

BMJ Open Depression among individuals with disabilities: a community-based cross-sectional study in Nepal

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To cite: Ghimire A, Mishra DKK. Depression among individuals with disabilities: a community-based cross-sectional study in Nepal. *BMJ Open* 2025;15:e082955. doi:10.1136/bmjopen-2023-082955

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<https://doi.org/10.1136/bmjopen-2023-082955>).

Received 07 December 2023
Accepted 13 February 2025

ABSTRACT

Objective To assess the prevalence of depression and its associated factors among individuals with disabilities.

Design Cross-sectional study.

Setting Community-based study conducted in Ilam municipality, Nepal, from October to November 2019.

Participants The study was conducted among 164 people with physical, hearing and vision-related disabilities. Participants were selected through a simple random sampling method using the sampling frame obtained from Ilam municipality.

Main outcome measure Depression and its associated factors among people with disabilities. Depression was assessed via a validated Nepali version of the Hospital Anxiety and Depression Scale. Data collection was based on a pretested structured questionnaire.

Results The prevalence of depression was 39% among people with disabilities, and 29.9% of the respondents were in borderline depression. In an unadjusted analysis, depression was significantly ($p < 0.05$) associated with comorbidities, absence of medical intervention, severe disabilities and disabilities acquired at birth. After adjusting for individual-level factors (age, sex, education, employment and physical activities), the level of disability and treatment accessibility were significantly associated with depression. After adjusting for family and community-level factors (economic status, experience of violence and social participation), depression remained significantly associated ($p < 0.05$) with having comorbidities, absence of medical intervention and presence of very severe disabilities. When adjusting for both individual-level and community-level factors, the level of disability continued to show a significant association with depression (OR 6.36 (moderate vs mild), 2.11 (severe vs mild) and 13.3 (very severe vs mild), overall p -value of 0.045). Across all three adjusted models, the level of disability was significantly associated with depression ($p < 0.05$).

Conclusion Depression is one of the major global public health concerns, with people with disabilities being particularly vulnerable. Ensuring the health and well-being of people with disabilities requires focused attention and strategic planning, emphasising disease prevention, health promotion and improved access to care.

INTRODUCTION

Disability refers to a lack of ability or restriction in performing activities due to impairment. These activities may include

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This was a community-based study that included people with different types of disabilities.
- ⇒ This study has no comparison group.
- ⇒ The study was conducted among individuals with disabilities listed in Ilam municipality's records. This study does not include individuals with disabilities who were not listed.

interpersonal relations, work, and physical, mental and intellectual functions.¹ Disability is a growing public health challenge, affecting an increasing number of people annually. In 2023, approximately 1.3 billion people (16% of the global population) were estimated to have severe disabilities.² This rising burden is largely attributed to the growing prevalence of non-communicable diseases, genetic factors, complications during childbirth, and delays in the diagnosis and treatment of underlying conditions leading to disability. In this study, 'disability' is used as an umbrella term encompassing impairments, activity limitations, and participation restrictions among individuals with physical, visual and hearing impairments.

Everyone is likely to experience some form of disability at some point in their life, especially as they age.³ Despite the widespread prevalence of disability, individuals with disabilities often face stigmatisation, discrimination, inequalities and restrictions on participation. Their rights and dignity are frequently violated through acts of violence, abuse and disrespect—barriers that are entirely preventable.³ These challenges, coupled with emotional distress, further predispose individuals with disabilities to the development of mental disorders.^{3 4}

Depression is a common mental disorder characterised by persistent sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, tiredness and poor concentration.^{5 6} People with disabilities are three times more likely to



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experience depression compared with the general population.⁷ Globally, an estimated 322 million people are living with depression, which is one of the leading causes of disability worldwide and directly impacts an individual's quality of life.^{5 8–10} Both depression and disability are highly stigmatised in our society.^{7 11} A 2014 study conducted in Pakistan among permanently disabled individuals found that 42.86% had moderate depression, 37.14% had severe depression and 14.29% had extreme depression.¹² Likewise, multiple studies on depression and physical illness have shown a positive correlation between depression and physical disability.^{13 14} A recent study in India reported a higher score of depression among individuals with disabilities (18.5) compared with the general population (7.2).⁴

The relationship between depression and disability is bidirectional: depression significantly increases the risk of activity limitations, while disability and activity limitations also have a substantial, time-dependent impact on depression.^{15 16} Community-based studies on depression among people with different disabilities are limited, especially in Nepal. This study aims to assess the prevalence of depression and related factors among people with disabilities in a selected Nepalese municipality. The findings will support the development of mental health intervention and aid policymakers in addressing mental health needs within this population.

