Original Research Article

EVALUATION OF DEPRESSION AND ANXIETY AMONG TUBERCULOSIS PATIENTS

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Abstract: *To evaluate prevalence of depression and anxiety among Tuberculosis patients. A Prospective Study was carried out at Department of Bakhtawar Amin Hospital Multan from July 2021 to July 2022. The study was conducted on 400 patients. HADS, a 14-item questionnaire, was used to assess depression and anxiety. The 14 items were subdivided into 7 items for depression (HAD-D) and anxiety (HAD-A). Data was analyzed using SPSS v23. Independent association of variables was identified by calculating adjusted odds ratio with 95% CI. Prevalence of depression and anxiety were 224 (56%) and 220 (55%) respectively. Depression was more common in females, 127 (67%), as compared to males, 99 (47%). Anxiety was also common among females 131, (69%). Low body mass index, lack of formal education and perceived TB stigma were significantly associated with depression. More than half of the sample had depression and anxiety. Intensive treatment phase, high perceived stress and perceived stigma were associated with anxiety and depression.*

Keywords: Tuberculosis, Depression, Anxiety

Introduction

Anxiety and depression are two major mental health concerns. Above 300 million people are globally affected by depression, while almost 264 million people are affected by anxiety (Organization, 2017). Though tuberculosis (TB) is curable if diagnosed and treated timely, it remains a major health concern globally. Globally, it is among top ten causes of death, with 95% cases occurring in developing states (Organization, 2013). Pakistan is among eight countries that account for 2/3 of total TB cases worldwide (Organization, 2022). Recent research have revealed increasing concerns about psychiatry. Noncompliance to treatment is associated with depression and anxiety in such patients. Non-compliant behavior increases the risk of mortality and morbidity (Pradesh et al., 2018). These mental disorders decrease ability of TB patients to cope with side effects of drugs and stress associated with disease (Dos Santos et al., 2017). Depression adversely effects diet, behavior and compliance with treatment, which is major obstacle in the way of controlling TB globally (Sweetland et al., 2017). Moreover, depression may worsen TB like social susceptibilities like social isolation, thus impairing the psychological well-being of the patient (Lee et al., 2017). Various studies have reported high prevalence of anxiety and depression in patients with TB (Adem et al., 2013; Duko et al., 2015; Kumar et al., 2016). However, in majority of studies have stressed only on psychological distress and not psychiatric disorders (Deribew et al., 2010; Tola et al., 2015). There are very limited studies on prevalence of depression and anxiety among TB patients in Pakistan. The aim of this study is to evaluate prevalence of depression and anxiety among Tuberculosis patients

Methodology

The prospective study was conducted in Bakhtawar Amin Hospital from July 2021 to July 2022. The study was conducted on 400 patients. The study included patients aged above 18 years, who were diagnosed with TB, and were followed up and gave consent for the study. Those patients who were treated for less than 1 month and critically ill patients were excluded from the study. Double counting of patients was avoided by including only on first visit. Informed written consent was taken from all the participants. The Ethical Board of the hospital approved the study. Data was collected through face-to-face interview using a questionnaire. A structured questionnaire was used to assess socio-demographic factors and comorbid chronic illness. Perceived

social support was assessed using Oslo 3 items perceived social support scale. Scores of 3-8, 9-11 and 12-14 were considered poor, moderate and strong social support. 11 item perceived TB stigma scale was used to assess perceived TB stigma. Participants scoring ≥ mean stigma score were considered as having perceived stigma (cronbach α = 0.78) (Gosoniu et al., 2008).10 item perceived stress scale was used to assess perceived stress level (cronbach α = 0.80) (Sendhilkumar et al., 2017).

HADS, a 14-item questionnaire, was used to assess depression and anxiety. The 14 items were subdivided into 7 items for depression (HAD-D) and anxiety (HAD-A). In this study Cronbach α was 0.81 for HAD-A and 0.82 for HAD-D. HAD-A and HAD-D subscale score ≥ 8 was considered anxiety and depression respectively (Reda, 2011). Patients were asked about duration of symptoms to assess duration of illness. WHO Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) was used to assess substance use.

