion of those presents moderate or several symptoms (and we made correlation).

The population of tuberculosis patients was predominantly men than women. (86%) but without correlation for BECK, IPQ

The mean age was 45, 31 (range 18 and 73 years years) and the patients from rural area were 44%.

The educational level of patients is in fig1

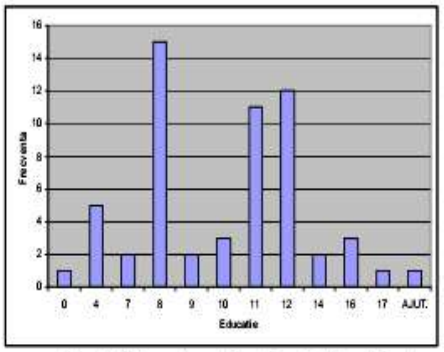

Fig 1 The education level of patients

Marital status were : 38,98% married; 16,95% divorced/separated; 10,17% widowed; 20,34% never married; and 5,08%, unknown, live with somebody but not married 8,47%. Married are older (p=0, 01) with mean age 51, 32 years

Type of living: with family 71, 19%, alone 10, 17%, in Sanatorium 11, 86%, 6, and 78% not known. Married patients were more anxious STAI TR (p=0, 04)

Smoking status 68,80% smoker, 11,86% ex-smoker, 11,86 % never smoker, 3,39% occasional.

The mean value of depression, anxiety score and IPQ were I table 1

Table 1 – Mean Value for age, IPQ, BECK, STAI

	Mean	Minimum	Median	Maximum
age	45,31	18	48,5	64
IPQ	37,63	12	39	26
BECK 13	7,20	0	6	
STAI ST	52,18	24,3	51,6	86,3
STAI TR	51,47	28,5	48,6	89,4

The prevalence of depression (Beck score severe more 16) was 6, 78%. The anxiety scores were STAI ST severe 32, 20%, and STAI TR 25, 42%.

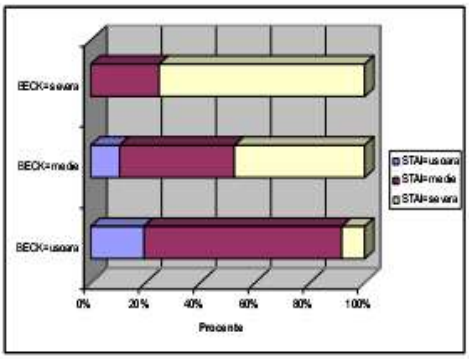

Fig 2 BECK / STAI repartition

The depression score (BECK) was without correlation with: sex, rural/urban area, age, marital status, type of living, smoking status, alcohol abuse. Mean Beck score for female was 8, 13 and for men 7, 14.

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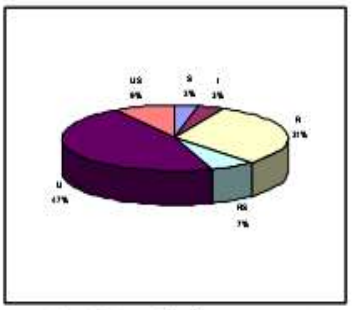

Fig 3 Rural/urban repartition

The anxiety score STAI ST had correlation with female gender (p=0, 04) and type of disease p=0, 01 (relapses are more anxious than new cases).

For STAI TR, the women were more anxious than men (p=0, 04), and married than other type (p=0, 04).

		coeficientul de corelatie Pearson	p
age	IPQ	0,18	0,19
age	BECK 13	0,12	0,37
age	STAI ST	0,06	0,67
age	STAI TR	0,17	0,21
IPQ	BECK 13	0,57	<0,001
IPQ	STAI ST	0,49	<0,001
IPQ	STAI TR	0,52	<0,001
BECK 13	STAI ST	0,57	<0,001
BECK 14	STAI TR	0,67	<0,001
STAI ST	STAI TR	0,76	<0,001

Table 2 Correlations IPQ, BECK, STAI

The perception of the disease correlated with depression score (Beck) and anxiety score STAI ST and STAI TR. (table 2, fig 5, fig 6)

30, 5% patients had other co morbidity (4 had hypertension, 4 diabetes, 5 anemia, 2 COPD, 1 ulcer, 2 chronic pulmonary heart)

22 patients were new cases, and only 2 had multidrug resistance. Fig 4.

The mean causes of disease perceived by patients were: smoking (n=26), untreated cold (n=25), alcohol abuse (N=12), physical fatigue (N=12), microbe (N=12), stress (N=9), occupational hazards (N=8), own behavior – negligence (N=8), diet (N=7), poverty (N=7), cold (N= 7)

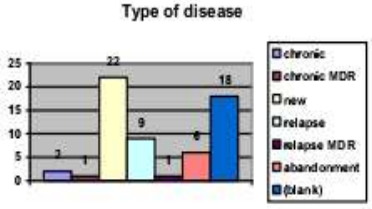

Fig 4 Type of disease

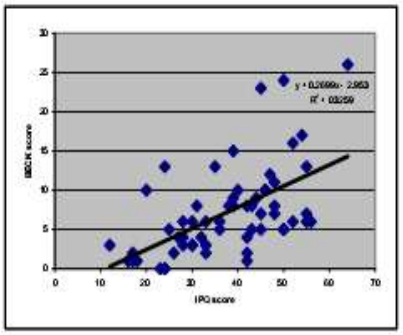

Fig 5. Correlation IPQ BECK

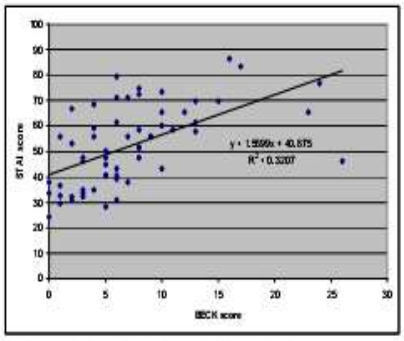

Fig 6. Correlation Beck STAI

The answer to the question "How the disease affect your life" correlate well with the time between diagnosis and questionnaire answers (p=0, 01). In the first week the patients were more afraid. (One patient live in Sanatorium more than 5 years)

4. Discussion and conclusion\

Depresion and anxiety are very high in patients with tuberculosis, in our study (6,78 % for severe depression, 32,20% for moderate depression and 32,20% for severe, 40,68% for moderate anxiety). For patients at first

ISBN: 978-960-474-278-3

admission in hospital (new case) the anxiety score is less than for chronic patients or with multiple admissions. Depression was positively correlated with anxiety (p=0.001) for patient with tuberculosis

Baba and his colleague's show 27, 7% prevalence of depression in Nigeria (lower than 49% found by Aghanwa in Nigeria (7) The difference of prevalence rates can be explained possibly by sensitivity of screening instruments used, other psychological factors associated with hospital admission, other co morbidities, severity and complication of tuberculosis, educational level.

Moussas compared in his study the depression scores in patients with COPD, asthma and tuberculosis and find higher depression score for obstructive pulmonary diseases than patients with tuberculosis (6)

Psychiatric complications (anxiety, depression, psychosis) can greatly impact patient quality of life of patients with MDR- TB therapy (8) (only few in our study)

A study conducted in Turkey showed that the prevalence of depression and anxiety was 19% for recently diagnosed patients with TB, 22% for defaulted TB patients and 26% for patients with Multidrug resistant.(9)

A higher prevalence of psychiatric disorders was found in tuberculosis group (32.2%) compared with 5% in healthy control group in Nigerian study.(10) In a United Kingdom a higher rates of depression and anxiety were in noncompliant TB patients and treating psychological disorders may substantially improve treatment adherence.(11) The tuberculosis patients were in some cases with an unfavorable social status (special patients from Savadisla Sanatorium) with stressful economic factors (financial worry, unemployment, homeless, poverty) and stressful personal factors (divorce or alone, multiple treatment failures or abandon).

Raised depressive prevalence (46%) and anxiety scores (47%) were associated with an increase in the number of symptoms reported, more serious perceived consequences and less control over the illness. Persistent cough may be an additional control of depressive patient (7, .12)

The Tuberculosis patients have an unfavorable social status. Adrenal- cortical activity plays a role in resistance to tuberculosis and that effects of life stress upon the course of tuberculosis in part may be mediated via the adrenal gland. (12)

Also, Psychiatric complications have been associated with antituberculosis therapy since in 1950's. Supplementation of vitamin B6 s can prevent neurotoxicity associated with: Etambutol, Isoniasid and Cycloserin. Fluoroquinolones have been implicated in rare occurrence of psychosis, depression, delirium. (8)

Depression has been shown to be associated with HIV, (with) mortality and disease progression.

5. Conclusion:

Evaluation and management of mental disorders from Tuberculosis Patients (significantly higher compared to general population) may increase treatment compliance and reduce relapse. This can ameliorate the prognosis and quality of life for patients with this chronic disease.

Primary care doctors and pneumologists need to develop systematic strategies to screen the mental disorders symptoms in tuberculosis patients and must ask aide from psycholog or psychiatric doctor for treat these co morbidities.

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ISBN: 978-960-474-278-3

Jurnal 7

Assessment of anxiety, depression, loneliness and stigmatization in patients with tuberculosis

Ayla Yılmaz[1]
Ozden Dedeli[2]

Keywords
Stigmatization; Anxiety; Depression; Loneliness; Tuberculosis, pulmonary

Submitted
June 1, 2016

Accepted
October 17, 2016

Abstract

Objective: The purpose of this study was to assess anxiety, depression, loneliness, and stigmatization in patients with pulmonary tuberculosis.

Methods: A descriptive and cross sectional study was conducted with 208 out-patients in a state hospital due to PT. A patient identification form, Tuberculosis Patients Stigma Scale (TPSS), Hospital Anxiety and Depression Scale (HAD) and University California of Los Angeles (UCLA) Loneliness Scale were used as data gathering forms. Arithmetic averages, standart deviation (SD), pergentage, and correlation were used in statistical analysis.

Results: The prevalence of anxiety (26.0%), depression (60.5%), and loneliness (49.0%) was observed to be among patients with PT. It was found that patients with PT suffered from stigmatization (47.6%).

Conclusion: In conclusion, patients with PT experience high level of depression, moderate-high level of loneliness, mild level of anxiety, and moderate level of stigmatization.

Corresponding author
Ozden Dedeli
Celal Bayar University School of Health
Istasyon Mevkii 45020 Manisa, Turkey.
ozdendedeli@yahoo.co.uk

DOI
http://dx.doi.org/10.1590/1982-0194201600076

[1]Keçiören Eğitim Araştırma Hastanesi, Ankara, Turkey.
[2]Department of Internal Medicine, Celal Bayar University School of Health, Manisa, Turkey.
Conflicts to interest: none to declare.

Introduction

Tuberculosis (TB) is a chronic infectious disease caused by Mycobacterium tuberculosis. It is one of the leading causes of morbidity and mortality worldwide.[1,2] According to World Health Organization (WHO) 2012 estimate, 2 billion people have latent TB, while another 3 million people worldwide die each year due to TB. It remains a major global health problem and a life-threatening disease among millions of people each year and ranks as the second leading cause of death from an infectious disease worldwide, after HIV/AIDS.[3]

Pulmonary tuberculosis (PT) is a disabling medical condition that may interfere with the sense of confidence both physically and emotionally in social settings. On the other hand, because it is historically known to be contagious and life-threatening, social acceptance of patients with tuberculosis may be compromised widely in society. Negative reactions from others who learn of a TB diagnosis can compound the physical impact of TB disease and the social impact of necessary isolation for patients with PT. TB is a contagious and debilitating disease with many adverse consequences. Various psychosocial conditions including depression, anxiety, feelings of loneliness, feeling stigmatized, and social isolation have been previously reported among these patients. Moreover, in a recent study patients with PT were reported to have higher depression, anxiety, loneliness, stigmatized, and social isolation levels may affect adversely proper anti-tuberculosis treatment compliance.[4-6]

Tuberculosis is known to be a social illness. In addition, tuberculosis is accepted as a stigmatizing disease as well. There are several studies carried out about diagnosis, treatment and prevention strategies of TB, however, few researches focusing on psychosocial outcomes of the disease such as stigmatizing, depression, anxiety, and loneliness.[4-6] This issue is very important for the all health professionals should be aware and can play an important role in the patient's ability to avoid the psychosocial consequences. In regards to how health professionals can help patients with TB to prevent negative psychosocial effects from arising, emphasis will be placed on the importance of the encounter between health professionals and patients. The purpose of this study was to assess anxiety, depression, loneliness and stigmatization in patients with pulmonary tuberculosis.

