



The Prevalence and Pattern of Depression in Patients with Tuberculosis on Follow-up at Jimma University Specialized Hospital and Jimma Health Center

Alinur Adem¹, Markos Tesfaye², Mohammed Adem²

¹Department of Public Health, College of Health Sciences, Jigjiga University, Jigjiga, Ethiopia.

²Department of Psychiatry, College of Public Health and Medical Sciences, Jimma University, Jimma, Ethiopia.

³Department of Public Health, College of Health Sciences, Jigjiga University, Jigjiga, Ethiopia.

Abstract

Depression is an important public-health problem and is one of the leading causes of disease burden affecting 121 million people worldwide. The life time risk of depression in the general population is higher in women than men. However, the prevalence of depression in those with chronic illnesses is much higher. Depression and chronic illnesses co-exist because of physical changes from the illness trigger the depression resulting in vicious cycle. The prevalence of depression in tuberculosis patients is about 49%. It increases in prevalence with older age, duration of illness, disease severity and HIV Co infection. Aim of this study was to assess the prevalence of depression in the tuberculosis patients and its relationship with regard to socio demographic factors, disease characteristics, treatment factors and HIV infection. Institution based cross sectional survey was conducted by a face to face interview using standardized questioner, the Kessler, which has scores for classifying the patients having depression. It was conducted at Jimma University Specialized Hospital and Jimma Health Center Tuberculosis follow up clinics on 248 patients from January 1 to 29, 2010. In addition, reviewing of records of the patients was done. The study showed that 19.82% of tuberculosis patients were cases of depression from a total of 222 patients that were interviewed. Depression cases were 100% in older age group. From the total female population, depression cases were 25%. In widowed, it was 36.36%. Most of them (32.20%) were those who had attended secondary school. Farmers had higher depressive rate being 61.11%. Regarding disease characteristics, 21.86% of the depressed had pulmonary TB. Those who had illness lasting greater than 1.5 year had higher percentage being 71.43%. Majority of the depressed (26.75%) were in category I and 63.64% in initiation phase. Significant proportions (65.12%) of the depressed were HIV positive ($\chi^2=8.08$, $p\text{-value} = 0.001$). There was significant percentage of depressed TB patients. The treatment of psychiatric co morbidities should be incorporate in the treatment of TB patients in order to achieve the goal of the Directly Observed Therapy strategy.

Key Words: Depression, tuberculosis, prevalence, Ethiopia

Corresponding Author: Mohammed Adem, Department of Public Health, Jigjiga University, Jigjiga, Ethiopia.

E-mail: mohzum@hotmail.com

Introduction

Among infection diseases, tuberculosis (TB) is the number one killer disease worldwide. WHO estimates that 2 billion people have latent TB, while another 3 million people worldwide die each year due to TB [1]. Due to the HIV pandemic, the incidence of TB is increasing. In newly diagnosed TB patients, HIV Co infection occurs over 40% of the time. Latent TB infection in HIV positive persons seems too reactive at the rate of 10% per year as opposed to 10% in a life time for HIV negative persons [2]. In Ethiopia an estimated 0.62% of the population has active TB with annual incidence of 0.36%. According to the Ministry of Health hospital statistics data, TB is one of the leading causes of morbidity, the fourth cause of hospital admission, and the second cause of hospital death in Ethiopia [3].

Depression is a common mental illness and one of the leading causes of disease burden affecting 121 million people worldwide. Suicide due to depression is associated with the loss of about 850,000 lives every year [4]. In general population, the life time risk of depression is 10% to 25% for women and 5% to 12% for men [5]. In Ethiopia, a survey done in Addis Ababa showed that the life time prevalence is 2.7% for depressive episodes, 0.2% for recurrent episodes, 0.3% for bipolar and 1.6% for persistent mood disorder [6]. However, the prevalence of depression in those with chronic illness in the world is much higher, i.e. 25% to 33%. It is estimated that up to one-third of individuals with a serious medical condition can experience symptoms of depression. The risk increases with severity of illness and the level of life disruption it causes [5].

According to findings from worldwide research, 20% of patients with somatic disease suffer from major depression. In relevant studies in Greece, 28.1% of patients hospitalized in general medical or surgical hospital wards had depression [7]. In TB patients, the prevalence is 49% [8] and increases to 54% in hospitalized TB patients [9]. In a research done in Nigeria, 41.9% patients had depressive symptoms [10].

