International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Psychological Distress among Adult Inpatients with Pulmonary Tuberculosis at National Tuberculosis Central Program

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Abstract: ***Tuberculosis is a kind of serious physical disorder which not only affects human organs (pulmonary and extrapulmonary) but also causes psychological disorders. This study investigated the prevalence of anxiety and depression among tuberculosis TB inpatients at the National Tuberculosis Central Program in Cambodia.. Using a crosssectional descriptive design, 58 patients were surveyed using the Hopkins Checklist25 HSCL25 to assess psychological distress. The analysis of the relationship between anxiety and depression prevalence and socio-demographic factors was conducted using Epi Info 3.5 software. Amongst 58 tuberculosis patients, the average age was 48 year and standard deviation was 11.35. There was a difference in proportion of female 36.2% (n=21, mean age=44.01 years, SD=10.9) to male 63.8% (n=37, mean age=47 years, SD=11.5 years). High percentage of them was farmer, accounting for 29.3% (n=17), in which the lowest percentage was 1.7% (n=1). The majority of the inpatients interviewed were male accounting for 37. The rates of patients with HSCL-25 score greater than cut-off 1.75 (<1.75) of anxiety and depression subscale were 46.6% (n=27) and 34.5% (n=20), respectively. Results revealed high levels of anxiety 46.6% and depression 34.5%, with demographic factors such as gender, marital status, and employment influencing these rates. The study underscores the need for psychiatric interventions to improve the quality of life for TB patients.***

Keywords: Pulmonary tuberculosis, anxiety, depression

1. Introduction

Cambodia, located in Southeast Asia, has a troubled history marked by war, starvation, and the Khmer Rouge regime from 1975 to 1979, which resulted in the deaths of an estimated 1.7 million people [1]. This period left many survivors with psychological trauma, chronic illnesses, and social unrest, leading to prevalent mental health issues. Following the genocide, psychiatric services were scarce until their re-establishment in 1994.

Additionally, Cambodia faces a significant tuberculosis (TB) burden, with a marked increase in reported cases over the past 18 years. As of 2007, it was estimated that 64% of the population was infected with Mycobacterium tuberculosis, and the rates of new TB cases and related deaths were alarming [2]. The stressors related to TB, such as fears of transmission, prolonged treatment periods, and social stigma, contribute significantly to mental health problems like anxiety and depression. Research indicates that TB patients experience various life stressors that exacerbate their psychological distress [3].

Despite this, comprehensive studies focusing specifically on the prevalence of anxiety and depression in TB patients in Cambodia have not yet been conducted. The purpose of this study is to assess the prevalence of anxiety and depression among TB patients in Cambodia and to investigate the influence of sociodemographic factors on these mental health conditions. This study is significant because it highlights the mental health challenges faced by TB patients, which are often overlooked in treatment protocols. Understanding these psychological impacts can improve patient care and mental health interventions.

2. Material and Methods

2.1 Study Population

This was a descriptive, cross-sectional design to explore the frequency, common symptoms of anxiety and depression, and the correlation between socio-demographic information of the subjects and anxiety and depression among TB patients. The study involved 60 randomly selected tuberculosis (TB) patients from the inpatient wards at the National Center for Tuberculosis Program (CENAT) in Phnom Penh, Cambodia. All participants had been diagnosed with lung tuberculosis through sputum smear examination and lung X-ray. Upon diagnosis, patients were provided detailed information about their condition, including symptoms, transmission, and treatment options. Eligible subjects had to be diagnosed with TB, consent to the interview, be of any age, and capable of responding to questionnaires. Individuals with psychosis, cognitive impairment, or delirium were excluded. Ultimately, 58 out of the 60 patients were successfully interviewed, as two patients had died.

2.2 Study setting and questionnaire

The study was conducted at National Center for Tuberculosis Program (CENAT). This study was conducted after obtaining the approval from the study hospital. After informed consent was obtained from each patient, the investigator conducted interviews with individual patients using structured questionnaires. Two questionnaires were designed for the study. The socio-demographic data questionnaire gathered information on characteristics such as age, gender, nationality, religion, living conditions, education, marital status, and employment. The TB-related information questionnaire collected background details about the patients' TB diagnosis, including the type and site of TB, family history, and treatment methods.

