

Depression among Elderly Tuberculosis Patients in Kathmandu Valley

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Abstract

Depression is common in tuberculosis patients, which can worsen functioning, lower quality of life, and decrease the chance of a successful tuberculosis treatment. The objective of the study was to assess depression and its associated factors among elderly TB patients in Kathmandu valley. The study uses a quantitative cross-sectional design, conducted in three districts of Kathmandu valley including 380 TB patients aged 60 years and above. A standard questionnaire was used for socio-demographic information, while Geriatric Depression Scale Short Form (GDS-15) was used to measure depression. The mean GDS score of the respondents was 7.92. It was found that 78.9 percent (n=300) had scores suggesting depression of which 21.1 percent had low level of depression, 61.6 percent had moderate level of depression and 17.4 percent had high level of depression. Religion (p=0.004), marital status (p=0.018) and drinking alcohol (p=0.011) was significantly associated with depression. Early detection and treatment of depression is critical among elderly TB patients. There is a need to integrate mental health screening into routine TB care to ensure that depression is identified and treated promptly.

Keywords: Depression, Elderly, Tuberculosis, Kathmandu

1. Introduction

Among tuberculosis (TB) patients, depression is a common comorbid condition linked with increased morbidity and mortality, resistance to drugs, and increased transmission of TB. Depressed TB patients are less likely to seek care and take their medications regularly and/or completely which may result in drug resistance, morbidity, and deaths. Depression may therefore be a silent driver of global TB epidemic (Sweetland et al., 2014). Elderly people are more vulnerable to developing mental health conditions like anxiety and depression. Approximately 14 percent of adults 60 years of age and older suffer from a mental illness, which is responsible for 10.6 percent of all disabilities among older adults (WHO, 2023).

Depression and anxiety are the two mental health issues that older adults experience most frequently. Among elderly people, the mental health conditions are often underdiagnosed or undertreated and the stigma associated with these mental health conditions are high. Older people also experience social isolation and loneliness, which is a major risk factor for mental health issues. Elder abuse and neglect can also increase the risk for anxiety and depression. Because of their extreme living circumstances, poor physical health, or lack of access to quality support and services, some older adults are more likely to experience anxiety and depression (WHO, 2023).

Older adults experience decrease in functioning at physical and mental level as well as decline in functional capacity and encounter difficulties with their mental health. Such declines in mental

and physical health have significant financial consequences, and disorders affecting individuals 60 years of age and older account for 23.0 percent of the world's total disease burden. While physical disorders, such as cardiovascular diseases, account for the majority of this cost (30.3% of the total burden in individuals 60 years of age and older), neurological and mental disorders make up 6.6 percent of the total. In light of this, the WHO has estimated that 15.0 percent of adults 60 years of age and older have a mental illness (Niclasen et al., 2018). Depression and tuberculosis interact with social and economic inequalities limiting access to healthcare, raising the likelihood and intensity of adverse outcomes among vulnerable populations. Depressed TB patients are less likely to take their medications as prescribed and/or complete their treatment, and more likely to abuse drugs or alcohol. As a result, such people may be infectious for longer periods of time and have a higher risk of developing drug resistance and death from tuberculosis. The TB-depression syndemic raises the possibility of adverse physical and mental health consequences (Sweetland et al., 2017).