Methods

The study is a descriptive and cross-sectional survey. This study was carried out form October 2014 to February 2015 among patients with PT who presented to tuberculosis clinics of Dr. Suat Seren Tuberculosis and Chest Disease and Surgery Hospital situated in Izmir, Turkey. Izmir is a metropolitan city in the western extremity of Anatolia and the third most populous city in Turkey, after Istanbul and Ankara. It is one of the most westernized city in Turkey. As for, Dr. Suat Seren Tuberculosis and Chest Disease and Surgery Hospital is the first greatest tuberculosis and chest disease hospital in Izmir also this hospital is the fourth greatest tuberculosis and chest disease hospital in Turkey. This hospital has provided health care services with 7 out-patients clinic and 268 in-patient beds which includes nursing and physicians's care, surgery, therapy, laboratory tests, and medical treatment. During the study period, approximately 500 patients applied to the out-patients clinics. According to The Ministry of Health Public Health Agency of Turkey, the prevalance of TB was observed to be 64.0% in 2012.[7] Odds ratio was used to determine strength of association and was reported with 95% confidence interval. Level of significance for this study was 5%. The minimum required sample size of 208 patients with PT was obtained by using OpenEpi.

Participants were selected according to the following criteria; had been one and over years diagnosis of pulmoner tuberculosis, 18-65 years old, able to speak and read Turkish, to be willing participant. The study purpose, procedural details, the participant's rights and potential benefits and risks of the

study were explained and written consent forms were obtained from them. A patient identification form, Tuberculosis Patients Stigma Scale (TPSS), Hospital Anxiety and Depression Scale (HAD), and University California of Los Angeles-Loneliness Scale (UCLA Loneliness Scale) were used the data gathering. In face-to-face interviews, the patient identification form, TPSS, HAD, and UCLA Loneliness Scale were filled by the first researcher in the outpatients clinics. Each interview took approximately 30 minutes.

The patient identification form

The patient identification form includes social-demographic characteristics (age, gender, marital status, education status, income, insurance) past medical history, and duration of PT.

Tuberculosis Patients Stigma Scale

Tuberculosis Patients Stigma Scale measure the level of self-stigmatization in patients with TB which consisted of 33-item and 4 dimensions. The scale was developed by Sert and Olgun, its original language was Turkish.[6] The 4 dimensions were perceived stigma, self-perception, family/friends relations, interalized stigma. The response categories were "1=strongly disagree," "2 = disagree," "3 = agree," and "4 = strongly agree" Scores were ranged from 33 to 132. Higher scores indicate a stronger level of self-stigmatization and interalized stigma, a better level of self-perception and family/friends relations. Validity and reliability of the scale were done by using content, construct and criterion validity. Cronbach's alpha was 0.91, Guttman was 0.829 and Spearman Brown was 0.926 reliability coefficients, item analysis ($p<0.001$) and test-retest methods ($p<0.001$). The scale are well-documented, and norm values for a Turkish population are available.[6] In the present study, alpha coefficient was found 0.74 for the TPSS.

Hospital Anxiety and Depression Scale

The Hospital Anxiety and Depression (HAD) rating scale has been established as a much applied and convenient self-rating instrument for anxiety and depression in patients with both somatic and mental problems, and with equally good sensitivity and specificity as other commonly used self-rating screening instruments. HAD is a 14-item questionnaire, commonly used to screen for symptoms of anxiety and depression. The 14-item can be separated into two 7-item sub-scales for anxiety (HAD-A) and depression (HAD-D). The reliability and validity of Turkish version of the HAD-A and HAD-D are well-documented, and norm values for a general population are available. The scales use a cut off score for anxiety 10/11 and and depression 7/8.[8] In the current study, alpha coefficient was found 0.89 for the HAD.

University California of Los Angeles - Loneliness Scale

A 20-item scale designed to measure one's subjective feelings of loneliness as well as feelings of social isolation. Participants rate each item as either O ("I often feel this way"), S ("I sometimes feel this way"), R ("I rarely feel this way"), N ("I never feel this way"). The measure has been revised two times since its first publication; once to create reverse scored items, and once to simplify the wording. The reliability and validity of Turkish version of the University California of Los Angeles (UCLA) Loneliness Scale are well-documented, and norm values for a general population are available.[9] In the present study, alpha coefficient was found 0.92 for the UCLA Loneliness Scale.

Statistical evaluation of the data was performed via Statistical Package for Social Sciences (SPSS 16.0) soft-ware on computers; social-demographic characteristics and scores of scales were examined using arithmetic averages and standart deviation (SD). Pearson's correlation analysis was used to examine relationships. Probability values (p) less than 0.05 were considered statistically significant.

This study protocol was approved by the Research Ethics Committee of the Celal Bayar University Faculty of Medicine at Manisa, Turkey, number 100. Participants were informed about the aim and nature of the study. The study was initiated upon receiving the approval and consent form of the planned participants.

Results

The demographic characteristics of the participants

The average age of the participants was 45.5±14.8 (minimum-maximum: 31-60) years, and the most of the study participants were married (62.0%) and male (63.0%). The social-demographic characteristics and the clinical status among patients with pulmonary tuberculosis are shown in the table 1.

Total HAD-A score was 7.80±4.14 (minimum-maximum: 0-17), and total HAD-D score was 8.24±4.30 (minimum-maximum: 0-21). The prevalence of anxiety was 26.0%, and depression was 60.5% (Table 2). Total UCLA Loneliness Scale score is presented in the Table 2. Moderate and high levels of loneliness were reported by 80.2% of the patients. Total TPSS score was found to be 94.90±10.67 (minimum-maximum: 62-122) in the patients with PT. 47.6 percent of the patients perceived moderate level of stigmatization (Table 2).

Relationships among total UCLA Loneliness Scale score, and total HAD-A score and total HAD-D score are presented in the (Table 3). A positive significant correlation was defined between total UCLA Loneliness Scale score and total HAD-A score, total HAD-D score ($p < 0.01$). That is, level of anxiety and depression were affected by level of loneliness, and indicating that higher level of loneliness was associated with higher level of anxiety and depression.

A positive significant correlation was observed between total TPSS score and total HAD-A score, total HAD-D score ($p < 0.05$) indicating that higher perception of stigmatization were associated with higher level of anxiety and depression. Statistical relationships among total TPSS score and total HAD-A score, total HAD-D score are presented in the table 3. A positive significant correlation was observed among total TPSS score and total HAD-A score, total HAD-D score. Relationships among total subscales TPSS scores and total HAD-A score, total HAD-D score were defined to be respectively, Self-perception ($p < 0.01$), Family/friends relations ($p < 0.05$), Interalized stigma ($p < 0.01$). Adverse-

Table 1. The socio-demographic variables among patients with pulmonary tuberculosis and description of clinical status among patients with pulmonary tuberculosis (n=208)

Variables	n(%)
Age	
- 49 years and ↓	105(50.5)
+ 49 years and ↑	103(49.5)
Gender	
Female	77(37.0)
Male	131(63.0)
Marital status	
Married	129(62.0)
Single	79(38.0)
Education status	
Literate	36(17.3)
Primary school	119(57.2)
High school	38(18.2)
University and Postgraduate Education (MSc, PhD)	15(7.2)
Vocation/job	
Government official	13(6.2)
Housewife	48(23.1)
Self-employement	24(11.5)
Worker	33(15.9)
Retired	48(23.1)
Unemployed	35(16.8)
Student	7(3.4)
Income	
Low	119(57.2)
Moderate	2(1.0)
High	87(41.8)
Insurance	
Yes	172(82.7)
No	36(17.3)
Clinical status	
Duration of illness	
<6 years	120(57.6)
6-10 years	59(28.3)
≥12 years	29(13.9)
Phase of treatment	
Intensive phase	131(63.0)
Continuation phase	77(37.0)
Category of treatment	
New	168(80.8)
Relapse/treatment after failure	34(16.3)
Return after default	6(2.9)
Co-morbid chronic illness	
No	152(73.1)
Yes	56(26.9)
Family member with TB	
Yes	49(23.6)
No	159(76.4)
To be able to say her/his diagnosis to somebody	
Yes	105(50.5)
No	103(49.5)
To be able to accept his/her illness	
Accept	169(81.8)
Refuse	39(18.8)

continue

continuation

Variables	n(%)
Cigarette use	
Yes	65(31.2)
No	143(68.7)
Alcohol use	
Yes	25(12.0)
No	183(87.9)
Interrupting treatment	
Yes	28(13.4)
No	18(86.5)

Table 2. Mean Scores of Hospital Anxiety and Depression Scale; UCLA Loneliness Scale and Tuberculosis Patients Stigma Scale (n=208)

Hospital Anxiety and Depression Scale	Mean± SD	No Risk n(%)	Exist Risk n(%)
HAD-A	7.80±4.14	154(74)	54(26)
HAD-D	8.24±4.30	82(39.5)	126(60.5)
***UCLA Loneliness Scale	n(%)	Mean±SD*	
Low Level Loneliness (20-34)	41(19.7)	44.36 ± 10.29	
Moderate Level Loneliness (35-49)	102(49.0)		
High Level Loneliness (50 and ↑)	65(31.2)		
Total	208(100)		
**TPSS and subscale	Min-Max Score	Mean±SD*	
Perceived stigma	27-50	37.69 ± 5.12	
Self-perception	10-26	18.37 ± 2.85	
Family/friends relations	9-24	17.83 ± 2.94	
Interalized stigma	9-28		
Total TPSS	62-122		

*SD = Standard Deviation;**TPSS = Tuberculosis Patients Stigma Scale;***UCLA = University California of Los Angeles = Loneliness Scale

ly, there was no significant correlation between Perceived stigma and total HAD-A score, total HAD-D score ($p > 0.05$). According to this findings, Self-perception, Family/friends relations, and Interalized stigma were affected by level of anxiety and depression, but level of anxiety and depression did not affect Perceived stigma. These findings indicated that lower Self-perception, Family/friends relations, and Interalized stigma were associated with higher anxiety and depression.

Statistical relationships among total TPSS score and total UCLA Loneliness Scale score are shown in the table 3. There was no significant correlation between total TPSS score and total UCLA Loneliness Scale score ($p > 0.05$). That is, the perception of stigmatization was not affected by level of loneliness.

Relationships among total subscales TPSS scores and total UCLA Loneliness Scale score were defined to be respectively, Perceived stigma ($p < 0.05$), Family/friends relations ($p < 0.01$) and loneliness, but a positive significant correlation was between Self-perception ($p < 0.01$), Interalized stigma ($p < 0.01$) and level of loneliness. According to this finding, Perceived stigma, Self-perception, Family/friends relations, and Interalized stigma were affected by level of loneliness, and indicating that higher level of loneliness was associated with higher Self-perception, and Interalized stigma. Contrary to, higher Family/friends relations, and Perceived stigma were associated with lower level of loneliness.