METHODS

Study population

A community-based cross-sectional study was conducted among 164 people with disabilities in Ilam municipality of Province 1, Nepal, from October to November 2019. The study aimed to assess the prevalence of depression and its associated factors among individuals with disabilities. A quantitative research method was used, with the individual as the study unit. Since the study was carried out among people with disabilities, not every participant could complete the survey questionnaire by themselves. Therefore, a face-to-face interview technique was used to collect data about depression status, disease status, disability and other covariates by asking the participants structured survey questions and recording their responses.

The sample size was determined using the formula for a finite population developed by Cochran in 1963:

$$n = \frac{Z^2 pq}{d^2 + \frac{Z^2 pq}{N}}$$

where,

n=desired sample size;

Z=standard normal deviation, set at 1.96, corresponding to 95% confidence level;

p=proportion of the target population estimated to have a particular characteristic. Since data on the prevalence of anxiety and depression among people with

disabilities in Nepal or similar regions was unavailable, a prevalence rate of p=50% was assumed;

q=1 -p;

n=243 (number of individuals with physical disabilities, hearing impairments and vision-related disabilities obtained from Ilam municipality records);

d=degree of accuracy required, usually set at 5%.

Therefore,

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.05)^2 + \frac{(1.96)^2 \times 0.5 \times 0.5}{243}}$$

$$n=149.$$

Considering a non-response rate of 10%, the final sample size was calculated to be:

149+10% of 149=164.

The sample size of n=164 was selected from a sampling frame of 243 people obtained from the health section of the Ilam municipality office, using random sampling with a lottery method. The study achieved a 100% response rate, with all 164 selected individuals consenting to participate and successfully completing the survey.

Inclusion and exclusion criteria

The study included individuals aged 18–65 years, while those unable to complete the survey due to communication difficulties were excluded. Inclusion criteria were verified using the municipality records.

Data collection tools and techniques

Face-to-face interviews were conducted using a pretested structured questionnaire to assess the sociodemographic characteristics of the study population. Depression was measured using a validated Nepali version of the Hospital Anxiety and Depression Scale (HADS-D).¹⁷ While the original English version of HADS-D reported a Cronbach's α of 0.82,¹⁸ the Nepali language version of the tool reported satisfactory construct validity and Cronbach's α of 0.68.¹⁷

Study variables

Outcome variables

A validated Nepali version of the standard HADS-D was used to assess depression, the primary outcome variable. The HADS is a 14-item, 4-point scale that assesses how respondents have been feeling in the past 7 days. The depression subscale (HADS-D) has seven items, each item's score ranging from 0 to 3, with 3 indicating higher severity of the particular depressive symptom, with the total summed score ranging from 0 to 21. A HADS-D Score of 11 was used as the cut-off for assessing depression, with scores of 11 or higher classified as indicating depression, scores between 7 and 10 considered borderline depression, and scores below seven classified as normal.¹⁷ The primary outcome variable, depression, was classified as Yes (HADS-D Score ≥ 11) or No (HADS-D Score ≤ 10). Respondents also reported other depressive symptoms like suicidal ideation or attempts and recent stressful life events (also categorised as Yes or No).

Primary independent variables

Our primary independent variables were the disability and disease status of the participants. Disability was defined based on the classification criteria provided by the Central Bureau of Statistics, Nepal, categorised into physical disabilities, hard of hearing and vision-related disabilities. Each category was further classified into four different severity levels—very severe (profound), severe, moderate and mild—following Nepal Law Commission guidelines. Participants indicated their type of disabilities, severity level and time of onset of disability (from birth or acquired later in life) in the completed questionnaire, based on the disability card from the government of Nepal.