One of the most prevalent mental health issues that affects patients with tuberculosis is depression, characterized by a persistently low mood, diminished energy, a lack of enjoyment in daily activities, vegetative symptoms, suicidal thoughts and attempts, and a range of social and professional dysfunctions. People with tuberculosis and depression frequently coexist. When depression and tuberculosis coexist, it can result in low quality of life, noncompliance with anti-TB medication, progression to multidrug resistance, and ultimately, death from the illness (Duko et al., 2020). Tuberculosis patients in addition to physical symptoms, face various economic and social problems. Thus, it is important to take into account how tuberculosis affects patients' overall health and sense of wellbeing and one way to do this is to measure the quality of life of tuberculosis patients (Patel et al., 2014). Depressive symptoms and nonadherence to medication are two more ways that a lower quality of life related to health can exacerbate a medical condition. Traditionally, clinical outcomes have been used to monitor and assess the efficacy of tuberculosis treatment. But it can also result in depression linked to the illness. Thus, the emphasis of TB management has shifted from mortality to disease-related morbidity and patient-reported quality of life as a result of the introduction of new treatment and control strategies. An extended treatment period may have an impact on the patient's quality of life. Furthermore, because tuberculosis is contagious, it continues to be stigmatized by society. Additionally, the social isolation brought on by tuberculosis and the treatment burden have an impact on the health-related quality of life of patients (Malik et al., 2018).

Depression is common in tuberculosis patients, which can worsen functioning, lower quality of life, and decrease the chance of a successful tuberculosis treatment. Evidences have demonstrated a link between depression and noncompliant medication use in individuals with HIV infections and acquired immune deficiency syndrome (AIDS). Furthermore, through neuroendocrine and behavioral mechanisms, depression has been shown to lower immunity and result in poor treatment adherence in chronic non-communicable diseases. These mechanisms might also negatively impact how the body reacts to treatment for tuberculosis (Ambaw et al., 2018).

Due to biological, social, and behavioral factors, the prevalence of depression among people with tuberculosis may be as high as 50.0 percent. Depression has been linked to delayed diagnosis and treatment of tuberculosis, poor treatment outcomes, disability, poor quality of life, treatment failure, and even death. Therefore, depression presents a significant risk to achieving the objectives of the WHO End TB Strategy, and mental health issues are typically not sufficiently addressed in national tuberculosis programs. Furthermore, with a four-to eight-fold increased

risk of death compared with the general population, tuberculosis and other infectious diseases, including HIV, may be important contributors to premature death in individuals with severe mental illnesses (such as schizophrenia, bipolar disorder, and severe depression). Treating mental illnesses in tuberculosis patients and vice versa may increase the effectiveness of mental health and tuberculosis treatment initiatives. Primary care is increasingly providing tuberculosis services; combining mental health and tuberculosis treatment could lower costs, improve patient outcomes, and ultimately save lives (Sweetland et al., 2018).

Tuberculosis patients are higher risk of depression. Various evidences have shown that the problem of depression is high in TB and even higher among elderly TB patients. This study aims to identify depression and factors associated with it among elderly TB patients in Kathmandu valley, which is essential for developing comprehensive care strategies that address both the physical and mental health needs of this vulnerable group. Comprehensive care for TB should not only focus on the physical aspects of the disease but also incorporate mental health support. Early identification and treatment of depression in TB patients can improve treatment adherence, enhance recovery rates, improve patient outcomes and significantly improve the quality of life. As the global population ages and the burden of TB remains high, addressing the dual challenges of TB and depression is crucial. By recognizing and addressing the mental health needs of elderly TB patients, healthcare systems can provide more effective, holistic, and humane care for the elderly.

2. Methods and Materials

Study Design and Study Area: The study uses a quantitative cross sectional research design. The study was conducted among elderly TB patients (aged 60 years and above) currently under medications in DOTS centers in different treatment centres of Kathmandu Valley. The study area for the study was Kathmandu Valley. Three districts of Kathmandu valley (Kathmandu, Lalitpur and Bhaktapur) were selected for the study. The districts were selected purposively. Different DOTS centers from the three districts were selected for the study purposively based on the high number of TB patients and focus on urban settings. Elderly TB patients aged 60 years and above were selected from the particular DOTS centres to meet the sample of the study. A total of 38 DOTS centres were included in the study which included 11 from Kathmandu, 16 centres from Lalitpur district and 11 centres from Bhaktapur.