Table 3. Relationship between Hospital Anxiety and Depression Scale Scores and UCLA Loneliness Scale Scores. Relationship between Tuberculosis Patients Stigma Scale Scores, Hospital Anxiety and Depression Scale Scores and UCLA Loneliness Scale Scores (n=208)

Hospital Anxiety and Depression Scale	UCLA Loneliness Scale	
	r	p-value
HAD-A	0.64	0.00**
HAD-D	0.74	0.00**

***TPSS and subscale	Hospital Anxiety and Depression Scale					
	*****HAD-A		*****HAD-D		******UCLA Loneliness Scale	
	r	p-value	r	p-value	r	p-value
Perceived stigma	-0.10	0.11	-0.12	0.06	-0.16	0.01**
Self-perception	0.46	0.00**	0.51	0.00**	0.38	0.00**
Family/friends relations	-0.16	0.03*	-013	0.04*	-0.20	0.00**
Interalized stigma	0.22	0.00**	0.26	0.00**	0.19	0.00**
TPSS	0.14	0.03*	0.16	0.01*	0.03	0.63

*Significant association (p-value < 0.05);**Significant association (p-value < 0.01);***TPSS = Tuberculosis Patients Stigma Scale; ****UCLA = University California of Los Angeles = Loneliness Scale; *****Hospital Anxiety and Depression Scale

Discussion

Tuberculosis is a classic example of a infection disease with both medical and social dimensions, characterized by its close relation to poor socioeconomic conditions.[10] The characteristics of the patients in this study give us strong clues about the patient profile of the other TB patients even out of the hospitals. First of all, the study hospital was one of the major reference sanatoriums in Izmir, Turkey (West Anatolian). TB patients especially from the Anatolian region of Turkey were generally known to utilize this hospital. On the other hand, patients from other regions of the country including Istanbul (Northwest Anatolian) and Ankara (Middle Anatolian) where the other sanatorium are located, were also hospitalized. Supporting this idea, we found that some of the social-demographic characteristics of our patients were similar to other studies.[11-13]

The literature indicates that psychiatric comorbidity[14] before and after tuberculosis onset, psychological issues such as stigma, isolation,[15,16] lack of social support, helplessness, loneliness,[17,18] and other psychological reactions to the disclosure of the diagnosis[19] as well as medication side effects, all adversely affect the treatment adherence.[20] In the present study, the prevalence of anxiety was observed to be mild, the prevalence of depression was observed to be high, and the prevalence of loneliness was found to be moderate-high among patients with PT. We observed that 47.6% of the patients reported to moderate level of stigmatizing.

Anxiety and depression are the most frequently occurring mental disorders in the general population.[20] The studies indicate that there is high prevalence of depression and anxiety among TB patients compared to general population which is about 3-17%[21] and 7% to 82.3%,[22] respectively. Studies conducted in different countries on prevalence of depression and anxiety among TB patients shows that 46.3 % (anxiety), 47.2% (depression) in Pakistan,[20] 72.88% (anxiety), 38.98% (depression) in Romania,[23] 40.67% (anxiety), 9.93% (depression) in Greece,[24] 45% (depression) in Nigeria.[25] Contrary to, in our study, the prevalence of anxiety and depression were found to be 26.0%, 60.5%, respectively. However, we found that the prevalence of depression was higher but also the prevalence of anxiety was lower than these studies. The variation might be due to the difference in study design, data collection tool, sample size and difference in study participants.

In recent years, a topic of interest in patients with TB has been self-discrimination and isolation. Traditionally it is known that TB patients feel that they are excluded from the population due to concerns mainly related to disease dissemination.[26,27] In some previous studies, feelings of shame, embarrassment, loneliness or social isolation have been reported among patients with TB.[28-30] In this study, it was determined that moderate and high levels of loneliness among patients with PT. In addition, anxiety and depression were affected by level of loneliness, and higher level of loneliness was associated with higher anxiety and depression among patient PT. These findings were similar to those by Polat & Ergüney[18] which showed that moderate levels of depression and loneliness among patients with PT. Morover, it was stated that a positive significant correlation was observed among loneliness, anxiety, and depression.

Today, TB is accepted as a stigmatizing disease and perceptions of patients with TB about their illnesses can be a way of understanding how 'stigmatizing' affects their social lives. In Southeast Asia, presence of TB with AIDS enhanced stigma of TB. Stigmatizing characteristic of the disease can affect the quality of life of the patients. A study from Mexico City showed that 52% of patients discharged from hospital after treatment for TB were not allowed to go home due to the hostility of their families. Hansel et al.[29] interviewed with patients with TB and they reported that experiencing social stigma and isolation from friends and family as well as suffering from depression and anxiety due to their disease. Such examples may influence patients' relations with their social settings negatively. This is also

confirmed by Kelly[15] who found in her study trial that patients with tuberculosis claimed feelings of stigmatization, anxiety, depression related to their tuberculosis diagnosis. The studies indicate that there is the prevalence of stigmatizing among patients with TB which is about 27-80%.[15,31] Studies conducted in Turkish population on the prevalence of stigmatizing among patients with TB show that 53.4%,[32] 52.3%,[6] 74.4%.[33] In the present study we observed that 47.6% of the patients experienced moderate level of stigmatizing. This finding could be explained due to the meaning of stigmatizing differs from one culture to another.

In this study we found that presence of perceived stigma was highly associated with depression and anxiety. This finding was similar to the studies were conducted in Pakistan and Ethiopia.[20,34] The patients with PT who have high perceived stigma and low family/friends relations which may predispose them depression and anxiety. In addition, stigma accompanying TB could have a negative impact on the individual and family, which may result in their withdrawal from society because of shame and fear.[28,31] Moreover, the current study indicated that poor family/friends relations, loneliness, and low self-perception were significantly associated with depression and anxiety. These findings were similar to the other studies.[18,35-38] The patient with TB effect of stigma can be emotional or psychological such as, stress and anxiety, depression, feeling of loneliness or discrimination and frequently shatters infected person's identity and self-confidence, significantly decreases their ability to manage the disease successfully.[31,39,40] Lack of (poor) social support and chronic illness may lead to increased psychological distress. Since stigmatization in TB patients may limit their socialization, it may be causes of loneliness. In both conditions, patients would make an effort to avoid conversations and feel distant from others.[41,42] In contrast, the findings of our study indicated that no significant relationships exist between UCLA loneliness scale and TPSS total scores. This finding could indicate that the most of patients have accepted of illness and their diagnoses have been clarified to another person. Moreover, a negative significant correlation was defined to be among perceived stigma and loneliness. The patients reported that their loneliness was not affected by stigma. They explained that their loneliness was caused by being hospital, and medical isolation for preventing disease dissemination. But, there was a positive significant correlation among interalized stigma, loneliness, anxiety, and depression. These findings could be explained that stigma and interalized stigma were the major source of depression and anxiety aside, being hospital and medical isolation. However, the results demonstrated that no significant relationships exist between perceived stigma and depression and anxiety. This finding could be explained that, patients did not think stigmatized and they used as a coping method for supress their anxiety, loneliness, anger, unhapiness and depression.

Conclusion

In conclusion, patients whom PT experience high level of depression, moderate-high level of loneliness, and low level of anxiety. In addition to, anxiety, depression and loneliness were associated with moderate level of stigmatization among patients with PT. Of course, there are some limitations in our study. The results of this study may not generalised the community or those patients with PT who lived in population because of the small sample size and only hospital. However, these findings highlight the benefits of regular screening for depression and anxiety in the medical outpatient clinic particularly TB clinics. Treating depression and anxiety and coping loneliness may help decreasing patients' stigma perceptions and improving overall patient management.

Collaborations

Yılmaz A and Dedeli O declaram que colaboraram com as etapas de conceção do estudo, análise e interpretação dos dados, redação do artigo, revisão crítica relevante do conteúdo intelectual e aprovação final da versão a ser publicada.

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Jurnal 8

Global Health Action

ORIGINAL ARTICLE

Psychological distress and its effect on tuberculosis treatment outcomes in Ethiopia

Habteyes Hailu Tola[1,2]*, Davoud Shojaeizadeh[1], Gholamreza Garmaroudi[1], Azar Tol[1], Mir Saeed Yekaninejad[3], Luche Tadesse Ejeta[1], Abebaw Kebede[2], Mehrdad Karimi[3] and Desta Kassa[2]

[1]Department of Health Education and Promotion, School of Public Health, Tehran University of Medical Sciences International Campus, Tehran, Iran; [2]TB/HIV Directorate, Ethiopian Public Health Institute, Addis Ababa, Ethiopia; [3]Department of Epidemiology and Biostatics, School of Public Health, Tehran University of Medical Sciences International Campus, Tehran, Iran

Background: Psychological distress is the major comorbidity among tuberculosis (TB) patients. However, its magnitude, associated factors, and effect on treatment outcome have not been adequately studied in low-income countries.

Objective: This study aimed to determine the magnitude of psychological distress and its effect on treatment outcome among TB patients on treatment.

Design: A follow-up study was conducted in Addis Ababa, Ethiopia, from May to December 2014. Patients ($N = 330$) diagnosed with all types of TB who had been on treatment for 1–2 months were enrolled consecutively from 15 randomly selected health centers and one TB specialized hospital. Data on sociodemographic variables and economic status were collected using a structured questionnaire. The presence of psychological distress was assessed at baseline (within 1–2 months after treatment initiation) and end point (6 months after treatment initiation) using the 10-item Kessler (K-10) scale. Alcohol use and tobacco smoking history were assessed using WHO Alcohol Use Disorder Identification Test and Australian Smoking Assessment Checklist, respectively. The current WHO TB treatment outcome definition was used to differentiate the end result of each patient at completion of the treatment.

Results: The overall psychological distress was 67.6% at 1–2 months and 48.5% at 6 months after treatment initiation. Multiple logistic regression analysis revealed that past TB treatment history [adjusted odds ratio (AOR): 3.76; 95% confidence interval (CI): 1.67–8.45], being on anti-TB and anti-HIV treatments (AOR: 5.35; 95% CI: 1.83–15.65), being unmarried (AOR: 4.29; 95% CI: 2.45–7.53), having alcohol use disorder (AOR: 2.95; 95% CI: 1.25–6.99), and having low economic status (AOR: 4.41; 95% CI: 2.44–7.97) were significantly associated with psychological distress at baseline. However, at 6 months after treatment initiation, only being a multidrug-resistant tuberculosis (MDR-TB) patient (AOR: 3.02; 95% CI: 1.17–7.75) and having low economic status (AOR: 3.75; 95% CI: 2.08–6.74) were able to predict psychological distress significantly. Past TB treatment history (AOR: 2.13; 95% CI: 1.10–4.12), employment status (AOR: 2.06; 95% CI: 1.06–7.00), and existence of psychological distress symptoms at 6 months after treatment initiation (AOR: 2.87; 95% CI: 1.05–7.81) were found to be associated with treatment outcome.

Conclusions: The overall magnitude of psychological distress was high across the follow-up period; this was more pronounced at baseline. At baseline, past TB treatment history, being on anti-TB and anti-HIV treatments, being unmarried, and having symptoms of alcohol use disorder were associated with psychological distress. However, both at baseline and end point, low economic status was associated with psychological distress. Screening and treatment of psychological distress among TB patients across the whole treatment period is needed, and focusing more on patients who have been economically deprived, previously treated for TB, and on MDR-TB treatment are important.

Keywords: *psychological distress*; *treatment outcome*; *psychological distress trend*; *tuberculosis*

Responsible Editor: Stig Wall, Umeå University, Sweden.

*Correspondence to: Habteyes Hailu Tola, Ethiopian Public Health Institute, P.O. Box: 1242, Addis Ababa, Ethiopia, Email: habtetola@gmail.com

Received: 30 June 2015; Revised: 27 October 2015; Accepted: 28 October 2015; Published: 24 November 2015

Citation: Glob Health Action 2015, 8: 29019 - http://dx.doi.org/10.3402/gha.v8.29019
(page number not for citation purpose)

Although the concept of psychological distress is still vague for some, it is broadly defined as a state of emotional suffering characterized by symptoms of depression and anxiety (1). It is a leading contributor of the total burden of disease globally (2, 3), and its comorbidity with other medical conditions is common (4, 5). Evidence shows that mortality rate due to psychological distress is high, and individuals who suffer from serious psychological distress alone die 25 years earlier than the general population (6). The combination of psychological distress with other medical conditions has several health outcomes and medicinal regimen adherence is one of those outcomes (7, 8). For instance, patients with psychological distress have a greater risk of treatment nonadherence (8–11) and are more likely to exhibit risky behaviors such as unsafe sexual practices (8, 12), tobacco smoking (13, 14), alcohol misuse (15), and suicide attempts (16) that may worsen their medical condition and even end their lives. In addition, psychological distress can affect individuals' ability to care for their own health and can cause chronic and physical disability (17).