The Hopkins Symptom Checklist-25 (HSCL-25) was used to assess current anxiety and depression symptoms among the patients. This validated tool consists of 25 items, split into a 10-item anxiety subscale and a 15-item depression subscale. It is brief, simple, and designed to be understood by individuals with varying educational backgrounds. Scores above 1.75 in either subscale indicate significant emotional distress, warranting referral for further psychiatric evaluation. The HSCL-25 has been previously validated for use with Indochinese populations and was adapted into the local language for this study. The questionnaire aimed to identify whether patients experienced symptoms of anxiety and depression before or following their TB diagnosis.

2.3 Data analysis

Statistical analysis and intercorrelation of the prevalence of anxiety and depression with socio-demographic parameters were analyzed by Epi Info 3.5. All the data were entered into Epi info 3.5 for the analysis process. Personal and clinical characteristics of the patients were processed into statistical figures as well as tables.

2.4 Ethical consideration

This study was conducted with approval from the committee of National Center for Tuberculosis Program (CENAT). Participants were consented at the beginning of the survey. it is mentioned to be totally voluntary, confidential and the right to withdraw at any time. All participants were recorded anonymous. Following the survey process, participants will be asked for voluntary verbal informed consent for participation in the study and fill in the questionnaire as an agreement.

3. Results

3.1 Demographic Background

The average of TB patients' age was forty-eight years (range 25-68 years) and standard deviation was 11.4 years. Table 1 showed that among the 58 inpatients, age group from 25-30 years was 13.8% (n=8); 31-36 years and 37-42 years was 12.1% (n=7); 43-48 years and 55-60 years were 15.5% (n=9) respectively, 49-54 years was 20.7% (n=12;); and 61-68 years was 10.3% (n=6). There were 58.6% living in rural and 41.4% in urban. Most of the patients running up to 70.7% (n=41) completed their studies at primary school, while only 10.3% (n=6) of the patients completed secondary school. But 19% (n=11) of the patients were illiterate, never attending school. None of them graduated from university. The majority of the patients were married, with percentage of 79.3% (n=46). 8.6% (n=5) of the patients were never married, and only 1.7% (n=1) of the patients were separated and/or divorced, while 10.3% (n=6) were widowed.

Concerning the household composition, the greatest number of the patients running up to 44.8% (n=26) was extended family, following by that of nuclear family with spouse and/or children which was 31% (n=18). Then 13.8% (n=8) of the patients were nuclear family with parents, and 8.6% (n=5) of the patients were alone. The lowest number of the patients living in joined family with siblings was 1.7% (n=1). The marital status below shows that the majority of the patients were married, with percentage of 79.3% (n=46). 8.6% (n=5) of the patients were never married, and only 1.7% (n=1) of the patients were separated and/or divorced, while 10.3% (n=6) were widowed. According to the frequency of employment of the patients out of 58, the biggest number was farmer, with the percentage of 29.3% (n=17), following by that of vendor with the percentage of 20.7% (n=12); then the percentage of housewife was 19% (n=11); 15.5% (n=9) of the patients were government officer; The percentage of 6.9% (n=4) was unemployed, while 3.4% (n=2) were retired and student. The lowest percentage was monk or nun, which was only 1.7% (n=1).

Table 1: Frequency of the patients in each group

Characteristics	Total Subjects, n (%)
Gender	**58 (100)**
Female	21 (36.2)
Male	37 (63.8)
Age group (years)	**58 (100)**
25-30	8 (13.8)
31-36	7 (12.1)
37-42	7 (12.1)
43-48	9 (15.5)
49-54	12 (20.7%)
55-60	9 (15.5%)
61-68	6 (10.3%)
Living conditions	**58 (100)**
Rural	34 (58.6)
Urban	24 (41.4)
Level of education	**58 (100)**
≤Prmary school	52 (89.7)
≥Secondary School	6 (10.3)
Marital status	**58 (100)**
Married	46 (79.3)
Never married	5 (8.6)
Single/divorced	1 (1.7)
Household composition	**58 (100)**
Alone	5 (8.6)
Extended family	26 (44.8)
Join family/sibling	1 (1.7)
Nuclear Family/parent	8 (13.8)
Nuclear Family/spouse/child	18 (31.0)
Occupation	**58 (100)**
Farmer	17 (29.3)
Government officer	9 (15.5)
Housewife	11 (19.0)
Monk	1 (1.7)
Retired	2 (3.4)
Small trade vendor	12 (20.7)

Student	2 (3.4)
Unemployment	4 (6.9)

3.2 Tuberculosis sites

Regarding the table shown below, lung TB sputum smear negative had much more smaller percentage than that of lung TB sputum smear positive, which was only 13.8% (n=8), whereas lung TB sputum (+) was 86.2% (n=50).