Sampling and Sample Size: The sampling was carried out using the formula from a previous study that assessed depression among TB patients in selected DOTS centres from three districts in Kathmandu Valley (Kathmandu, Lalitpur and Bhaktapur). The formula to calculate sample size was used from a study by Shrestha et al. (2020).

$$N = z^2 P (1-P) / d^2, \text{ where}$$

N=sample size,

Z²= Z statistic for a level of confidence,

P= prevalence and

d²=precision

Values were added for each component of the formula as follows:

Z²= 95 percent Level of Confidence

P= prevalence (55%) (Panati et al., 2023) and

d²=precision (5%)

Based on the above mentioned values, the sample size (N) was calculated as follows:

$$N = z^2 P (1-P) / d^2$$

$$N = (1.96)^2 * 0.55 * 0.45 / (0.0025)$$

$$N = 380$$

Thus, the sample size for the study was 380. 380 elderly TB patients aged 60 years and above were selected from the designated DOTS centres from three districts of Kathmandu Valley.

Measurements: The measurements of the study were divided into three parts. The first part of the tool was related to socio-demographic data that included age, sex, religion, ethnicity, marital status, living status, education, employment status, smoking and alcohol drinking status. The second part of the questionnaire included information related to TB, which included information such as types of TB, TB registration category, phases of treatment, HIV status, awareness about TB status at home/family, perception of stigma/discrimination, experience of side effects from TB medications, family history of TB, perceived feeling of isolation, helplessness and guilt due to TB. The third measure used in the study to screen for depression was Geriatric Depression Scale Short Form (GDS-15). The tool was previously validated in Nepal and permission was obtained to use the tool. GDS-15 is a short version of GDS with 15 statements, which has been validated in different settings among older adults. The validity and reliability of GDS-15 is adequate to substitute the GDS to screen for depression. The internal consistency of GDS-15 was 0.862 and the stability using test-retest reliability after a week was 0.86. The GDS-15 consists of yes-no responses with scores ranging from 0-15. The severity of depression is measured using cutoff scores for which a score above 5 suggests depression. The severity of depression is measured based on the scores received 0-5: low, 6-10 moderate and 11-15 high. The scoring for the Nepali version of GDS-15 was done according to the original GDS-15 tool (Gautam & Houde, 2011). Out of the 15 items of the GDS-15 scale, 10 questions when answered positively indicated depression that includes question number 2, 3, 4, 6, 8, 9, 10, 12, 14, and 15, while the remaining questions (question numbers 1, 5, 7, 11, 13) when answered negatively indicated depression (Greenberg, 2019).

Data Collection: Primary data was collected from TB patients aged 60 years and above from the selected DOTS centres from three districts in Kathmandu valley. To collect the data from the patients, patients visiting the DOTS centres for medications were approached for data collection. Patients were informed about the study and asked for their voluntary consent to participate in the study. After the consent was provided from the patient, data was collected from the participants using interview method. The ethical approval to conduct the study was taken from the Central Department of Population Studies (CDPS). Verbal informed consent were obtained from the participants prior to the study.

Methods of Analysis: The collected data was first checked for its accuracy, completeness and consistency. A coding framework was prepared based on the responses received from the data. The data was then entered into IBM SPSS Statistics version 26. Descriptive analysis was done in the form of frequencies, percentages, mean, median and standard deviation. Logistic regression was conducted to assess the relationship between depression and the factors associated with it.

3. Results

Socio-demographic Characteristics of Participants: The study showed that majority of the respondents were males (63.0%) and the rest were females. More than 80 percent respondents followed Hindu religion and around 60 percent respondents were Janajatis. Around 68 percent respondents were married and 55 percent respondents were currently staying with their families, while 12.4 percent were living alone. In terms of educational status majority (33.7%) of the respondents had completed their primary (Class 1-5) level of education. The occupational status

of the respondents showed that 51.6 percent of the respondents were employed. In terms of smoking, 25.8 percent of the respondents were currently smoking and 26.3 percent of the respondents were involved in drinking alcohol.