Existing evidence demonstrates that it is common to find comorbidity between tuberculosis (TB) and psychological distress due to their common social and medical risk factors (18, 19). The magnitude of psychological distress among TB-infected patients on treatment in developing countries is high (20–23). Studies show that depression and anxiety rates among TB patients are higher than among the general population (24). For example, in Pakistan, 72% of TB patients manifest severe or moderate forms of depression and anxiety (21). In contrast, in Nigeria 51.9% of TB patients show symptoms of psychological distress (23). Similarly, a study conducted in South Africa revealed considerable proportions of different degrees of depression among TB patients (22% with mild depression, 38% moderate, and 8% severe) (22). Still, in South Africa 81% of TB patients who were coinfected with HIV had symptoms of psychological distress (20), and 29.6% of TB–HIV coinfected patients on treatment manifested post-traumatic stress disorder (25). Moreover, a study conducted in India reported that 76% of TB patients on treatment developed common mental disorders (CMDs) (26).

Various social, medical, and individual behavioral factors are associated with psychological distress among TB patients (20–23, 26, 27). Of these, poverty or low social status, overcrowding in the home, being TB-HIV coinfected, low educational level (20), and hazardous alcohol consumption (27) are associated with psychological distress among TB patients. Moreover, TB drug-related psychological reactions (9), TB disease perception, clinical conditions (9, 20), marital status, drug adverse reaction and perceived social support (28), and gender (29) are associated with psychological distress among TB patients on treatment.

Although psychological distress has a strong effect on TB patients' general health and treatment outcomes, few studies have been conducted to determine the magnitude and associated factors in low- and middle-income countries, including Ethiopia (20, 30). In addition, there is limited information on the effect of psychological distress on TB treatment outcome and its progress over time across treatment duration and its associated factors. Ethiopia is among 22 high TB burden countries with an estimated incidence of 258 per 100,000 population and a prevalence of 224 per 100,000 (31). However, only one study was conducted in the Oromia Region of Ethiopia to assess CMDs among TB patients coinfected with HIV, and this study reported that 64% of TB patients with HIV manifested CMDs (30). Hence, determining the magnitude of psychological distress and its associated factors among TB patients is essential to clarify the effect of TB on patients' psychological distress. In addition, understanding the effect of psychological distress on TB treatment outcome and its progress over time is important for planning an effective intervention to improve the TB treatment success rate. Therefore, the aims of this study were as follows: 1) to assess the magnitude of psychological distress and its associated factors among TB patients on treatment; and 2) to determine the effect of psychological distress on TB treatment outcome and its trend across the treatment period in Addis Ababa, Ethiopia.

Methods

Study design and setting

A follow-up study was conducted among patients diagnosed with all types of TB in Addis Ababa, from May to December 2014. Currently, Addis Ababa has 53 health centers (HCs) and 10 public hospitals. The study was conducted among 15 randomly selected HCs and 1 purposively selected specialized TB hospital in Addis Ababa. The hospital was selected purposively because it is specialized in TB and a referral hospital, dedicated to treating both drug-susceptible and -resistant types of TB in the city; the hospital is easily accessible to patients with any form of TB. Addis Ababa is the capital city of Ethiopia with an estimated total population of 2,975,608 (32). All HCs in Ethiopia potentially treat TB under the directly observed treatment (DOT) strategy, and TB treatment services are free of charge (33).

Study population and sampling

Patients with all types of TB [pulmonary, extra pulmonary, multidrug-resistant tuberculosis (MDR-TB)] being treated under the DOT strategy were the study

Citation: Glob Health Action 2015, 8: 29019 - http://dx.doi.org/10.3402/gha.v8.29019

population. Fifteen HCs were selected by simple random sampling method from ten subcities in Addis Ababa (one HC per subcity and two HCs from the two most populous subcities), and one specialized TB hospital was included purposively. Based on a previous study, a CMD magnitude of 64% (30), an estimated precision of 5%, and a 10% contingence of sample were considered for sample size estimation. As a result, 391 participants were determined to be eligible for enrollment. However, due to sample shortage during the study period, only 330 participants were enrolled consecutively, having met the criteria of being TB patients who had been on treatment for 1–2 months, not participating in any other study, being mentally capable of providing consent, being above 17 years old, and having lived in Addis Ababa for more than 6 months. The response rate of this study at both points (baseline and end point) was 100%, except for those who defaulted, transferred out, or died. Considering defaulters, deaths, and patients who transferred out as nonrespondents, the response rate of this study at end point was 90.5%.

Data collection

A structured questionnaire was used to collect data on sociodemographic variables such as age, sex, educational status, employment status, and marital status. Economic status was assessed by one structured question with 10 options inquiring whether the participant had the following: personal house (not rented), refrigerator, cupboard, satellite dish, access to electricity and water lines, able to afford private and government house rents and electrical and water service bills, social association membership fees and able to afford the cost of eating food at least three times per day. Each option was recorded with a *yes/no* response; *yes* responses were given a score of 1, while *no* responses were given a score of 0. After summing up the 10 items of economic indicators of households, we divided them into low and high economic status using quartile method, which is one of the standard methods to determine the economic status of households. To collect data on psychological distress, the Kessler 10-item (K-10) scale was used (34, 35). Items on the K-10 scale measure six main psychological distress symptoms over the preceding 30 days. The frequency each item on the K-10 was experienced by a patient was recorded using a five-point Likert scale with responses ranging from 'none of the time' (with a lower score) to 'all of the time' (with a higher score). On the K-10 scale, the higher the total score, the higher the degree of psychological distress related to nonspecific depression, anxiety, and substance abuse (35). This scale has been widely used to assess CMDs among TB patients under treatment and has been validated in several settings including in Ethiopia (20, 30). Alcohol consumption history was collected using the 10-item WHO Alcohol Use Disorder Identification Test (AUDIT-10) (36), while tobacco smoking history was assessed using the West Australian Government Smoking Assessment Checklist (37). Data on HIV and antiretroviral therapy (ART) status were self-reported by patients and were cross-checked with the TB registration book. Treatment outcome, TB treatment history, and TB type were collected from the TB registration book at the end of treatment. Except for sociodemographic variables, which were measured only at baseline (within 1–2 months after treatment initiation), psychological distress and all independent variables were measured twice – both at baseline and end point (6 months after treatment initiation). Before the actual data collection, the questionnaire was validated at a selected study site by test and retest pilot study on a separate 10% of the total sample size of the main study. The consistency of test and retest measures was calculated by intraclass correlation coefficient (ICC). The ICC results for the K-10, AUDIT-10, and smoking assessment checklist were 0.93, 0.90, and 0.95, respectively. The questionnaire was administered by trained health professionals at baseline and at the end of treatment to compare the psychological distress magnitude at two points, associated factors, and its effect on treatment outcome.

Data entry and analysis

Data was entered into IBM SPSS (Statistical Package for the Social Sciences) version 20. The magnitude of psychological distress was determined across different sociodemographic variables to show the distribution of psychological distress among participants' characteristics. In addition, the magnitude of TB treatment outcomes and the overall psychological distress at baseline and end point were determined.

Factors associated with psychological distress were assessed by direct multiple logistic regression. Variables with a p-value less than 0.2 from simple logistic regression analyses were included in the final multiple logistic regression model to assess the independent effect of each variable after adjusting for potential confounders at both points. Moreover, the effect of psychological distress on TB treatment outcome was assessed with direct multiple logistic regression and its progress over the treatment period. Before running multiple logistic regression, the variance inflation factor for all predictors and the condition index for model parameters were calculated to check colinearity. For all predictors, no problem of colinearity was identified.

Although there is some doubt among different reports as to where to set the universal cutoff point for psychological distress symptoms, we used a score of 16 on the K-10 scale as the cutoff based on previous study reports (34, 35). Participants who scored 16 and above on the

K-10 scale were considered to have mild to severe psychological distress, while those scoring below 16 were considered relatively asymptomatic or well. Six items of the WHO TB treatment outcome registration (*cured*, *treatment completed*, *lost to follow-up*, *treatment failed*, *died*, and *not evaluated*) were used to report the final result of each participant. In addition, *treatment success* was considered the sum of *cured* and *treatment completed*, and *lost to follow-up*, *treatment failed*, and *died* were considered poor treatment outcomes.

Ethical consideration

Ethical approval was obtained from the research ethical review boards of the Tehran University of Medical Sciences International Campus, Ethiopian Public Health Institute, Addis Ababa City Administration Health Bureau, and St. Peter TB Specialized Hospital. Both oral and written informed consent were obtained from each study participant. Study participants with severe psychological distress were counseled within health facilities by trained health professionals or referred to other higher health facilities for further treatment.

Results

Study participants' characteristics

A total of 330 TB patients on treatment were enrolled in the study. More than half [191 (57.9%)] of participants were male with a mean age of 32.21 years (SD± = 12.00 years), and the age range was 18 to 90 years. The majority of participants (65.2%) were below 35 years of age, 28 (8.5%) were current smokers, 177 (53.6%) had elementary schooling or less, 211 (63.9%) were unmarried, 153 (46.4%) were unemployed, and 115 (34.8%) were working with the government or private companies, while 10.7% were self-employed. Four-fifths (81.2%) of participants had no alcohol use disorder and 243 (73.6%) were in the category of low economic status. Three-fourths (77.9%) of participants were new to TB treatment, 41 (12.4%) were HIV seroreactive, and 52 (15.8%) were on dual treatment (anti-TB and anti-HIV). More than half of the participants (57.0%) were diagnosed with pulmonary TB, while 89 (27.0%) and 53 (16.1%) were diagnosed with extra-pulmonary TB and MDR-TB, respectively. Regarding treatment outcomes, 55 (16.7%) participants were cured, 182 (55.2%) completed their treatment, 16 (4.8%) defaulted from the treatment, 8 (2.4%) died, and 11 (3.3%) transferred out to other treatment sites. In addition, treatment for 12 (3.6%) participants failed and the treatment outcomes of 46 (13.9%) participants were unknown, because they were on MDR-TB treatment, which requires more than 18 months of follow-up to know the treatment outcome. The overall treatment success rate (*cured* plus *treatment completed*) was 235 (71.2%) and the overall poor treatment outcome (the sum of *treatment failed*, *lost to follow-up*, and *died*) was 36 (10.8%).

Psychological distress and its distribution among participants' characteristics

Psychological distress characterized by depression and/or anxiety at enrollment (1–2 months after treatment initiation) and at 6 months after treatment initiation is displayed in Table 1. The overall prevalence of mild to severe psychological distress symptoms was 67.6% at enrollment and 48.5% at 6 months after treatment initiation (Fig. 1). At enrollment, psychological distress symptoms were prevalent among participants with the following characteristics: male gender, 129 (57.8%); age above 35 years, 74 (76.3%); current smokers, 24 (85.7%); patients who were previously treated for TB, 64 (87.7%); HIV-seroreactive patients, 37 (90.2%); those on dual-treatment (anti-TB and anti-HIV), 47 (90.4%); unmarried individuals, 163 (77.3%); those who had alcohol use disorder, 54 (87.1%); and individuals with low economic status, 186 (76.5%) (Table 1). The distribution of participants' characteristics of psychological distress was approximately similar at baseline and 6 months after treatment initiation (Table 1). Participants who had been on treatment for 1–2 months were more likely to report psychological distress symptoms than participants who had been on treatment for 6 months ($p < 0.001$). Thus, the overall psychological distress magnitude decreased across the treatment period (Fig. 1).

Factors associated with psychological distress

The association of different factors with psychological distress was assessed with simple logistic regression analysis and displayed in odds ratio [95% confidence interval (CI)]. Participants who were above 35 years old [crude odds ratio (COR): 1.83; 95% CI: 1.07–3.13], were smokers (COR: 3.11; 95% CI: 1.05–9.19), had previously been treated for TB (COR: 4.33; 95% CI: 2.09–9.20), were on both TB and HIV treatment (COR: 5.45; 95% CI: 2.10–14.14), had alcohol use disorder (COR: 3.95; 95% CI: 1.81–8.65), and had low economic status (COR: 4.41; 95% CI: 2.63–7.41) were more likely to be psychologically distressed at both baseline (1–2 months) and 6 months after treatment initiation. Moreover, HIV-seroreactive status (COR: 5.12; 95% CI: 1.78–14.78) and marital status (COR: 3.34; 95% CI: 2.06–5.41) were significantly associated with psychological distress at baseline, but not at 6 months after treatment initiation (Table 2). In addition, being on MDR-TB treatment (COR: 2.77; 95% CI: 1.13–6.80) was not significantly associated with psychological distress at baseline, but was strongly associated 6 months after treatment initiation (Table 2). However, the remaining participant characteristics were not significantly associated with psychological distress, either at enrollment or 6 months after treatment initiation (Table 2).