Depression co morbid with chronic illness often aggravates the illness. It tends to make people withdraw into social isolation. It intensifies pain, causes fatigue and sluggishness that can worsen the loss of energy associated with these conditions which is needed for exercise and activities. Without exercise, the body gets run-down, this can then interfere with successful treatment of the chronic illness [5]. Poor adherence to anti TB medication is important barrier to global control of the disease, and increases the risk of both individuals

and communities. Even though depression has important effect on adherence to treatment for many clinical conditions, the amount of research into co morbidity between TB and mental disorders is surprisingly low [11]. Data regarding to the above context could not be found in Ethiopia.

The failure of Directly Observed Therapy (DOTS) to deliver improvement in treatment completion or cure has led to calls for rigorous investigation of extended interventions that address other factors known to influence adherence like depression. Interventions based on cognitive behavior therapy were done and have proved helpful in the management of various chronic diseases and in TB patients, it resulted in less percentage of defaulter rate and increased number of treatment completion [11].

Tuberculosis, an illness with life threatening complications and disabilities, needs strict adherence to treatment and life style modification to effectively combat the illness. Therefore, this study will show the scope of the problem in the study area and information gathered from this study will provide baseline data and serve as an incentive to do larger scale studies in this area that might help to improve the overall care given to TB patients. Furthermore, this study will provide baseline data to assist policy makers in developing appropriate strategies that promote integration of psychiatric co morbidities in the treatment of TB. The aim of this study was to assess the prevalence and pattern of depression in patients with TB and those who are HIV co infected who have follow up Jimma University Specialized Hospital and Jimma Health Center.

Materials and Methods

Study area and study period:

The study was conducted in Jimma university specialized Hospital (JUSH) and Jimma Health Center (JHC) TB follow up clinic. Jimma university specialized hospital is a teaching hospital and the largest hospital in south western part of Ethiopia. JUSH TB follow up clinic is situated in Jimma town 345 km south west of Addis Ababa and it gives services to around 400 patients per year and JHC TB follow up clinic situated in Jimma town that gives service to around 300 patients since 1999 which was around 700 before the integration of DOTS in the private clinics. This study was conducted from January 1 to 29, 2010.

Study design

A cross sectional survey and record reviewing. Data were collected by a well structured pre-tested questionnaire which was filled carefully by the principal investigators. A face-to-face interview was conducted along with simultaneous review of medical charts. The sample size required for the study was calculated using the formula to estimate a single population proportion. As a result, the number of sample size required for this study was calculated to be 700. All TB patients who were on follow up at both selected study sites during the study period fulfilling the inclusion criteria of 12 years and older, with no intellectual disability and difficulty of communication due to severe distress and those who were willing to participate in the study were included until the sample size of 700 was reached.

Data collection process

A pre designed questionnaire, the Kessler which is prepared to be used for the rating depression and anxiety and is prepared in English language. The questionnaire is validated to be used in Ethiopia in Amharic language. It has specificity of 75.9% and sensitivity of 84.6%. It consists of 10 questions with five multiple choice answers. The questionnaire was reviewed and discussed with a psychiatrist and briefing was done by the psychiatrist to the principal investigator on the way of data collection. It was tested on three randomly selected TB patients who were residents of the catchment area. The result was reviewed, compared and adjustment was made on the way of interviewing process. Data was collected by Medical Interns, who speak local languages. Data collectors were trained by principal investigators for two hours on the way of data collection. A face to face interview was conducted and the answers were scored from 0 – 4, added together and those that scored 7 and above out of 40 were regarded as a case of depression. After data was collected the questionnaire was cross checked and the result was interpreted depending on the scoring system. The data collection was supervised by the principal investigators on daily basis.

Statistical analysis

Data was cleared, coded and entered into the computer to be analyzed using Statistical Package for Social Sciences (SPSS) version 16 and the result was displayed in tables and figures. Frequency distribution, percentage and chi square(x²) tests to detect association at

5% level of significance for selected variables were calculated as appropriate. Association was considered to be significant at p-value <0.05.

Ethical consideration

Ethical approval was obtained from Jimma University to Student Research Program (SRP) office to JUSH and JHC TB clinics before the data collection process. The objective of the study was clarified for the officials. Data was collected after explaining the purpose of questions and after getting the patients consent. The right of individuals not to participate in the study was respected and participation in the study was on voluntary basis. Patient's privacy was respected where only codes were used instead of patient's name.

Results

Socio-demographic results

From a total of 248 patients on follow up at JUSH and JHC TB clinics, only 222 patients were found and interviewed during the study period with a response rate of 89.5%. Among the 222 respondents, 126(56.76%) were males and 96(43.24%) were females. Majority of them 148(66.67%) were in the age group from 19-40 years. Around 105(43.30%) were singles, 72(32.43%) married, 23(10.36%) widowed and 22(9.91%) were divorced. Pertaining to the educational status of the respondents, majority of them 80(36.04%) were in primary school. Concerning occupational status, 65(29.28%) were government employee, 24(10.81%) were merchants and 18(8.11%) were farmers (Table 1).