Table 1: Socio-demographic Characteristics of Participants

Characteristics	Number	Percent
Sex of Respondents		
Male	241	63.4
Female	139	36.6
Age of Respondents		
60-69 Years	202	53.2
70+ Years	178	46.8
Religion of Respondents		
Hindu	305	80.3
Christian	38	10.0
Buddhist	33	8.7
Muslim	4	1.1
Ethnicity of Respondents		
Dalit	15	3.9
Janajati	227	59.7
Madheshi	11	2.9
Muslim	4	1.1
Brahmin/Chhetri	117	30.8
Others	6	1.6
Marital Status of Respondents		
Married	256	67.4
Widow/Widower	124	32.6
Current Living Status of Respondents		
With Family	209	55.0
With Husband/Wife	93	24.5
Staying Alone	47	12.4
With Relatives	31	8.2
Educational Status of Respondents		
Illiterate	77	20.3
No Formal Education	71	18.7
Primary Education	128	33.7
Lower Secondary Education	96	25.3
Secondary and Above	8	2.1
Occupational Status of Respondents		
Employed	196	51.6
Unemployed	184	48.4
Smoking Status of Respondents		
Yes	98	25.8
No	282	74.2
Alcohol Drinking Behavior of Respondents		

Yes	100	26.3
No	280	73.7

Source: Field Survey, 2023

TB Related Characteristics of Participants: The findings of the study showed that more than 50 percent of the respondents were Pulmonary Bacteriologically Confirmed (PBC) and more than 90 percent of the respondents were new cases. Around 60 percent of the respondents were in the intensive phase of treatment. The HIV status of respondents showed that four respondents (1.1%) were HIV positive. Around 23.2 percent respondents replied that their family/friends were not aware about their TB status while about 31.8 percent respondents had faced some kind of stigma and discrimination because of their TB status.

Table 2: TB Related Characteristics of Participants

TB Related Characteristics	Number	Percent
Type of TB		
Pulmonary Bacteriologically Confirmed (PBC)	198	52.1
Pulmonary Clinically Diagnosed (PCD)	39	10.3
Extra Pulmonary (EP)	143	37.6
TB Registration Category		
New Cases	343	90.3
Previously Treated Cases	32	8.4
Patient with Unknown Previous TB Treatment History	5	1.3
Phase of TB Treatment		
Intensive Phase	226	59.5
Continuation Phase	154	40.5
HIV Status of Respondents		
HIV Positive	4	1.1
HIV Negative	250	65.8
HIV Status Unknown	126	33.2
Known Status about TB among Family/Friends		
Yes	292	76.8
No	88	23.2
Experience of Stigma and Discrimination because of TB		
Yes	121	31.8
No	259	68.2
Experience of Side Effects from TB Medications		
Yes	121	31.8
No	259	68.2
Forgotten to take TB Medications		
Yes	189	49.7
No	191	50.3
Family History of TB		
Yes	90	23.7
No	290	76.3
Feeling Ashamed/Guilty of Having TB		
Yes	106	27.9

No	274	72.1
Feeling Isolated Because of TB		
Yes	161	42.4
No	219	57.6
Feeling Helplessness Because of TB		
Yes	193	50.8
No	187	49.2

Source: Field Survey, 2023

In terms of medications, 51.3 percent respondents had experienced some side effects from the use of TB medications and 49.7 percent of the respondents had forgotten to take their TB medications at any time during their course of TB treatment. Among the participants, 23.7 percent (n=90) of them had family history of TB. About 27.9 percent respondents felt ashamed or guilty for having TB, 42.4 percent felt isolated from having TB and 50.8 percent respondents felt helplessness because of having TB.

Depression and GDS Scores: The distribution of the respondents according to the GDS score showed that the mean GDS score of the respondents was 7.9, while the median GDS score was 8. The maximum GDS score was 14 and the minimum GDS score was 0 with the GDS score range of 14. According to the GDS tool, the severity of depression is measured using cutoff scores for which a score above 5 suggests depression.