Eight variables (age, current smoking history, TB treatment history, HIV-seroreactive status, ART status,

Citation: Glob Health Action 2015, 8: 29019 - http://dx.doi.org/10.3402/gha.v8.29019

Table 1. Distribution of psychological distress across participant characteristics at baseline

		Psychological distress symptoms at 2 months (*N* = 330)	
Variable		No symptoms *N* (%)	Symptoms exist *N* (%)
Gender	Male	62 (32.5)	129 (67.5)
	Female	45 (32.4)	94 (67.6)
Age group (in years)	<35	84 (36.2)	148 (63.8)
	≥35	23 (23.7)	74 (76.3)
Smoking history	Smoker	4 (14.3)	24 (85.7)
	Nonsmoker	103 (34.1)	199 (65.9)
TB treatment history	First time treated	98 (38.1)	159 (61.9)
	Previously treated	9 (12.3)	64 (87.7)
HIV status	Nonreactive	103 (35.6)	186 (64.4)
	Reactive	4 (9.8)	37 (90.2)
Marital status	Married	59 (49.6)	60 (50.4)
	Unmarried	48 (22.7)	163 (77.3)
ART status	Not on ART	102 (36.7)	176 (63.3)
	On ART	5 (9.6)	47 (90.4)
Education status	High school or less	92 (32.6)	190 (67.4)
	Diploma or above	15 (31.2)	33 (68.8)
TB type	PTB	53 (28.2)	135 (71.8)
	MDR-TB	16 (30.2)	37 (69.8)
	EPTB	38 (42.7)	51 (57.3)
Employment status	Daily labor	11 (40.7)	16 (59.3)
	Unemployed	44 (28.8)	109 (71.2)
	Employed	52 (34.7)	98 (65.3)
Alcohol use disorder risk	No risk	99 (36.9)	169 (63.1)
	Risk exists	8 (12.9)	54 (87.1)
Economic status	Low	57 (23.5)	186 (76.5)
	High	50 (57.5)	37 (42.5)

TB, tuberculosis; ART, antiretroviral therapy; PTB, pulmonary TB; MDR-TB, multidrug-resistant tuberculosis; EPTB, extra pulmonary TB.

marital status, alcohol use history, and economic status) with *p*-values less than 0.2 from simple logistic regression analysis were included in the final multiple logistic regression model. The model as a whole explained between 25.5% (Cox and Snell R-squared) and 35.5% (Nagelkerke R-squared) of the variance in psychological distress symptoms, and classified 76.1% of cases correctly.

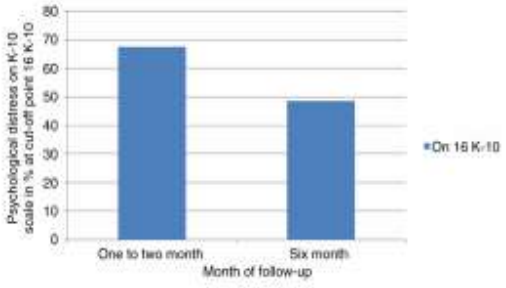

Fig. 1. Magnitude of psychological distress at 1–2 and 6 months after treatment initiation.

On final multiple logistic regression analysis, previous TB treatment history [adjusted odds ratio (AOR): 3.76; 95% CI: 1.67–8.45], being on anti-TB and anti-HIV treatments (AOR: 5.35; 95% CI: 1.83–15.65), being unmarried (AOR: 4.29; 95% CI: 2.45–7.53), having alcohol use disorder (AOR: 2.95; 95% CI: 1.25–6.99), and having low economic status (AOR: 4.41; 95% CI: 2.44–7.97) were significantly associated with psychological distress at enrollment. However, current smoking history (AOR: 1.10; 95% CI: 0.29–4.10) did not persist in predicting psychological distress significantly on multivariate analysis at enrollment.

In contrast, the model containing eight variables (age, current smoking, TB treatment history, HIV serostatus, ART status, TB type, alcohol use disorder, and economic status) with *p*-values less than 0.2 from simple logistic regression analysis at 6 months after treatment initiation explained between 12.9% (Cox and Snell R-squared) and 19.1% (Nagelkerke R-squared) of the variance in psychological distress symptoms and classified 75.4% of

Table 2. Predictors of psychological distress at baseline and 6 months (K-10 > 16)

Variable		At enrollment ($N = 330$)		At 6 months ($N = 298$)	
		Crude OR (95% CI)	Adjusted OR (95% CI)	Crude OR (95% CI)	Adjusted OR (95% CI)
Gender	Female	1.00		1.00	
	Male	1.00 (0.62–1.59)		1.44 (0.85–2.44)	1.32 (0.77–2.26)
Age group	<35 years	1.00		1.00	
	≥35 years	1.83 (1.07–3.13)*	1.35 (0.76–2.39)	2.24 (1.16–4.33)*	1.81 (0.89–3.82)
Smoking history	Nonsmoker	1.00		1.00	
	Smoker	3.11 (1.05–9.19)*	1.37 (0.39–4.86)	8.35 (1.11–62.97)*	4.04 (0.49–33.10)
TB treatment history	First time treated	1.00		1.00	
	Previously treated	4.33 (2.09–9.20)*	3.76 (1.67–8.45)*	2.18 (1.05–4.54)*	1.56 (0.73–3.36)
HIV status	Nonreactive	1.00		1.00	
	Reactive	5.12 (1.78–14.78)*	2.01 (0.71–6.92)	2.81 (0.96–8.25)	1.76 (0.34–8.99)
ART status	Not on ART	1.00		1.00	
	On ART	5.45 (2.10–14.14)*	5.35 (1.83–15.65)*	3.00 (1.14–7.91)*	1.47 (0.33–6.51)
Marital status	Married	1.00		1.00	
	Unmarried	3.34 (2.06–5.41)*	4.29 (2.45–7.53)*	1.28 (0.74–219)	
Education status	Diploma or above	1.00			
	High school or less	0.94 (0.49–1.82)		0.94 (0.44–2.01)	
TB type	Drug suspect TB	1.00		1.00	
	MDR-TB	1.13 (0.60–2.14)		2.77 (1.13–6.80)*	3.02 (1.17–7.75)*
Employment status	Employed	1.00		1.00	
	Unemployed	1.21 (0.76–1.92)		1.24 (0.73–2.10)	1.04 (0.59–1.83)
AUD symptoms	No symptoms	1.00		1.00	
	Symptoms exist	3.95 (1.81–8.65)*	2.95 (1.25–6.99)*	3.57 (1.36–9.35)*	2.17 (0.78–6.03)
Economic status	High	1.00		1.00	
	Low	4.41 (2.63–7.41)*	4.41 (2.44–7.97)*	3.88 (2.21–6.80)*	3.75 (2.08–6.74)*

*Statistically significant. K-10, the 10-item Kessler scale; OR, odds ratio; CI, confidence interval; AUD, alcohol use disorder; ART: antiretroviral therapy.

cases correctly. After adjusting for potential confounders, only being on MDR-TB treatment (AOR: 3.02; 95% CI: 1.17–7.75) and having low economic status (AOR: 3.75; 95% CI: 2.08–6.74) were able to predict psychological distress significantly at 6 months after treatment initiation; none of the other variables significantly predicted psychological distress at 6 months (Table 2).

The effect of psychological distress on TB treatment outcome

Predictors of TB treatment outcome

Previous TB treatment history (COR: 2.15; 95% CI: 1.24–3.71), HIV-seroreactive status (COR: 2.00; 95% CI: 1.01–3.90), employment status (COR: 2.30; 95% CI: 1.39–3.82), alcohol use disorder (COR: 1.82; 95% CI: 1.02–3.25), and existence of mild to severe psychological distress symptoms at 6 months after treatment initiation (COR: 4.82; 95% CI: 1.85–12.54) were able to predict TB treatment outcome significantly from simple logistic regression analysis (Table 3). The final multiple logistic regression model containing six variables (TB treatment history, HIV serostatus, employment status, alcohol use history, psychological distress at 6 months after treatment initiation) after controlling for potential confounder explained between 14.3% (Cox and Snell R-squared) and 22.2% (Nagelkerke R-squared) of the variance in TB treatment outcome and classified 81.5% of cases correctly. Final multiple logistic regression analysis showed previous TB treatment history (AOR: 2.13; 95% CI: 1.10–4.12), employment status (AOR: 2.06; 95% CI: 1.06–7.00), and existence of psychological distress symptoms at 6 months after treatment initiation (AOR: 2.87; 95% CI: 1.05–7.81) were found to be significant predictors of TB treatment outcome (Table 3). However, HIV-seroreactive status (AOR: 2.10; 95% CI: 0.90–4.89) and existence of alcohol use disorder (AOR: 1.25; 95% CI: 0.59–2.65) did not continue to predict TB treatment outcome significantly on multivariate analysis model (Table 3). In addition, psychological distress symptoms at 1–2 months after treatment initiation were not a significant predictor of TB treatment outcome (Table 3).

Discussion

The comorbidity of psychological distress with chronic diseases is common, and numerous associated factors

Citation: Glob Health Action 2015, 8: 29019 - http://dx.doi.org/10.3402/gha.v8.29019

Table 3. Predictors of TB treatment success

Variable		Crude OR (95% CI)	Adjusted OR (95% CI)
Gender	Female	1.00	
	Male	1.30 (0.79–2.13)	
Age group (in years)	<35	1.00	
	≥35	1.29 (0.77–2.16)	
Smoking history	Nonsmoker	1.00	
	Smoker	1.45 (0.65–3.31)	
TB treatment history	First time treated	1.00	
	Previously treated	2.15 (1.24–3.71)*	2.13 (1.10–4.12)*
HIV status	Nonreactive	1.00	
	Reactive	2.00 (1.01–3.90)*	2.10 (0.90–4.89)
Marital status	Married	1.00	
	Unmarried	1.26 (0.76–2.10)	
ART status	Not on ART	1.00	
	On ART	1.59 (0.85–2.96)	
Education status	High school or less	1.00	
	Diploma or above	1.19 (0.61–2.31)	
Employment status	Employed	1.00	
	Unemployed	2.30 (1.39–3.82)*	2.06 (1.06–7.00)*
Alcohol use disorder symptoms	No risk	1.00	
	Risk exists	1.82 (1.02–3.25)*	1.25 (0.59–2.65)
Economic status	High	1.00	
	Low	1.13 (0.65–1.95)	
Psychological distress at 1–2 months after treatment initiation	No symptoms	1.00	
	Symptoms exist	1.25 (0.74–2.10)	
Psychological distress at 6 months after treatment initiation	No symptoms	1.00	
	Symptoms exist	4.82 (1.85–12.54)*	2.87 (1.05–7.81)*

TB, tuberculosis; OR, odds ratio; CI, confidence interval; ART: antiretroviral therapy; *significant variables.

exacerbate comorbidity among patients who have psychological distress with other medical conditions (5). In this study, the magnitude of psychological distress was quite high among TB patients on treatment; however, it decreased across the treatment period. The decline of psychological distress at the end point may be due to the effect of TB treatment, which might have made the symptoms related to TB disappear or decrease. The multiple logistic regression model revealed that past TB treatment history, being on anti-TB and anti-HIV treatment, being unmarried, having symptoms of alcohol use disorder, and being in a lower economic category were associated with psychological distress at enrollment. However, at end point, only being on MDR-TB treatment and being in a lower economic category were associated with psychological distress. At end point of TB treatment, the psychological distress and economic status of study participants were associated with TB treatment success.