The total number of cases of depression from the total interviewed patients was 44 i.e.19.82%. Depression cases were 100% in the age group above 65 years of age, followed by 18.92% for those in the age group from 19-40 years. There was statically significant association between age and depression (p=0.01). From the total male population, about 20(15.87%) of them were depressed. Depression cases were 24(25%) among female population.

From the total of widowed population, percentage of depression was 36.36% followed by divorced i.e. 26.09% and 18.09% for singles. Those who attended secondary school had higher percentage which is 32.20% followed by illiterate 30.77% and 23.08% for tertiary.

Regarding occupational status, most of the cases of depression were farmers i.e. 61.11% followed by government employee and merchant being 26.15% and 25.0 % respectively (Table 2). But there was no significant association between depression and other socio-demographic factors since all the characteristics association resulted in a p-value >0.05 (Table 2). There was no significant association between social factors and substance use with that of depression (p-value=0.132).

Characteristics of the disease (TB)

Majority (48.19%).of the cases of depression had pulmonary TB and regarding duration of illness (TB), higher percentage (71.43%) was found in those who had illness that lasted more than 1.5years followed by 66.67% for 1-1.5years and 13.75% for 6months-1year. There was significant association with depression with ($p = .001$) (Table 3).

Depression was 100% in those with severe degree of illness followed by moderate degree that is 28.13% and 9.92% for mild illness. There was significant association between severity of the illness (TB) and depression (Depression was 100% in those with severe degree of illness followed by moderate degree i.e.28.13% and 9.92% for mild illness. There was significant association between severity of illness (TB) and depression with (p= 0.01).

Treatment factors

Most 42 (26.75%) of the depression cases were in category I and the rest were in category

III. There was no significant association between treatment category and depression (p = 0.081) (Table 4). All interviewed patients were found to be adherent to treatment. Large numbers of depression cases (63.64%) were in the initiation phase and statistically significant association was not observed between the phase of treatment and depression (p= 0.653).

Co morbid illness with TB

From the total number of cases interviewed, 43(19.37%) of them were HIV positive and of these 65.12% of them were depressed (Fig 3). statistically significant association was observed between HIV positivity and depression with (p = 0.001). All depressed HIV patients were in stage III and all respondents had no previous history of psychiatric illnesses.

Table 1. Distribution of patients with TB on follow up at Jimma University Specialized Hospital and Jimma Health Center TB clinics by their socio-demographic factors from March 15 – 24, 2010. (N=222)

Socio demographic variables		Number (%)
Age in years	12 – 18	10 (4.50%)
	19-40	148(66.67%)
	41 – 65	54(24.33%)
	>65	10(4.50%)
Sex	Male	126(56.76%)
	Female	96(43.24%)
Marital status	Single	105(47.30%)
	Married	72(32.43%)
	Divorced	23(10.26%)
	Widowed	22(9.11%)
Educational Status	Illiterate	26(11.7%)
	Literate	18(8.11%)
	Primary	80(36.04%)
	Secondary	59(26.58%)
	Tertiary	39(17.57%)
Occupational Status	Government employee	65(29.28%)
	Merchant	24(10.81%)
	Daily laborer	31(13.96%)
	Student	21(9.46%)
	Farmer	18(8.11%)
	Other	63(28.38%)

Table 2. The prevalence and pattern of depression with regard to socio demographic factors in TB patients on follow up at Jimma University Specialized Hospital and Jimma Health Center TB Clinic from March 15 – 24, 2010. (N=222)

Socio demographic factors		Total No. of cases	No. of depressed	Percentage Of depressed	P-value
Age in years	12-18	10	0	0	0.01
	19-40	148	28	18.92	
	41-65	54	6	11.11	
	>65	10	10	100	
Sex	Male	126	20	15.87	0.25
	Female	96	24	25	
Marital Status	Single	105	19	15.09	0.15
	Married	72	11	15.28	
	Divorced	23	6	26.09	
	Widowed	22	8	36.36	
Educational status	Illiterate	26	8	30.77	0.19
	Literate	18	0	0	
	Primary	80	8	10	
	Secondary	59	19	32.20	
	Tertiary	39	9	23.09	
Occupational status	Government employee	65	17	26.15	0.08
	Merchant	24	6	25	
	Daily laborer	31	6	19.35	
	Student	21	3	14.29	
	Farmer	18	11	61.11	
	Other	63	1	1.59	