Table 2: Tuberculosis sites

Tuberculosis Sites	Frequency	Percent (%)
Lung TB sputum (-)	8	13.8
Lung TB sputum (+)	50	86.2
Total	58	100

3.3 Did the symptoms in HSCL-25 occur before TB diagnosis?

The table below reveals that 63.8% (n=37) of the patients answered 'NO' to the question 'Did the symptoms in HSCL-25 occur before TB diagnosis? while 36.2% (n=21) of the patients answered 'YES'.

Table 3: The frequency of "Did the symptoms in HSCL-25 occur before TB diagnosis?"

Did the symptoms in HSCL-25 occur before TB diagnose?	Frequency	Percent %
Yes	21	36.2
No	37	63.8
Total	58	100

3.4 The frequency of anxiety symptoms

Regarding psycho-somatic symptoms of anxiety, the current finding uncovered that most of the patients had fearful feeling, with the overall average HSCL-25 cut-off score 1.9. Nervousness or shaking inside was another frequent psycho-somatic symptom of anxiety found in tuberculosis group. The current results show an overall average of HSCL-25 cut-off score 1.8. In addition, racing heartbeat was as well common in this TB group, with the overall average HSCL-25 cut-off score 2.2. However, no any studies have supported the present findings. Table 4.

Table 4: The frequency of anxiety symptoms

Anxiety Symptoms	Not at all		A little		Quite a bit		Extremely		Mean
	N	%	N	%	N	%	N	%	
Suddenly scared for no reason	32	55.2	24	41.4	2	3.4	0	0.0	1.5
Feeling fearful	9	15.5	47	81.0	2	3.4	0	0.0	1.9
Faintness, dizziness, or weakness	32	55.2	22	37.9	4	6.9	0	0.0	1.5
Nervousness or shaking inside	21	36.2	28	48.3	8	13.8	1	1.7	1.8
Heart pounding or racing	6	10.3	39	67.2	11	19.0	2	3.4	2.2
Tremble	33	56.9	18	31.0	5	8.6	2	3.4	1.6
Feeling tense or keyed up	1	1.7	35	60.3	20	34.5	2	3.4	2.4
Headache	19	32.8	35	60.3	4	6.9	0	0.0	1.7
Spells of terror or panic	33	56.9	22	37.9	2	3.4	1	1.7	1.5
Feeling restless, can't sit still	34	58.6	22	37.9	2	3.4	0	0.0	1.4

3.5 The frequency of depression symptoms

Concerning somatic symptoms of depression, low in energy (fatigue or exhaust) is common in the TB group. The results reveal that the overall average HSCL-25 cut-off score was 1.7. Regarding psychological symptoms of depression, feeling hopelessness about future is more common. It is shown that the overall average HSCL-25 cut-off score was 1.7. In addition, hopelessness has a close relationship with suicidal ideation, in which the present study shows an overall average HSCL-25 cut-off score was 1.7. Table 5.