Table 3: Depression and GDS Scores

Presence of Depression Based on GDS Scores	Number	Percent
No	80	21.1
Yes	300	78.9
Level of Depression Based on GDS Scores	Number	Percent
Low	80	21.1
Moderate	234	61.6
High	66	17.4

Source: Field Survey, 2023

The severity of depression is measured based on the scores received which indicates 0-5: low depression, 6-10 moderate depression and 11-15 high depression. It was found that 78.9 percent (n=300) had scores suggesting depression. The total prevalence of depression was 78.9 percent (n=300). The level of depression according to the GDS score showed that 21.1 percent of the respondents had low level of depression, 61.6 percent had moderate level of depression and 17.4 percent had high level of depression.

Socio-Demographic Factors Associated with Depression: The bivariate analysis of socio-demographic variables with depression showed that respondents from Bhaktapur were 1.748 times more likely to get depression (UOR=1.748, 95% CI, 0.919-3.326) compared to respondent from Kathmandu. Similarly, female respondent had 0.889 times less likely to get depression (UOR=0.889, 95% CI, 0.535-1.477) and respondents in age group 60-69 years had 1.333 times more likelihood of getting depression with reference to respondents in age group 70+ years (UOR=1.333, 95% CI, 0.813-2.185).

Respondents following other religion had 0.440 times less likelihood of depression (UOR=0.440, 95% CI, 0.251-0.772.986) compared to respondent from Hindu religion with statistically

significant relationship. The odds of depression among Janajati was 0.661 times less likely (UOR=0.661, 95% CI, 0.374-1.168) and among other ethnicity the odd of getting depression 1.031 times more likely (UOR=1.031, 95% CI, 0.379-2.802) with reference to the ethnicity of Brahmin/Chhettri. Respondent who were widow/widower were 0.542 times less likely to get depressed (UOR=0.542, 95% CI, 0.327-0.900) with the reference groups of those who were married with a statistically significant ($p<0.05$) relationship. Respondents not living with their family had 1.066 times more odds of getting depression (UOR=1.066, 95% CI, 0.649-1.752). Compared to illiterate respondents, respondents with other educational status had 0.798 less odds of getting depression (UOR=0.798, 95% CI, 0.421- 1.514) and unemployed respondent were 0.630 times less likely to get depression (UOR= 0.630, 95% CI 0.383-1.036). Respondent currently smoking were 1.253 times more likely to get depression (UOR=1.253, 95% CI, 0.699-2.246) and the likelihood of depression among respondents currently drinking alcohol were 0.507 times less likely (UOR=0.507, 95% CI, 0.300-0.858) than those who do not drink alcohol with a statistically significant relationship ($p<0.05$).

Table 4: Socio-Demographic Factors Associated with Depression

District	UOR	95% CI	P value
Kathmandu	1		
Lalitpur	0.970	0.548-1.717	0.918
Bhaktapur	1.748	0.919-3.326	0.089
Sex of the respondent			
Male	1		
Female	0.889	0.535-1.477	0.650
Age of the respondent			
60 – 69 Years	1.333	0.813-2.185	0.255
70+ Years	1		
Religion			
Hindu	1	0.251-0.772	0.004*
Other than Hindu	0.440		
Ethnicity			
Brahmin/Chettri	1		
Janajati	0.661	0.374-1.168	0.154
Others	1.031	0.379-2.802	0.952
Marital Status			

Married	1	0.327-0.900	0.018*
Widow/Widower	0.542		
Currently Living With			
Family	1		
Others (Friends, relative, Alone)	1.066	0.649-1.752	0.800
Education Status			
Illiterate	1		
Others	0.798	0.421- 1.514	0.490
Occupational Status of the Participant			
Employed	1		
Unemployed	0.630	0.383-1.036	0.069
Current Smoking Status of the Participant			
No	1		
Yes	1.253	0.699-2.246	0.450
Current Drinking Status of the Participant			
No	1		
Yes	0.507	0.300-0.858	0.011*

