

## Depressive syndrome, anxiety and illness perception in Tuberculosis patients

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*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.

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 Task Force recommend screening for depression in primary care (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 comorbidities.

### 2.2 Methods

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, tobacco 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 severe 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 severe 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.

High score signify feared perception of disease

Statistical analyses were performed using SPSS 13.0. 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

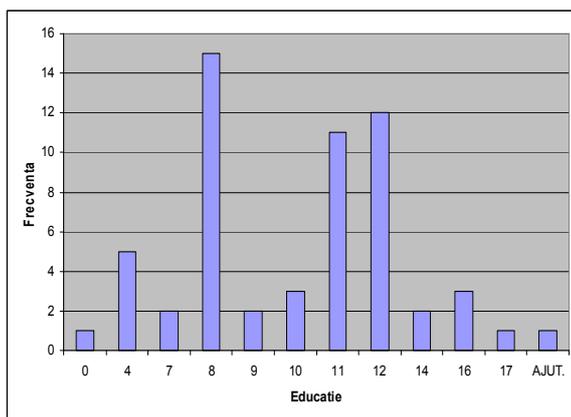


Fig 1 The education level of patients

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%.

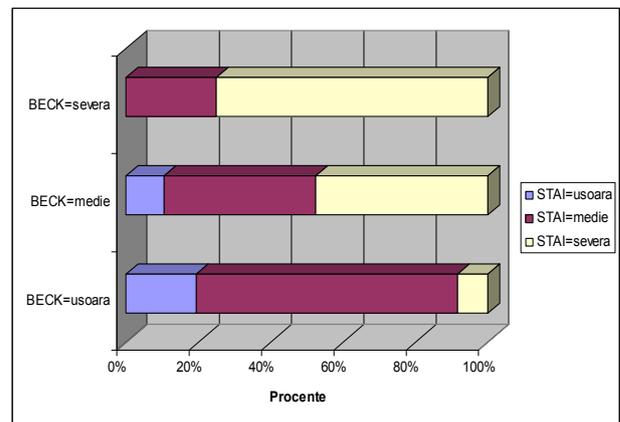


Fig 2 BECK / STAI repartition

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.

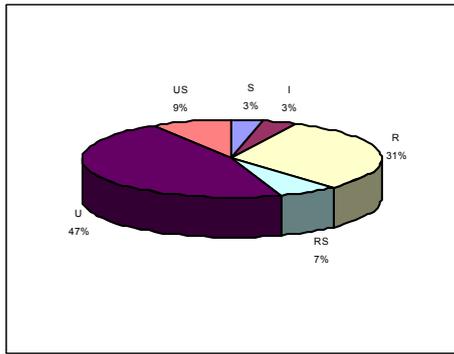


Fig 3 Rural/urban repartition

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 ( $N=7$ )

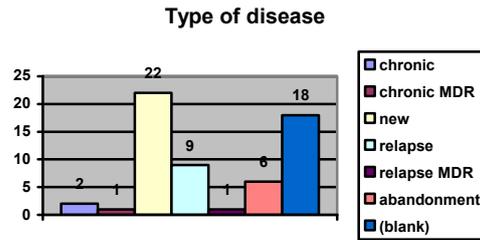


Fig 4 Type of disease

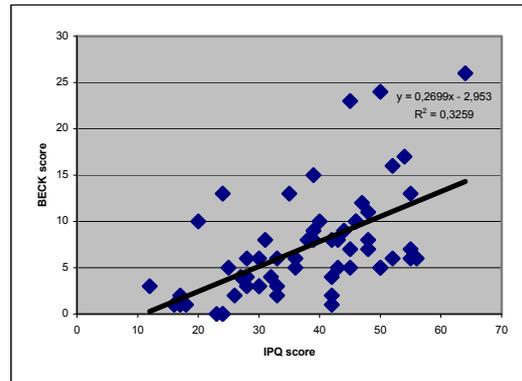


Fig 5. Correlation IPQ BECK

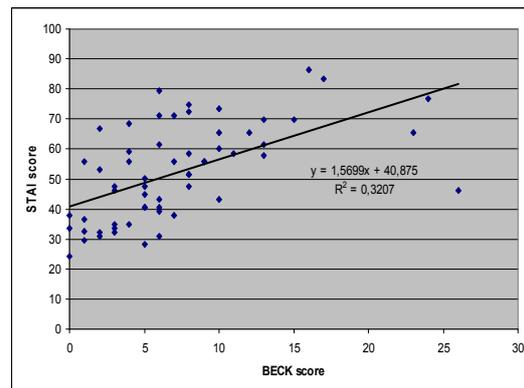


Fig 6. Correlation Beck STAI

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\

Depression 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

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 psychologist or psychiatric doctor for treat these co morbidities.

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