Data was analyzed using SPSS v23. Independent variables were analyzed by bivariate binary logistic regression. Multivariate logistic regression was performed for variables having p value ≤ 0.25 in bivariate model. Independent association of variables was identified by calculating adjusted odds ratio with 95% CI. P-value < 0.05 was considered statistically significant.

Results

A total of 400 patients were included in the study. 210 (52.5%) were male. The mean age of the patients was 31.9 years. The majority of participants (212, 53%) were married. 208 (52%) patients belonged to urban background. The majority of patients, 372 (93%) were in initiation of the treatment. More than half, 232 (58%) had perceived stigma. 220 (55%) patients had high perceived stress (Table 1). Prevalence of depression and anxiety were 56% (95% CI 51.1, 60.8) and 55% (95% CI 50.1, 59.6) respectively. Depression was more common in females, 127 (67%), as compared to males, 99 (47%). Depression was higher in those having perceived stigma, 192 (48%) as compared to their counterparts. Anxiety was also common among females 131, (69%). It was higher in those having perceived stigma, 178 (77%).

Patients having high perceived stress were at 3.6 times higher risk of depression as compared to those with low to average perceived stress. Patients in intensive phase of treatment had 3.3 times higher depression. It was observed that low body mass index, lack of formal education and perceived TB stigma were significantly associated with depression. Social support was a strong protective factor (Table 2).

Table 1 Psychosocial and clinical factors among TB patients

Variable	Category	Frequency	Percentage
Phase of treatment	New	372	93%
	Return after default	9	2.25%
	Relapse	19	4.75%
Duration of illness	≤ weeks 4	270	67.5%
	> 4 weeks	130	32.5%
Family history of mental illness	Yes	86	21.5%
	No	314	78.5%
BMI	Low	181	45.2%
	Not low	219	
Level of social support	Low	168	42%
	Moderate	165	41.2%
	High	67	16.7%
Perceived TB stigma	Yes	232	58%
	No	168	42%
Perceived stress	Low to average	180	45%
	high	220	55%
Risk of Tobacco use	No	380	95%
	Yes	20	5%
Risk of Alcohol use	No	319	79.7%
	Yes	81	20.2%

Table 2 Correlates of Depression among TB patients (n=400)

Variables	Group	Depression		COR, 95% (CI)	AOR, 95% (CI)	*p* values
		Yes	No			
Sex	Male (n=210)	99 (47.1%)	111 (52.9%)	1	1	
	Female	127 (67%)	63 (33.1%)	2.29 (1.49,3.38)	1.08 (0.47,2.09)	0.795
Age	18-24	60 (46.1)	70 (53.8)	1	1	
	25-34	78 (54.9)	64 (45.1)	1.48 (0.89, 2.39)	1.12 (0.52, 2.46)	0.658
	35-44	35 (63.6)	20 (36.4)	2.18 (1.12, 4.18)	1.09 (0.38, 3.19)	0.785
	45-54	28 (63.6)	16 (36.4)	2.69 (1.28, 5.57)	0.88 (0.27, 2.62)	0.852
	≥55	18 (62.1)	11 (37.9)	2.01 (0.88, 4.62)	0.38 (0.09, 1.48)	0.192
Residence	Rural	108 (60)	80 (40)	1.39 (0.90, 2.08)	1.67 (0.80, 3.27)	0.110
	Urban	108 (50.9)	104 (49.1)	1	1	
Education	No formal education	65 (76.5)	20 (23.5)	5.79 (2.80, 11.79)	2.99 (1.08, 8.19)	0.027
	Primary	87 (62.1)	53 (37.9)	2.70 (1.48, 5.08)	1.60 (0.68, 3.89)	0.238
	Secondary	66 (60)	44 (40)	1.01 (0.52, 2.01)	0.58 (0.20, 1.59)	0.340
	Above	38 (61.3)	27 (41.5)	1	1	
Social support	Low	130 (77.8)	35 (20)	1	1	
	Moderate	78 (47.3)	87 (52.7)	0.18 (0.10, 0.30)	0.61 90.30, 1.28)	0.258
	High	15 (21.4)	55 (79)	.05 (.02, .10)	.19 (.05, .48)	.001
Treatment phase	Intensive	167 (77.3)	49 (22.7)	6.88 (6.01, 13.27)	3.27 (1.78, 6.01)	0.001
	Continuous	56 (31.8)	120 (68.1)	1	1	
Duration of illness	≤ 4 weeks	136 (50)	136 (50)	1	1	
	> 4 weeks	88 (68.7)	40 (31.2)	2.18 (1.38, 3.37)	1.08 (0.50, 2.17)	0.766
BMI	Low BMI	130 (72.6)	49 (27.8)	2.69 (1.40, 4.58)	2.05 (1.09, 3.78)	0.015
	Not low	94 (42.5)	127 (57.5)	1	1	
Perceived stigma	No	40 (19.2)	168 (80.8)	1	1	.001
	Yes	158 (82.3)	34 (17.7)	18.49 (10.78, 31.28)	11.09 (6.48, 17.59)	
Perceived stress	Low to average	56 (30.2)	129 (69.7)	1	1	0.001
	High	165 (76.7)	50 (23.2)	7.55 (4.90, 11.89)	3.57 (1.89, 6.48)	