*Statistically Significant

TB and Depression: The bivariate analysis of TB related variables with depression in terms of types of TB showed that patients in comparison to PBC, other types of TB (PCD and EP) had 1.405 times higher odds of depression (UOR=1.405, 95% CI, 0.853-2.316). Similarly, compared to new TB cases, other registration category of patients (previously treated and unknown) respondents had 0.963 times less odds of experiencing depression (UOR=0.963, 95% CI, 0.422-2.197). Respondents in the continuation phase of TB treatment had a 1.174 higher likelihood of experiencing depression (UOR=1.174, 95% CI, 0.707-1.951). Among individuals whose family and friends knew about the TB status had 0.897 less chances of having depression compared to those whose family and friends did not know about the TB status (UOR=0.879, 95% CI, 0.495-1.561). Respondents who had not faced any side effects of TB medication were 0.878 times less likely to get depressed (UOR=0.878, 95% CI, 0.536-1.438) than those patients who had faced side effects of TB medications. In terms of family history of TB, those without family history of TB had 1.005 times higher risk of depression compared to those with family history of TB (UOR=1.005, 95% CI, 0.563-1.794). Among the respondents who did not feel ashamed/guilty of having TB had 0.699 less odds of having depression compared to those who felt ashamed/guilty of having TB. There was higher odds of depression among those patients who felt isolated because of TB compared to those who did not feel isolated (UOR=0.774, 95% CI, 0.466-1.285). Those patients who did not feel helplessness because of TB had 0.655 less odds of having depression compared to those who felt helpless because of TB (UOR=0.655, 95% CI, 0.398-1.078).

Table 5: TB Related Factors Associated with Depression

Variables	UOR	95% CI	P value
Type of TB of the Participant			
PBC	1		
Others (PCD and EP)	1.405	0.853-2.316	0.182
TB Registration Category			
New	1		
Others (Previously treated and unknown)	0.963	0.422-2.197	0.929
Phase of TB Treatment			
Intensive Phase	1		
Continuation Phase	1.174	0.707-1.951	0.535
Family/friends know about your TB status			
Yes	1		
No	0.879	0.495-1.561	0.660
Faced any side effects of TB medications			

Yes	1		
No	0.878	0.536-1.438	0.605
Family history of TB			
Yes	1		
No	1.005	0.563-1.794	0.988
Ever felt ashamed/guilty of having TB			
Yes	1		
No	0.699	0.391-1.250	0.228
Ever felt isolated because of TB			
Yes	1		
No	0.774	0.466-1.285	0.322
Ever felt helplessness because of TB			
Yes	1		
No	0.655	0.398-1.078	0.096

4. Discussions

A study in Kathmandu assessed depression and anxiety among tuberculosis patients in urban DOTS centres in Kathmandu among 150 TB patients found that 27 participants (18%) showed some form of depression ranging from mild to very severe depression. However, the study showed no any significant association between gender and depression (Devkota et al., 2017). In terms of depression, our study focused on elderly TB patients and the prevalence of depression was 78.9 percent of which 21.1 percent had low depression, 61.6 percent had moderate depression and 17.4 percent had high depression. Our study showed that depression was significantly associated with religion, marital status and drinking alcohol.

A study conducted to assess the depression among TB patients and identify the associated factors in Kathmandu valley among 250 TB patients revealed that 10 percent of the respondents (n = 25) had scores indicating likelihood of depression. According to multivariate linear regression, having less education (0.003) and being separated, widowed, or divorced (p = 0.000) were significantly correlated with depressive symptoms. Similarly, alcohol consumption (p = 0.001), smoking (p = 0.02), and experiencing side effects from TB medications (p = 0.001) were also associated with depressive symptoms (Shrestha et al., 2020). However, in our study the distribution of the respondents in terms of presence of depression showed that 78.9 percent (n=300) had scores suggesting depression, while the remaining 21.1 percent (n=80) did not have