Psychological distress and its associated factors

The magnitude of psychological distress decreased significantly across the treatment period among TB patients on treatment. This finding was similar to that reported in a study in Ethiopia by Deribew et al. (38). Overall psychological distress symptoms were high, both at baseline of the study (67.6%) and at 6 months after treatment initiation (48.5%). Our findings were similar to those reported in the study from the Oromia Region of Ethiopia (30), which found that 64% of TB patients with HIV displayed symptoms of psychological distress. However, this finding differed from that in the study by similar authors in Ethiopia (38) at 6 months after treatment. In our study, the magnitude of psychological distress was 48.5% at 6 months; however, Deribew et al. (38) reported a psychological distress magnitude of 18.1% at 6 months after treatment initiation. This difference may be due to a difference in the cutoff point used to categorize the existence of psychological distress symptoms. We used 16 as the cutoff point for the K-10 scale, but in the case of Deribew et al. (38) the cutoff point was unclear. In addition, the magnitude of psychological distress symptoms in this study was lower than in the study reported from South Africa by Peltzer et al. (20), which found 81%. This difference is most probably due to

the difference in study population, socioeconomic status, and timing of the interviews. In our study, the baseline interview was administered within 1–2 months of treatment initiation; however in the case of Peltzer et al. (20) it was administered within 1 month of TB treatment initiation. At 1 month of treatment, the symptoms of psychological distress may be high, because patients recently diagnosed with TB might have developed anxiety immediately upon learning their diagnosis, and symptoms related to TB disease are less likely to decrease within 1 month of treatment initiation.

Although we were not able to find a sufficiently similar study to compare to our findings on the association between previous TB treatment history and psychological distress symptoms, one study reported by Peltzer and Louw (39) showed an association between previous TB treatment history and suicide ideation. This finding is consistent with our finding in showing that individuals who had previously been treated for TB were 3.76 times more likely to report psychological distress than those who were newly diagnosed and had just begun TB treatment.

According to a systematic review study conducted by Pachi et al. (9), TB drugs themselves can induce a psychological reaction and put patients under psychological distress. In addition, antiretroviral drugs, particularly efavirenz, can induce psychogenic effects (19). These findings were similar to our own finding that being on dual treatment (anti-TB and anti-HIV) was associated with psychological distress within 1–2 months of treatment initiation. On the contrary, the study conducted in the Oromia Region of Ethiopia showed the absence of association between being on ART and CMDs (30).

Masumoto et al. (28) found cohabitation status to be associated with psychological distress. This finding is similar to our finding that not being in a marital union (cohabitating, never married, divorced, or separated) was associated with psychological distress. Contrary to our finding, Deribew et al. (30) reported that marital status was not associated with CMDs. This difference may be due to the difference in study participants in both studies. All participants of this study were from the capital city where the living cost is generally too high compared with other urban areas in Ethiopia, which could contribute to higher psychological distress. However, in the case of Deribew et al. (30) the study population was from a semi-urban area where socioeconomic problems are relatively fewer.

A multicenter study carried out by Theron et al. (40) showed a strong association between an increased psychological distress score on the K-10 and heavy alcohol use. In addition, the study conducted by Deribew et al. (30) in the Oromia Region of Ethiopia revealed that the use of a locally made alcoholic beverage (*katikala*) by economically disadvantaged TB patients was associated with CMDs. These findings were in agreement with ours in that participants who had an alcohol use disorder according to the WHO AUDIT-10 were 3.57 times more likely to show psychological distress symptoms. The occurrence of psychological distress symptoms among TB patients who had alcohol use disorder based on the WHO AUDIT-10 criteria may be due to alcohol use disorder or other socioeconomic factors.

Individuals in developing countries suffer from the influence of economic stress, which leads to psychological distress (41). Poverty is one of the main factors associated with psychological distress among TB patients in low- and middle-income countries (20, 30). In this study, the economic status of TB patients was strongly associated with psychological distress, both at baseline and end point of the treatment. In addition, 6 months after treatment initiation, participants on MDR-TB treatment were more likely to report psychological distress than participants who were on first-line TB treatment. However, at baseline of treatment initiation, there was no significant difference observed between patients on MDR-TB treatment and those on first-line TB treatment with respect to psychological distress. This difference may be due to the fact that as the time on treatment increases, psychological reactions to MDR-TB drugs increase; or it may be that patients become frustrated with the longer period required for MDR-TB treatment. Although we were unable to find previous similar studies, a study carried out by Pachi et al. (9) reported that TB medication itself had an effect of 'psychological manifestation'.

The effect of psychological distress on TB treatment outcome

In this study, treatment success rate (*cured* 16.1% plus *treatment completed* 55.2%) was 71.3%. This result was consistent with a retrospective study conducted in southern Ethiopia by Cuevas et al. (42), who reported 74.8% treatment success. On the contrary, studies conducted in northern Ethiopia by Berhe et al. (43) and in southern Ethiopia by Datiko and Lindtjørn (44) showed higher treatment success rates, reporting 89.2 and 83.1%, respectively. Similarly, a 5-year retrospective study conducted by Endris et al. (45) in northern Ethiopia demonstrated a higher (94.8%) treatment success rate than ours. In addition, an historical cohort study conducted in Addis Ababa reported an 82.7% (18.1% *cured* plus 64.6% *treatment completed*)treatment success rate (46), which is still higher than our finding. This difference in treatment success rate is most probably due to difference in study design and study population. The four studies that reported higher treatment success used a registration-based retrospective study design; however, our study was a 6-month follow-up of patients until treatment completion. In addition, unlike the study reported from Addis Ababa, the other studies were conducted in rural and semi-urban populations.

Citation: Glob Health Action 2015, 8: 29019 - http://dx.doi.org/10.3402/gha.v8.29019

It is obvious that using secondary data is prone to registration error, which leads to either overestimation or underestimation of treatment success rate. Moreover, these differences may be due to the treatment outcomes of 46 (13.9%) participants, which were unknown in our study, because these participants were on MDR-TB treatment. MDR-TB treatment requires more than 18 months of follow-up to categorize treatment outcome, but our study follow-up period was only 6 months.

In this study, previous TB treatment history, employment status, and existence of psychological distress symptoms at 6 months after treatment initiation predicted TB treatment outcome. A study in northern Ethiopia by Berhe et al. (43) found similar results to our finding that unemployment and previous TB treatment history were associated with TB treatment outcome. Although we were unable to find a previous study assessing the direct effect of psychological distress on TB treatment outcome, available studies (8–11) reported that psychological distress had an effect of TB treatment nonadherence, which in turn directly affected TB treatment outcome. These results are similar to our finding that psychological distress at 6 months after treatment initiation was associated with TB treatment outcome. In addition, according to a study by Prince et al. (19) and a systematic review by Pachi et al. (9), the association between psychological distress and other comorbidities could contribute to nonadherence to the recommended TB treatment regimens, leading to poor treatment outcomes. Treatment nonadherence is the most challenging factor for global TB control programs, as it is a direct cause of poor treatment outcomes. In addition, treatment nonadherence, which has a strong association with psychological distress, is the most disastrous phenomena: it causes treatment failure, prolongs the disease transmission period, increases the risk of needing retreatment and developing drug resistance, and in general leads to poor health quality of patients. Although the sample size of this study is slightly small, the rates of default, death, and patients transferring out to other health facilities were only 4.8%, 2.4%, and 3.6%, respectively. These figures are quite low; as a result we do not think that bias was introduced and our findings were less likely to be influenced by these attrition rates.

Limitations of the study

The main limitation of this study was that TB patients on MDR-TB treatment were included. As a result, this situation may underestimate the treatment success rate at the study site, because the long follow-up needed for MDR-TB treatment prevented us from knowing the treatment outcomes of these patients (in our study the follow-up period was only 6 months). In addition, treatment outcomes for participants who transferred out to another treatment center were not captured, which may have made the treatment success rate at the study area seem lower than it was. Moreover, this study did not include healthy participants as a control group to distinguish psychological distress related directly to TB disease rather than other socioeconomic conditions. Hence, our findings might have underestimated the treatment success rate and might not have captured the independent magnitude of psychological distress due to TB disease only. Future similar studies need to also include a qualitative study (in addition to a quantitative study) so as to explore the precise associated factors of psychological distress among TB patients, which our study did not address.

Conclusions

Although the overall magnitude of psychological distress among TB patients on treatment was high both at baseline and end point, the magnitude was relatively lower at end point in comparison to that at baseline. Psychological distress symptoms at 6 months after treatment initiation predicted TB treatment outcome significantly. Thus, TB treatment strategies should consider screening and treating psychologically distressed individuals among TB patients by targeting patients who have previously been treated for TB, are on anti-TB or anti-HIV treatment, are unmarried or divorced, have low economic status, are at risk for alcohol use disorder, and are on MDR-TB treatment. In addition, a rigorous comparative longitudinal study with a large sample size is needed to clearly identify the independent effect of TB disease on the mental health status of TB patients and the effect of psychological distress on treatment outcomes.

Authors' contributions

HHT generated the idea, developed the study protocol, supervised data collection, entered the data, conducted data analysis, and drafted the manuscript. DS, GG, AT, AK, and DK assisted with the study protocol development and data interpretation and reviewed the manuscript. LTE participated in protocol development and critically reviewed the manuscript. SY and MK participated in data analysis and interpretation of results.

Acknowledgements

The authors would like to acknowledge the KNCV Tuberculosis Foundation, TB CARE/USAID, and the TB Research Advisory Committee for funding this study. We extend our gratitude to the Ethiopian Public Health Institute for partially funding this study and for other logistical support during data collection. We are also grateful to Dr. Dawit Assefa, Dr. Ezra Shimelis, Dr. Daniel Fiseha, and Dr. Eveline Klinkenberg for their assistance during the funding process of this research and for their input on the protocol of this project. The views expressed here are only those of the authors.

Conflict of interest and funding

The authors declare that they have no conflict of interest. This study was funded by KNCV, USAID/TB CARE-I

through the Ethiopian National TB Research Advisory Committee, and the Ethiopian Public Health Institute.

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Jurnal 9

JURNAL KEDOKTERAN DIPONEGORO
Volume 7, Nomor 2, Mei 2018
Online : http://ejournal3.undip.ac.id/index.php/medico
ISSN Online : 2540-8844

HUBUNGAN TINGKAT STRES DENGAN KUALITAS HIDUP PADA PASIEN TUBERKULOSIS DI RSUP DR. KARIADI SEMARANG

Nurul Eka Putri[1], Fathur Nur Kholis[2], Dwi Ngestiningsih[3]
[1]Mahasiswa Program Pendidikan S-1 Kedokteran Umum, Fakultas Kedokteran, Universitas Diponegoro
[2]Staf Pengajar Ilmu Penyakit Dalam, Fakultas Kedokteran, Universitas Diponegoro
[3]Staf Pengajar Ilmu Biokimia, Fakultas Kedokteran, Universitas Diponegoro
JL. Prof. H. Soedarto, SH., Tembalang-Semarang 50275, Telp. 02476928010

ABSTRAK

Latar Belakang: Terdapat 30% penduduk dunia terinfeksi bakteri Tuberkulosis dan Indonesia merupakan 10 negara dengan insidensi TB terbanyak. Penderita TB memiliki gejala utama yaitu batuk lama, disertai dengan demam, penurunan berat badan, penurunan nafsu makan, kelelahan, serta keringat malam. Pengobatan TB membutuhkan waktu selama 6 bulan dengan banyak jenis obat. Gejala dan pengobatan yang kompleks akan mengakibatkan perubahan pada tingkat stress serta kualitas hidup pasien.
Tujuan: Mengetahui hubungan tingkat stres dengan kualitas hidup pasien Tuberkulosis di RSUP Dr. Kariadi, Semarang.
Metode: Penelitian observasional analitik menggunakan desain *cross sectional* dilaksanakan di Poli DOTS-TB RSUP Dr. Kariadi Semarang. Sampel penelitian merupakan pasien tuberkulosis RSUP Dr. Kariadi Semarang (n=60) yang menajalani pengobatan minimal 1 bulan. Responden diberi *informed consent,* mengisi kuesioner data pribadi, *Depression Anxiety Stress Scale* (DASS), dan *The St George's Respiratory Questionnaire* (SGRQ). Analisis hubungan yang digunakan adalah uji *Chi-square,* uji *Mann-Whitney,* dan uji *Spearman*.
Hasil: Sebanyak 60% responden memiliki tingkat stress normal, 23% tingkat stress ringan, 8% tingkat stress sedang, 5% tingkat stress parah, dan 3% tingkat stress sangat parah. Sebanyak 32% responden memiliki kualitas hidup baik dan 68% memiliki kualitas hidup tidak baik. Terdapat hubungan yang signifikan antara gejala dengan kualitas hidup (p=0,034). Tidak ada hubungan yang signifikan antara usia, lama pengobatan, jenis kelamin, status gizi, pekerjaan, status pernikahan, status ekonomi, dan efek samping obat dengan kualitas hidup. Tidak ada hubungan yang signifikan antara status bakteriologis dengan tingkat stress dan kualitas hidup. Korelasi signifikan ditemukan antara tingkat stress dengan kualitas hidup (p=0,007) dengan korelasi cukup dan searah (r=0,476).
Kesimpulan: Terdapat hubungan yang signifikan antara tingkat stres dengan kualitas hidup pasien tuberkulosis di RSUP Dr. Kariadi Semarang.
Kata Kunci: tuberkulosis, tingkat stress, kualitas hidup.