Discussion

The study showed that depression was prevalent in the majority of TB patients who visited for follow up. Previous studies conducted in Turkey, Cameroon and Ethiopia confirmed this finding (Ambaw et al., 2017; Kehbila et al., 2016; Yilmaz and Dedeli, 2016). Another study reported higher prevalence of depression as compared to our study, this discrepancy may be due to different study settings, screening instrument and population studied(Gul et al., 2017). On the other hand, another study reported lower prevalence as compared to current study(Adem et al., 2013). It may be explained by different screening instruments used and different study population. The current study shows a high prevalence of anxiety in TB patients. This finding was also confirmed by the previous studies (Pradesh et al., 2018; Rizvi, 2016). Even higher prevalence rate (73%) compared to us

study was reported by another stud, which may be due to difference in study population (Aamir, 2010). Unlike our study, MDR-TB patients were included. Another study reported a lower prevalence rate (41.5%) than our study, though the same tool was used. This variation is explained by difference in study sample that majorly comprised of urban population, who have more access to health facilities (Abebe et al., 2010). The study showed that people having strong social support were less likely to have depression as compared to those having poor social support. Results of the previous studies confirm these findings (Ambaw et al., 2017). Poor social support leads to the feelings of worthlessness, isolation and neglect, while strong social support vitally prevents such feelings. Depression was highly prevalent during intensive phase of the treatment, other studies also confirm these findings (Alinaitwe, 2018; Sulehri et al., 2010). This may be associated with illness

severity as symptoms of the disease are more significant during intensive phase. Like previous studies(Duko et al., 2015; Molla et al., 2019), perceived TB stigma was effectively associated with depression. It may be due to compromised social acceptance of TB patients, it negatively impact self-confidence and results in emotional deterioration (Duko et al., 2015). In line with previous studies, our study also reported association between low body mass index and depression(Masumoto et al., 2014; Wang et al., 2018). In current study a significant association between no formal education and depression was reported. A previous study also reported this association (Yimam et al., 2014). It may be because individuals with no formal education have no access to professional jobs and healthcare which leads to a lack of social resources. Contrastingly, higher education creates access to healthcare and employment. Depression was also linked to high perceived stress. It is due to decreased coping mechanism and risk unhealthy eating and substance use. The strength of this study is addressing confounding variables, which were not addressed in previous studies. Moreover, standard tools were applied for assessing associated variables. The limitation of the study was the possibility of social desirability bias owing to face-to-face interview.

Conclusion

More than half of the sample had depression and anxiety. Low body mass index, intensive treatment phase, high perceived stress and perceived stigma were associated with anxiety and depression. It shows that attention must be given to mental health status of TB patients.

Conflict of interest

The authors declared absence of conflict of interest.

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