Table 5: The frequency of depression symptoms

Anxiety Symptoms	Not at all		A little		Quite a bit		Extremely		Mean
	N	%	N	%	N	%	N	%	
Feeling low in energy, slowdown	32	55.2	19	32.8	6	10.3	1	1.7	1.7
Blaming yourself for things	32	55.2	16	27.6	10	17.2	0	0.0	1.6
Crying easily	37	63.8	15	25.9	4	6.9	2	3.4	1.5
Loss of sexual interest or pleasure	35	60.3	17	29.3	4	6.9	2	3.4	1.7
Poor appetite	36	62.1	16	27.6	6	10.3	0	0.0	1.7
Difficulty falling asleep or staying	27	46.6	21	36.2	10	17.2	0	0.0	1.6
Feeling hopeless about the future	33	56.9	17	29.3	8	13.8	0	0.0	1.7
Feeling blue	39	67.2	9	15.5	10	17.2	0	0.0	1.5
Feeling lonely	39	67.2	14	24.1	4	6.9	1	1.7	1.4
Thought of ending your life	39	67.2	14	24.1	5	8.6	0	0.0	1.7
Feeling of being trapped or caught	39	67.2	11	19.0	8	13.8	0	0.0	1.5
Worry too much about things	29	50.0	16	27.6	11	19.0	2	3.4	1.5
Feeling no interest in things	37	63.8	18	31.0	2	3.4	1	1.7	1.4
Feeling everything in an effort	25	43.1	23	39.7	8	13.8	2	3.4	1.4
Feeling of worthlessness	36	62.1	18	31.0	4	6.9	0	0.0	1.4

3.6 Anxiety/Depression and cut-off scores

The table below shows that amongst the 58 correspondents, 53.4% (n=31) had anxiety cut-off scores ≤1.75, while 46.6% (n=27) had anxiety cut-off scores >1.75. Furthermore, 65.5% (n=38) of the correspondents had depression cut-off scores ≤1.75, while 34.5% (n=20) of them had depression cut-off scores >1.75.

Table 6: Anxiety/Depression and cut-off scores

Anxiety			Depression		
Cut-off score	Frequency	Percent	Cut-off score	Frequency	Percent
≤1.75	31	53.40%	≤1.75	38	65.50%
>1.75	27	46.60%	>1.75	20	34.50%
Total	58	100%	Total	58	100%

4. Discussion

This study examines the psychological effects of tuberculosis (TB) on patients within Cambodian society, characterizing TB as a chronic illness that provokes significant stress and psychological distress. The disease is viewed as a significant stressor leading to psychological, social, and spiritual distress, which impedes patients' ability to handle the disease and treatment. Common emotional responses include vulnerability, sadness, and fear, which, if severe, can escalate to disorders like depression, anxiety, or even suicide, presenting high prevalence rates of psychological disorders among TB patients.

In the study, depression in TB patients is associated with a high prevalence of anxiety disorders, with 46.5% showing significant anxiety and 34.5% displaying moderate to severe depression. Comparisons with countries like Pakistan [4] and Thailand [5] reveal a cultural and demographic influence on these psychological conditions. Women show higher rates of anxiety and depression compared to men, which may be influenced by societal roles and responsibilities [6]. Marital status further affects these rates, with widowed, single, or divorced persons experiencing higher levels of psychological distress [7, 8]. Employment and socioeconomic status are crucial, as lower income correlates with a higher incidence of psychiatric disorders, notably among farmers, housewives, and vendors [9]. Poor living conditions exacerbate anxiety and depression, with a significant portion of patients on the poverty line being affected. Household composition also plays a role, although results are mixed based on family structure, such as extended versus nuclear families [10]. Educational level impacts mental health, with illiterate patients showing higher rates of anxiety and depression [11]. The study also identifies frequent psycho-somatic symptoms among TB patients, including fearfulness, nervousness, and fatigue, which contribute to overall distress. Psychological symptoms often manifest as hopelessness and, distressingly, are linked to suicidal ideation [12, 13, 14].

5. Conclusion

In conclusion, the study highlights a high prevalence of anxiety and depression among tuberculosis (TB) patients, with these conditions influenced by various socio-demographic factors. Effective recognition and treatment of anxiety and depression in TB patients are essential to enhance their quality of life and improve familial and social interactions. This involves establishing proper diagnosis and management plans, potentially including bio-psycho-social interventions and supportive psychotherapy, particularly for those with major depression. Psycho-education can also reduce stigma and support mental well-being.

6. Limitation of the Study

The study acknowledges limitations due to the HSCL-25 screening tool's overlap with TB symptoms, its small sample size, and the cross-sectional nature of the research, which limits the determination of causal relationships. Future research should adopt comprehensive measures and larger samples to better understand the anxiety and depression associated with TB, integrating sensitive inquiries into patients' emotional states and the potential origins of these feelings.

Conflict of Interest Statement

All authors disclose no conflict of interest related to this submission.

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