Table 3. The prevalence and pattern of depression with regard to characteristics of disease (TB) in TB patients on follow up at Jimma University Specialized Hospital and Jimma Health Center TB Clinic. March 15 – 24, 2010. (N=222)

Characteristics of disease	Contents	Total no. of cases	No. of depressed	Percentage of Depressed	P-value
Organ involved	Pulmonary	183	40	21.86	0.07
	Extra pulmonary	39	4	10.26	
Duration of Illness	0 – 6 month	103	6	5.83	0.00
	6month – 1 year	80	11	13.75	
	1 – 1&1/2 year	18	12	66.67	
	>1&1/2 year	21	15	71.43	

Table 4. The prevalence and pattern of depression with regard to treatment factors in TB patients on follow up at Jimma University Specialized Hospital and Jimma Health Center TB Clinic. March 15 – 24, 2010. (N=222)

Characteristics of disease	Contents	Total no. of cases	No. of depressed	Percentage of Depressed	P-value
Organ involved	Pulmonary	183	40	21.86	0.07
	Extra pulmonary	39	4	10.26	
Duration of Illness	0 – 6 month	103	6	5.83	0.00
	6month – 1 year	80	11	13.75	
	1 – 1&1/2 year	18	12	66.67	
	>1&1/2 year	21	15	71.43	

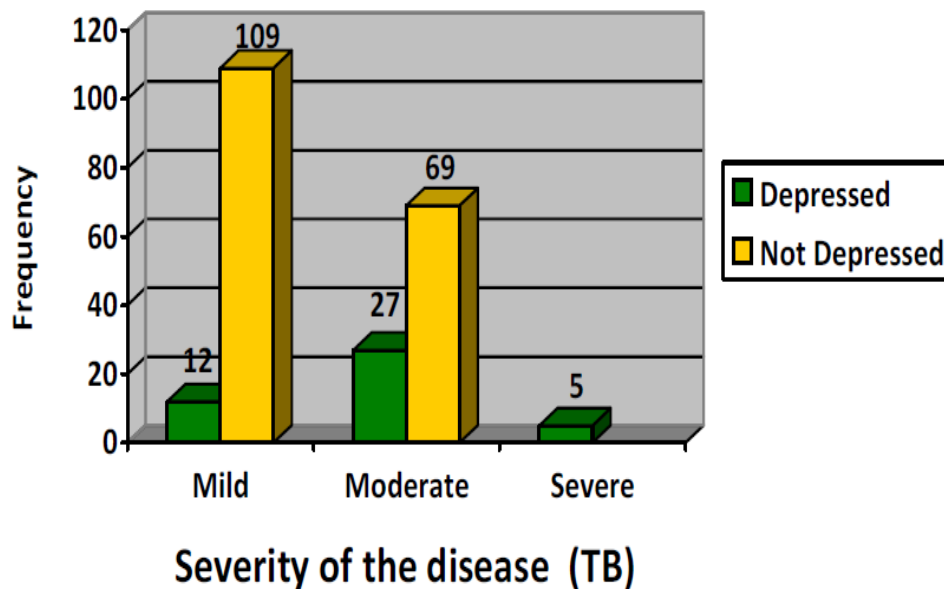


Figure 1. The prevalence and pattern of depression with regard to severity of the disease in TB patients on follow up at Jimma University Specialized Hospital and Jimma Health Center TB clinics from March 15- March 24, 2010. (N=222).

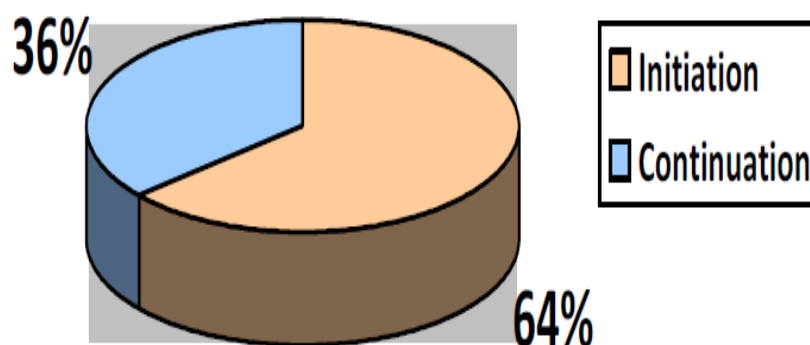


Figure 2. The Prevalence and pattern of depression with regard to treatment phase in TB patients on follow up at Jimma University Specialized Hospital and Jimma Health Center TB Clinics From March 15-24, 2010. (N=222)