Profound disability is a condition where a person has difficulty performing their day-to-day activities even with the continuous support of others. Severe disability is defined as a condition where people need continuous support from others to perform personal activities and to participate in social activities. Moderate disability is defined as a condition where a person can regularly participate in their daily and social activities if a physical facility is available, environmental barrier is ended, or education or training is provided. Mild disability is defined as a condition where a person can regularly participate in their daily and social activities if no physical or environmental barrier exists.

To assess disease status, respondents were asked if they had been diagnosed with any health condition (Yes or No). Respondents answering 'Yes' were further asked to specify the diagnosed condition (hypertension, diabetes, cancer, others). Respondents also reported whether they have been receiving any medical care.

Covariates

Sociodemographic variables were classified into individual-level and family/community-level variables. Individual-level variables included in the study are: *age in completed years* (categorised as 18–35, 36–55 and 56–65), *sex* (categorised as male or female), *education level* (categorised as illiterate, literate or formal education), *employment status* (categorised as employed, housemakers, agriculture, student or unemployed), *physical activity* (categorised as never, sometimes or regular, based on WHO physical activity criterion), *substance abuse status* (yes (alcohol, smoking or drugs) or no).

Likewise, the family/community-level variables considered in the study included *experience of violence* (yes or no), *social participation level* (categorised as almost every function, sometimes or never), *economic status* (categorised as below or above poverty level, based on the per-capita income in the family). The poverty level threshold was defined as less than \$1.90 per day based on the World Bank's socioeconomic status category. All household income sources were identified and divided by the number of family members to calculate the per capita income. Respondents also reported their *family type* (categorised as nuclear or joint/extended). A nuclear family

was defined as families consisting of parents and children living together. The joint/extended family type is where grandparents, parents and children are living together.

Pretesting

Pretesting was done at Mahalaxmi municipality among 20 people with disabilities. Content and face validity were maintained through extensive literature review and expert consultation.

Data analysis

We entered and analysed the data using the Statistical Package for Social Sciences (SPSS IBM V. 22) and statistical software suite SAS V.9.4. Descriptive analysis for all variables is presented as frequency and percentage. The χ^2 test (at a 5% significance level and 95% CI) assessed the unadjusted association between dependent and independent variables. The independent variables with significant association (value of $p < 0.05$) in the unadjusted analysis were adjusted in the subsequent models. Variables for suicidal ideation and attempts, and satisfaction with life were removed from the models as they might also represent the symptoms of depression. The association of primary independent variables (disability and disease status) and outcome variable (depression) adjusted for the sociodemographic variables was calculated using three logistic regression models. Model 1 is the crude model with no adjustment. Model 2 adjusts for individual-level sociodemographic factors (age, education, employment, physical activity status). Model 3 adjusts for family/community-level sociodemographic factors (social participation, experience of violence and economic status). Model 4 adjusts for both individual-level and family/community-level sociodemographic variables.

Patient and public involvement

During the initial phase of the study, representative people with disabilities from the National Federation of the Disabled, Nepal, were consulted, and their suggestions were incorporated into the study. After publication, the findings from the study will be disseminated to people with disabilities and organisations working to assist them.

RESULTS

Sociodemographic characteristics

Online supplemental table S1 shows the distribution of the participants' sociodemographic characteristics. The mean age of the participants was 38.37 ± 15.75 years, with a majority (57.9%) being male. The majority (55.5%) were unmarried, and 48.5% of the respondents lived in a joint family. Regarding education, 31.7% of the respondents were illiterate, 22.6% were literate without formal education and 45.7% had formal education. Unemployment was reported by 38.4% of the respondents, while 11.6% were students. More than half of the respondents (51.2%) lived below the poverty level. The majority (66.5%) of the respondents experienced violence. Among those

Table 1 Depressive symptoms

Variables	Frequency	Percentage
Prevalence of depression (n=164)		
Depression	64	39
No depression	100	61
Level of depression (n=164)		
Depression	64	39
Borderline	49	29.9
Normal	51	31.1
Stressful life events (n=164)		
Yes	32	19.5
No	132	80.5
Satisfaction with life (n=164)		
Yes	50	30.5
No	114	69.5
Suicidal ideation (n=164)		
Yes	81	49.4
No	83	50.6
Suicidal attempts (n=164)		
Yes	14	8.5
No	150	91.5

who experienced violence, 98.9% reported experiencing emotional violence and 93.7% reported experiencing mental violence. Regarding social participation, 40.2% of respondents reported never attending any social functions. The majority (62.2%) did not use any assistive devices. Most (38.4%) of the respondents never did any physical activity. Among the respondents (28.7%) who reported 'Yes' to substance abuse practice, 97.9% of the respondents were smokers. The detailed demographic data are given in online supplemental table S1.