ABSTRACT

THE RELATIONSHIP OF STRESS LEVEL WITH QUALITY OF LIFE IN TUBERCULOSIS PATIENTS IN RSUP DR. KARIADI SEMARANG
Background: There are 30% of the world's population infected Tuberculosis bacteria and Indonesia are the 10 countries with the highest TB incidence. TB patients have the main symptoms of long cough, accompanied by fever, weight loss, decrease appetite, fatigue, and night sweats. TB treatment takes 6 months with many types of drugs. Complex symptoms and treatment will result in changes in stress levels and quality of life of patients.

JURNAL KEDOKTERAN DIPONEGORO
Volume 7, Nomor 2, Mei 2018
Online : http://ejournal3.undip.ac.id/index.php/medico
ISSN Online : 2540-8844

Aim: To know the correlation between stress level and quality of life on Tuberculosis patients in Dr. Kariadi, Semarang.
Methods: Analytical observational studies used cross-sectional design and did at Poli DOTS-TB RSUP Dr. Kariadi Semarang. The sample of the study was tuberculosis patients of Dr. Kariadi Semarang (n = 60) who underwent treatment at least 1 month. Respondents were given informed consent, filling out personal data questionnaires, Depression Anxiety Stress Scale (DASS), and The St George's Respiratory Questionnaire (SGRQ). The relationship was analysed using Chi-square test, Mann-Whitney test, and Spearman test.
Results: The study showed that 60% of respondents had normal stress level, 23% mild stress level, 8% moderate stress level, 5% severe stress level, and 3% very severe stress level. A total of 32% of respondents have a good quality of life and 68% have poor quality of life. There was a significant correlation between symptom with quality of life (p = 0,034). There is no significant relationship between age, duration of treatment, sex, nutritional status, occupation, marital status, economic status, and side effects of medication with quality of life. There was no significant relationship between bacteriological status with stress level and quality of life. Significant correlation was found between stress level and quality of life (p = 0,007) with fair and positif correlation (r = 0,476).
Conclusion: There is a significant correlation between level of stress and quality of life of tuberculosis patients in Dr. Kariadi Semarang.
Keywords: tuberculosis, stress level, quality of life.

PENDAHULUAN

Tuberkulosis (TB) merupakan penyakit infeksi yang telah lama diketahui dan menjadi penyebab kematian di seluruh dunia. Penyakit ini disebabkan oleh bakteri *Mycobacterium tuberculosis* dan biasanya menyerang paru-paru, meskipun terdapat tuberkulosis yang menyerang organ selain paru-paru.[1] Kompleks bakteri akan terus merusak jaringan hingga dapat menyebabkan kerusakan organ dan berujung pada kematian.[2] Menurut WHO, 30% dari penduduk dunia terinfeksi bakteri TB. Namun hanya sejumlah kecil yang berkembang menjadi penyakit.[3] Data laporan kasus TB global menemukan bahwa Indonesia termasuk dalam 10 negara dengan insidensi TB terbanyak dengan 395 jiwa per 100.000 penduduk. [4]

Pengobatan TB dilakukan dengan mengkonsumsi beberapa jenis obat selama 6 sampai dengan 12 bulan.[5] Seorang penderita TB harus menyelesaikan pengobatan sesuai dengan anjuran dokter. Jika pengobatan dihentikan sebelum selesai, maka TB akan kembali kambuh dan bakteri TB yang masih hidup akan resisten terhadap obat tersebut. Penanganan TB dengan resistensi obat lebih sulit dan lebih mahal.[6] Pengobatan TB yang lama dan baku dengan aturan akan menimbulkan stres psikologis pada penderitanya.[7] Berdasarkan penelitian Nahda, depresi terjadi pada 51.9% pasien

TB. Kejadian depresi pada pasien TB ini berhubungan dengan usia, komplikasi, serta penyakit komorbid yang dialami pasien.[8]

Penderita TB sepanjang perjalanan penyakit akan mengalami beberapa gejala yang mengganggu kehidupannya. Gejala utama TB yaitu batuk dalam jangka waktu yang lama. Selain itu, penderita TB juga mengalami demam yang tidak terlalu tinggi, penurunan nafsu makan, penurunan berat badan, lemah, serta rasa tidak enak (malaise).[9] Berbagai gejala klinis tersebut akan sangat mengganggu penderita TB sehingga mengganggu kualitas hidupnya. Menurut Hendrik, kualitas hidup mengalami peningkatan sejalan dengan penurunan gejala fisik pasien TB.[10] Penelitian Arifah mengenai kualitas hidup pada pasien TB menemukan bahwa terdapat 76% pasien TB yang mengalami penurunan kualitas hidup.[11]

METODE

Penelitian Observasional dengan rancangan penelitian belah lintang (*Cross sectional).* Penelitian dilaksanakan di Poli DOTS-TB RSUP Dr. Kariadi Semarang pada periode April-Agustus 2017. Kriteria inklusi penelitian ini adalah pasien penderita tuberkulosis yang sedang menjalani pengobatan lini 1 minimal 1 bulan pengobatan, usia 17-80 tahun, dapat membaca dan menulis, serta bersedia mengikuti penelitian dengan terlebih dahulu menandatangani *informed consent.* Kriteria eksklusi penelitian ini adalah pasien tuberkulosis ekstra paru, terdapat gangguan komunikasi, dan terdapat gangguan psikosis.

Sampel diambil dengan cara *consecutive sampling*. Berdasarkan rumus besar sampel didapatkan minimal 59 sampel. Pengambilan data dilakukan dengan memberikan kuesioner data pribadi, kuesioner *Depression Anxiety and Stress Scale* (DASS), dan kuesioner *The St. George's Respiratory Questionnaire* (SGRQ) kepada subjek. Sesudah mengs kuesioner dilakukan pengukuran tngkat stres dan gambaran kualitas hidup subjek.

Variabel bebas penelitian ini adalah tingkat stres sedangkan variabel terikat penelitian ini adalah kualitas hidup.

Pada subjek dilakukan uji normalitas data dengan uji *Kolomogorv-Smirnov.* Hubungan tingkat stres dengan kualitas hidup menunjukan distribusi tidak normal dengan uji *Kolomogorv-Smirnov*, sehingga selanjutnya dilakukan uji hipotesis dengan uji *Mann-Whitney* dan uji *Spearman.*

JURNAL KEDOKTERAN DIPONEGORO
Volume 7, Nomor 2, Mei 2018
Online : http://ejournal3.undip.ac.id/index.php/medico
ISSN Online : 2540-8844

HASIL

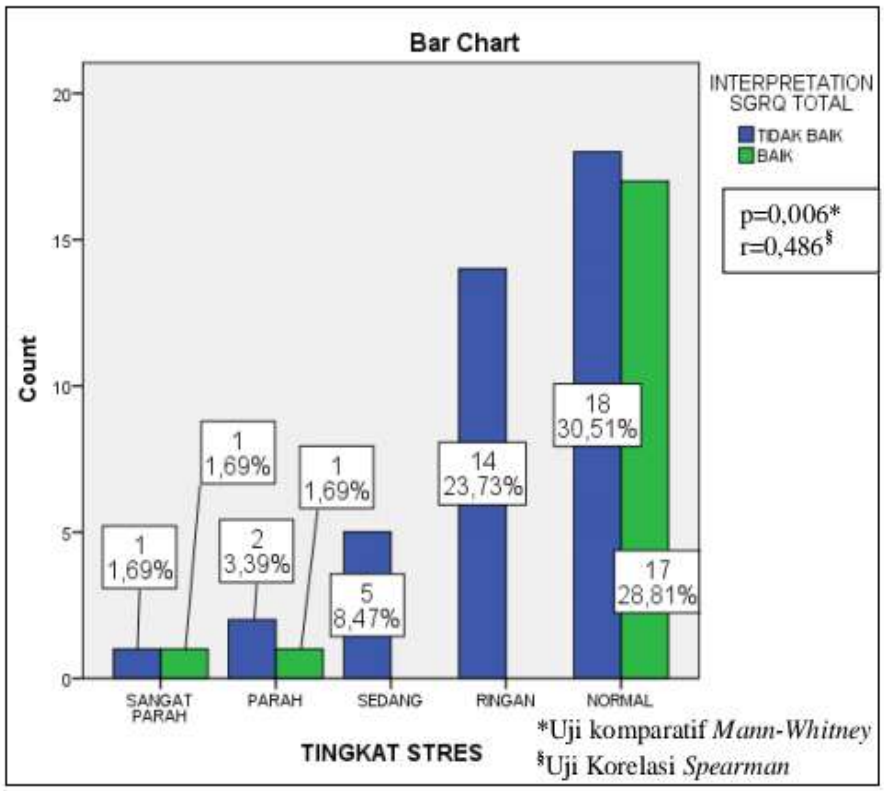
Pengambilan data penelitian dilakukan April-Agustus 2017. Jumlah sampel penelitian yang memenuhi kriteria inklusi dan eksklusi adalah 59 subjek.

Tabel 1. Karakteristik kelompok subjek penelitian (n=59)

Karakteristik	n(%)	Rerata±SB (min-maks)
Usia		38 ± 16 (17-69)
Lama pengobatan		4 ± 3 (1-14)
Jumlah gejala		2 ± 1 (0-4)
Jenis kelamin		
- laki-laki	34(58%)	
- perempuan	25(42%)	
Status Bakteriologis		
- BTA (+)	35(59%)	
- BTA (-)	24(41%)	
Pekerjaan		
- Tidak bekerja	23(39%)	
- Mahasiswa	10(17%)	
- PNS	0(0%)	
- Swasta	15(25%)	
- Wiraswasta	6(10%)	
- Sekolah	5(9%)	
Status pernikahan		
- Belum menikah	23(39%)	
- Menikah	36(61%)	
Status gizi		
- Kurus	28(47%)	
- Normal	27(46%)	
- Gemuk	4(7%)	
Status ekonomi		
- <UMR	35(59%)	
- ≥UMR	24(41%)	
Efek samping obat		
- Tidak ada	16(27%)	
- Mayor saja	0(0%)	
- Minor saja	28(48%)	
- Mayor dan Minor	15(25%)	

Pada tabel 1 didapatkan rerata±SB(min-maks) usia subjek yaitu 38 ± 16(17-69) dengan laki-laki 34 orang (58%) dan perempuan 25 orang (42%). Hasil analisis rerata±SB(min-maks) lama pengobatan subjek yaitu 4 ± 3(1-14) dengan tidak ada efek samping 16 orang (27%), minor saja 28 orang (48%), mayor dan minor 15 orang (25%). Rerata±SB(min-maks) jumlah gejala subjek yaitu 2 ± 1(0-4) dengan BTA (+) 35 orang (59%) dan BTA (-) 24 orang (41%). Keadaan demografi subjek mayoritas tidak bekerja 23 orang (39%), menikah 36 orang (61%), status ekonomi < UMR 35 orang (59%).

Hasil Pengukuran Skor Tingkat Stres



Gambar 1. Hubungan Tingkat Stres dengan Kualitas Hidup

Pada tabel 2 didapatkan hubungan antara tingkat stres dengan kualitas hidup memiliki hubungan yang signifikan dan berkolerasi cukup (0,25-0,5). Selain itu, hubungan antara tingkat stres dengan kualitas hidup juga berhubungan searah, artinya semakin stres seseorang maka kualitas hidupnya semakin buruk.