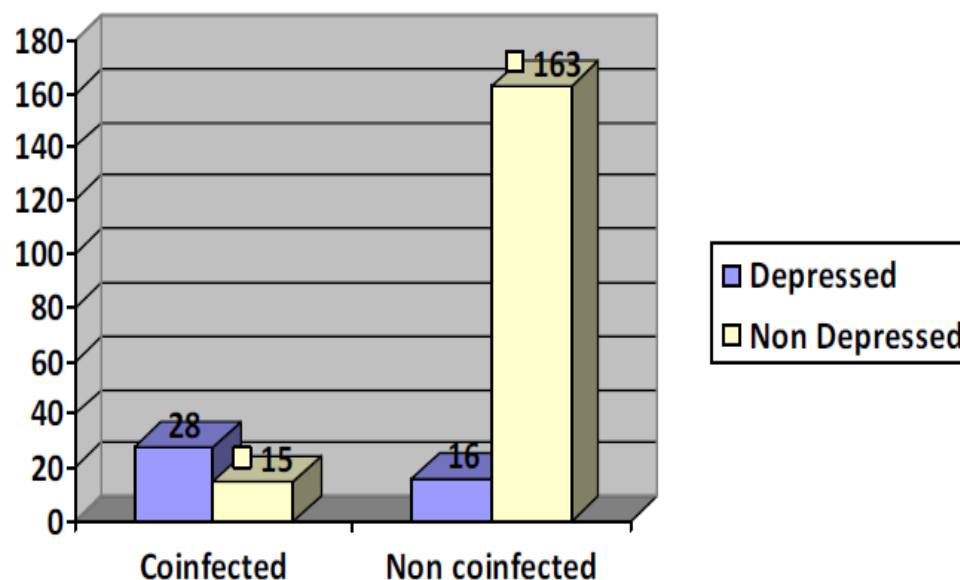


Figure 3. The prevalence and pattern of depression with regard to HIV co infection in TB patients on follow up at Jimma University Specialized Hospital and Jimma Health Center TB Clinic from March 15 – 24, 2010. (N=222).

Discussion

The study showed that only 19.82% of the respondents were cases of depression which was lower than 54.17% as in the literatures [9]. This was due to the fact that some of the respondents were sick to come for follow up were family members came to take medications and it was difficult to get some of the patients in the continuation phase.

Depression cases were 100% were in older age group and the fact that all the interviewed cases were depressed showed the association of depression with the older age which consistent with the other data. The younger age group came in the second place (18.92%). From the total female population, depression cases were 25% which was higher than 15.87% in male where it was comparable to literatures [8-15]. Depression was higher in widowed being 36.36% which was comparable with other data [10]. Majority of the depressed cases (32.20%) in those have attended to secondary school. Illiterate was 30.77% which was lower than 65.4 % [9]. It was because of the fact that the setting was urban and people had access to

learn. From the cases of depression, 61.11% were farmers which were lower than 84.7% in the literatures [9]. It was due to the urban setting and the fact that most of the farmers interviewed were speaking Afan Oromo which tends to somewhat affect the validity of the answers.

Regarding the characteristics of the disease (TB), depression was higher (100%) in those with severe degree of illness than in those with moderate degree of illness (28.13%) showing the fact that depression increase in percentage with disease severity as stated in the literatures [9].

With respect to duration of illness, majority of the depressed i.e.71.43% of them were those who had an illness lasting more than 1.5 years which is higher than the percentage of those with illness lasting 1-1.5 years and 6 months-1year. This shows that depression increases with duration of illness similar to what had been stated in the literatures [9,10].

With respect to treatment factors, large number of the depression cases were in initiation phase being 63.64% which was due to the fact that the symptoms of the disease (TB) tend to be prominent in this phase where they get relieved as patients progress in the treatment phase (when they entered continuation phase). Also, majority of them were in category I i.e. 26.75% which was due to the fact that majority of the cases seen i.e. 157 were in this category

Concerning co morbid illness, 65.12 % of the depressed were HIV positive which was higher than the non- co infected that was consistent with literature [5]. Depression was 100% for those in stage III which was due to the fact that all the cases seen were in this stage.

Conclusion

The occurrence depression increased with older age, being female, single or widowed. It was not associated with educational status and occupational status. Higher degree of depression was associated with severity of the disease (TB), duration of illness and those that had pulmonary TB. Depression was not significantly associated with being in category- I and initiation phase during treatment of TB. HIV positivity was associated with the occurrence of depression.

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