scores suggesting depression. The distribution of the respondents in terms of level of depression according to the GDS score showed that 21.1 percent of the respondents had low level of depression, 61.6 percent had moderate level of depression and 17.4 percent had high level of depression. According to the scoring of GDS, a score above 5 suggests depression. Hence, the total prevalence of depression was 78.9 percent (n=300). In our study, religion, marital status and drinking alcohol was significantly associated with depression. However, TB related factors were not associated with depression. This differences in results could have been as our study focuses on elderly TB patients aged 60 years and above while the former study focuses on general TB patients. There is variation in the use of the tools to measure depression as well.

One study conducted in Nepal to assess depression of people with pulmonary TB recruited 221 participants. At baseline and follow-up, 70/221 (32%) and 64/221 (29%) of all participants respectively had a positive PHQ-9 depression screening result suggesting probable depression. When the scores were divided into three levels, nearly one-third of participants (68/221, 31%) had some form of depression at baseline, with 43/221 (19.5%) having mild depression and 25/221 (11.5%) major depression. Approximately 2 percent of participants reported having severe problems or being unable to perform daily activities, and 4 percent reported having anxiety at baseline. Additionally, 3 percent of participants reported having severe problems or being unable to walk or practice self-care (Thapa et al., 2019). The findings of this study are in line with the findings from our study where 21.1 percent of the respondents had low level of depression, 61.6 percent had moderate level of depression and 17.4 percent had high level of depression.

A study conducted in an outpatient department of a tertiary care hospital to assess the depression among geriatric population aged 65 years and above. The study showed that, 42 out of 79 cases (53.2%) were found to have depression. There were 34.1 (27/79) and 19 (15/79) percent of people with mild and severe depression, respectively (Khatri & Nepal, 2006). A systematic review of prevalence of mental disorders among older population in Nepal showed that in the community, the frequency of cases with depressive symptoms ranged from 25.5 percent to 60.6 percent; in aged-care facilities it was 17.3 percent to 89.1 percent; and in hospital settings, it was 53.2 percent to 57.1 percent. In comparable contexts, the prevalence of depressive disorders ranged from 4.4 percent in the community to 53.2 percent in hospitals (Thapa et al., 2019). Our study also shows similar results in terms of depression among elderly TB patients that 21.1 percent of the respondents had low level of depression, 61.6 percent had moderate level of depression and 17.4 percent had high level of depression. The overall prevalence of depression was found to be 78.9 percent. Some of the differences in results could have been due to the fact that our target population is TB patients aged 60 and above years and the settings of the study was in clinics.

The available researches have also shown that depression among elderly population is high in the context of Nepal. However, there are limited studies. The differences in results can be attributed to the settings of the study. Our study has been conducted in DOTS centres where TB patients come for medications. The tools used to identify depression are different. Our study uses Nepali validated version of Geriatric Depression Scale to measure depression among elderly TB patients. Our study focuses on elderly TB patients aged 60 and above years, while most studies focus on adult TB patients. The differences in the tool used and differences in the study participants, all these accounts for differences in the findings of the study.

5. Conclusion

The intersection of TB and depression in elderly patients presents a significant public health challenge, impacting not only the clinical management of TB but also the overall quality of life of these individuals. Elderly TB patients exhibit a notably high prevalence of depression. This mental health condition in the elderly is influenced by multiple factors, including the physiological and psychological stresses associated with aging, chronic illness, and the socio-economic implications of living with TB. Depression in this group is often underdiagnosed and undertreated due to overlapping symptoms with TB and the misconception that depressive symptoms are a natural part of aging. Addressing depression in elderly TB patients requires a multi-faceted approach that integrates medical, psychological, and social interventions. Early detection and treatment of depression are critical in this particular group. Healthcare providers should be trained to recognize the signs of depression in elderly TB patients and provide appropriate referrals for mental health services. Integrating mental health screening into routine TB care can ensure that depression is identified and treated promptly.

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