PEMBAHASAN

Penelitian ini menunjukkan adanya hubungan yang signifikan antara tingkat stres dengan kualitas hidup pasien tuberkulosis. Dari uji korelasi didapatkan hasil korelasi positif dengan kekuatan korelasi cukup pada kedua variabel, yang artinya semakin buruk tingkat stres maka akan semakin buruk pula kualitas hidup. Hal ini sesuai dengan penelitian Bhat yaitu tingkat stres merupakan prediktor negatif terhadap kualitas hidup.[12]

Hubungan yang signifikan antara tingkat stres dan kualitas hidup pada penelitian ini dipengaruhi terutama oleh gejala yang dialami pasien. Semakin banyak jumlah gejala yang dialami pasien,

maka semakin tinggi tingkat stres pasien TB.[13] Sehingga semakin memperburuk kualitas hidup pasien TB.

Pada penelitian Peddirereddy menyatakan bahwa tingkat stres bukan hanya terjadi pada pasien dengan TB aktif, melainkan juga dapat terjadi pada pasien dengan TB laten. Pada pasien TB laten, gejala TB tidak terlihat atau asimptomatik, sehingga pasien cenderung stres dan cemas dengan diagnosis yang diberikan oleh dokter kepadanya.[14]

Theron mengemukakan bahwa tingkat stres pasien dapat dipengaruhi oleh tingkat pengetahuan yang rendah,[15] yang akan berisiko pada peningkatan morbiditas dan mortalitas pasien dengan penyakit infeksi.[16] Sehingga penyediaan sosialisasi mengenai penyakit Tuberkulosis terutama cara penularannya sangat dibutuhkan untuk meningkatkan kualitas hidup pasien TB.[14]

SIMPULAN DAN SARAN

Simpulan

Terdapat hubungan yang signifikan antara tingkat stres dengan kualitas hidup pasien tuberkulosis di RSUP Dr. Kariadi Semarang (p=0,006), berhubungan searah, dan berkolerasi cukup (r=0,486). Hal ini didasari oleh semakin banyak jumlah gejala yang dialami pasien, maka semakin tinggi tingkat stres pasien TB. Sehingga semakin memperburuk kualitas hidup pasien TB.

Saran

Penelitian selanjutnya diharapkan lebih jauh membahas hubungan sebab akibat antar variabel dengan menggunakan desain cohort. Perlu dilakukan penelitian lebih lanjut mengenai hubungan tingkat stres dengan kualitas hidup di fasilitas kesehatan lain, serta perlu penelitian hubungan tingkat stress dengan kualitas hidup pada pasien tuberkulosis ekstraparu diakarenakan angka kejadiannya sudah setara dengan tuberkulosis paru. Disarankan penyedia layanan kesehatan untuk lebih memperhatikan tingkat stres dan kualitas hidup pasien dalam menjalani pengobatan agar didapatkan hasil pengobatan yang maksimal. pengaruh *kafein* terhadap tingkat atensi dengan dosis kafein yang berbeda.

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Jurnal 10

KnE Life Sciences

ICHT 2019
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Volume 2019

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Conference Paper

The relationship of stress level and quality of life among patients with Tuberculosis in Makassar, Indonesia

I Kade Wijaya, Musmulyadi, and Rahmatul Ummah

Department of Nursing, School of Health sciences Panakkukang Makassar, South Sulawesi, Indonesia

Abstract

Background: Pulmonary tuberculosis is caused by Mycobacterium tubekulosis which can affect most organs of the body is the lungs. Chronic pain conditions tend to cause increased stress associated with decreased physical function, treatment and death threats. Physical, environmental and psychosocial conditions are factors that influence life quality of the patients. **Objectives:** the aim of this research was to find out the correlation of the stress level and life quality of the patients with pulmonary tuberculosis at Balai Besar Kesehatan Paru Masyarakat Makassar. **Method:** this is an analytical survey research that employed the approach of cross sectional study. The research was conducted in 21st of January to 7th of February 2019 at Balai Besar Kesehatan Paru Masyarakat Makassar. The sample was selected by using purposive sampling based on the inclusion and exclusion and as many as 37 samples were chosen as the respondents. The data were gathered by questionnaire, data collection instrument for stress level using DASS-14 and life quality using WHOQOL-BREF-26, then processed by SPSS and analyzed by statistical test of *Kolmogorov Smirnov* with the significance degree of 95% (α=0,05). **Result:** the result showed that the mild stress level and good life quality was found in 19 (79.2%) respondents, moderate stress level with good life quality was found in 3 (27.3%) respondents, severe stress level and good life quality was expressed in 0 (0.0%) respondent, mild stress level with bad life qulaity was found in 5 (20.8%) respondents, moderate stress level with bad life quality in 8 (72.7%) respondents, and severe stress level with bad life quality was 2 (100%) respondents. The test result of the value of $p = 0.013$, means the value of p was lower than $\alpha = 0.05$. **Conclusion:** there were associations between stress level and the life quality of the patients with pulmonary tuberculosis at Balai Besar Kesehatan Paru Masyarakat Makassar.

Keywords: Quality of life, stress level and pulmonary tuberculosis.

Corresponding Author:
I Kade Wijaya
adhe.stikpan@gmail.com

Received: 22 September 2019
Accepted: 4 October 2019
Published: 10 October 2019

Publishing services provided by Knowledge E

Selection and Peer-review under the responsibility of the ICHT 2019 Conference Committee.

1. Introduction

Tuberculosis (TB) lungs is an infectious disease caused by bacterial infection mycobacterium tuberculosis and has become global attention. A source of transmission of which is the patient tuberculosis basil is acid resistant positive through tiny sputum. The

issuance of Tuberculosis lungs with basil is acid resistant negative also still have the possibility of transmitting disease tuberculosis lungs although. Small level of exposure as not preclude the possibility the number of patients with tuberculosis lungs from year to year are growing increasingly. In 2016 tuberculosis lungs attack 10.4 million people in the world and cause of death on 1,4 million patients with tuberculosis lungs. India, Indonesia, and china is a country with tuberculosis sufferers lungs most namely, respectively with the number of cases 23 %, 10 %, and 10 % of all patients in the world [1].

World health organization global tuberculosis report, pulmonary tuberculosis (TB) is one of the 10 causes of death in the world [1]. Tuberculosis (TB) in South Sulawesi in 2015 was 153 / 100,000 people and where the city of Makassar occupied the first level in the number of cases with pulmonary tuberculosis [2]. BBKPM Medical Record report of Tuberculosis cases in 2017 there were 668 people and in 2018 (from January to September) as many as 227 people. Pulmonary tuberculosis is a disease that affects not only physical health, but also the psychological and social conditions. the patient's psychological and social impact is due to the stigma associated with pulmonary tuberculosis and changes in the attitudes of those around him. The impact of pulmonary tuberculosis can affect various life forms and cause a decrease in the quality of life of patients [3].

Based on the above background and the impact that will arise on patients with pulmonary tuberculosis (TB) will cause changes in stress levels with the quality of life of patients. So the aims of study is to identify the relationship between stress levels and quality of life for pulmonary tuberculosis patients at the Balai Besar Kesehatan Paru Masyarakat Makassar.

2. Methods

The research design used in this study was analytic survey. By using the Cross sectional study approach which is a form of observational (non-experimental) study to find the relationship between the stress level and quality of life lung tuberculosis patients. The population in this study were 41 patients and Sample in this study were 37 patients. The sample were selected by using purposive sampling technique.

This research was conducted at the DOTS Centre in Balai Besar Kesehatan Paru Masyarakat Makassar on 21 January – 7 February 2019. The data were gathered by questionnaire, data collection instrument for stress level using DASS-14 and life quality

using WHOQOL-BREF-26, then processed by SPSS and analyzed by statistical test of *Kolmogorov Smirnov* with the significance degree of 95% (α=0,05).

3. Results

TABLE 1: Distribution of Respondents Based on Stress Levels at the Balai Besar Kesehatan Paru Masyarakat Makassar in 2019.

Stress Level	n	%
Light	24	64.9
Medium	11	29.7
Weight	2	5.4
Total	37	100

Based on table 1, shows that of 37 proportion who suffered minor stress level was more dominant as much as 24 (64.9 %) respondents.

TABLE 2: Distribution of Respondents Based on Quality of Life at the Balai Besar Kesehatan Paru Masyarakat Makassar in 2019.

Quality Of Life	n	%
Good	22	59.5
Deficient	15	40.5
Total	37	100

Based on table 2 shows that of 37 the number of respondents, having the quality of life of more good dominant as many as 22 (59.5 %) of respondents.

TABLE 3: Relationship between Stress Levels and the Quality of Life of Lung Tuberculosis Patients at the Balai Besar Kesehatan Paru Masyarakat Makassar in 2019.

Stress Level	Quality Of Life				Total		P value
	Good		Deficient				
	n	%	n	%	n	%	0.013
Light	19	79.2	5	20.8	24	100	
Medium	3	27.3	8	72.7	11	100	
Weight	0	0.0	2	100	2	100	
Total	22	59.5	15	40.5	37	100	

Based on table 3 shows that of the 37 respondents who experience stress level lightly with good quality of life as much as 19 (79.2 %) respondents, than that experienced stress level lightly with quality of life needs to be as much as 5 (20.8 %) respondents. For the respondents who experience stress level got a good quality of life as much as 3 (27.3 %) respondents, than that experienced stress levels are less well with quality of life as much as 8 (72.7 %) Respondents, And the respondents who suffered under great stress level

with good quality of life as much as 0 (0.0 %), respondents than that experienced under great stress level with quality of life needs to be as much as 2 (100 %) respondents.

4. Discussion

The results of bivariate analysis obtained using the Kolmogorov Smirnov test obtained p value = 0.013 which means that there is a relationship between stress and the quality of life of pulmonary tuberculosis patients at the Balai Besar Kesehatan Paru Masyarakat Makassar. This is because the lighter the level of stress experienced by the patient, the better the quality of one's life. Because the level of stress experienced by patients is a mild level of stress so that patients are not too burdened with the disease. This is also because the patient considers that when a disease is overtaken on an ongoing basis it can make the patient's health more disturbed. This study also found respondents who experienced mild stress levels with poor quality of life. Based on the results of interviews this is caused by environmental factors or social factors because people assume that someone who is infected with pulmonary tuberculosis should be avoided so that patients are difficult to socialize [4].

Research conducted by [5] there are a significant relation exists between the level of the stress associated with the quality of life of patients tuberculosis in RSUP dr.Kariadi Semarang.While according to Suriya (2018), the results of the study found that there was a correlation depression with the quality of life of patients pulmonary tuberculosis at the hospital special makes the deep pulmonary in west Sumatra [6].

The stress is a reaction physical and psychological different on individuals and occurring in certain circumstances are threatening [7].Stress an impact of overall at the impact on individual physical, social and psychological.Stress categorized there are three i e stress light, medium and heavy.Light stressor stress is facing can run a few minutes or clock, stress lightly frequent the daily and usually not accompanied the emergence of symptoms.The rate of stress ongoing a few hours to some.Stress this could cause symptoms such as easily anger, offended, agitated.And stress weight is the situation long perceived by someone can last few weeks until a few months.More often and stress are more situation, the higher health risk posed This is in accordance with the opinion of Angriani in Octaviyanti (2013) [8], [9] that the factors that influence a person's quality of life are interpersonal conditions, including social relationships in the family. This study also found respondents who experience moderate-to-severe stress levels with good quality of life, this is because patients have the ability and opportunity

to deal with and control the conditions they experience, so that people can maintain their quality of life in a more positive direction.

This is also influenced by interpersonal factors, including social relations in the family Because social support, family, relatives, and peers can make a person's quality of life good [10]. This study also found respondents who experienced moderate-to-severe stress levels with poor quality of life. This is because the patient does not have the ability to control the condition he experiences so that the patient is not able to maintain the quality of life.

The brief description above can be seen that in a situation or quality of life a person can be influenced by more than one factor. If in his life a person experiences a pressing situation or changes in conditions (becomes bad), but if he has the ability and opportunity to deal with and control the situation experienced, that person can maintain the condition of his quality of life in a more positive direction [11].

5. Conclusion

The stress level of patients in the Balai Besar Kesehatan Paru Masyarakat Makassar shows that the majority of respondents with a stress light with The quality of life of majority of respondents with the live either. There were associations between stress level and the life quality of the patients with pulmonary tuberculosis at Balai Besar Kesehatan Paru Masyarakat Makassar. As health workers should always give education to increase the motivation to patients order not to be easily stress and has a good quality of life.

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