Depressive symptoms

Table 1 shows the depressive symptoms of the respondents. Depression was identified in 39% of the respondents; 29.9% were in borderline depression, while only 31.1% of the respondents were normal. The majority (80%) of the respondents reported having no stressful life events in the past. Most (69.5%) of the respondents were not satisfied with their life. Almost half (49.5%) of the respondents had suicidal ideation, and 8.5% had attempted suicide in the past.

Disability and disease status

Table 2 shows the disability and disease status of the respondents. Most (68.9%) of the respondents had physical disabilities, 16.5% had vision-related disabilities and 14.6% were hard of hearing. Severe and moderate disabilities were most common (33.5% and 37.2%, respectively) among the respondents, and 18% had mild disability, while 11% of the respondents had very severe disability. Half of the respondents had a disability at birth, and half

Table 2 Disability and disease status

Variables	Frequency	Percentage
Type of disability (n=164)		
Physical	113	68.9
Vision	27	16.5
Hard of hearing	24	14.6
Level of disability (n=164)		
Very severe	18	11.0
Severe	55	33.5
Moderate	61	37.2
Mild	30	18.3
Duration of disability (n=164)		
After birth	82	50.0
By birth	82	50.0
Comorbidity (n=164)		
Yes	39	23.8
No	125	76.2
Disease (n=39)*		
Hypertension	21	53.8
Diabetes	9	17.6
Cancer	3	5.9
Others	18	35.3
Treatment received (n=164)		
Yes	68	41.5
No	96	58.5

*Multiple responses reported by some participants.

acquired disabilities after birth. About 24% of the respondents had some form of comorbidity. Among those, a majority (53.8 %) reported having hypertension. Despite the prevalence of comorbidities, more than half (58.5%) of the respondents reported undergoing no treatment.

Association between respondents' characteristics and depression

The association between participants' sociodemographic characteristics and depression following a crude χ^2 analysis is shown in online supplemental table S2. Age ($p=0.001$), sex ($p=0.009$), education status ($p<0.001$), employment ($p<0.001$), economic status ($p<0.001$) were found to be significantly associated with depression. Likewise, experience of violence ($p=0.001$), social participation ($p<0.001$) and physical activity ($p=0.001$) were found to be significantly associated with depression. Depression was observed to be higher in older age groups (56–65 years) in comparison to younger age groups (see online supplemental table S2).

Association between disability, disease status and depression

The unadjusted association between disability, disease status and depression is shown in table 3. The level of disability was found to be significantly associated with

Table 3 Unadjusted association between disability, disease status and depression

Variables	Depression (%)	No depression (%)	P value
Type of disability (n=164)			
Physical	50 (44.2%)	63 (55.8%)	0.121
Vision	7 (25.9%)	20 (74.1%)	
Hard of hearing	7 (29.2%)	17 (74.1%)	
Level of disability (n=164)			
Very severe	14 (77.8%)	4 (22.2%)	<0.001
Severe	18 (32.7%)	37 (67.3%)	
Moderate	27 (44.3%)	34 (55.7%)	
Mild	5 (16.7%)	25 (83.3%)	
Duration of disability (n=164)			
After birth	38 (46.3%)	44 (53.7%)	0.05
By birth	26 (31.7%)	56 (68.3%)	
Comorbidity (n=164)			
Yes	21 (53.8%)	18 (46.2%)	0.030
No	43 (34.4%)	82 (65.6%)	
Treatment received (n=164)			
Yes	19 (27.5%)	50 (72.5%)	0.010
No	45 (47.4%)	50 (52.6%)	
Stressful life events (n=164)			
Yes	14 (43.8%)	18 (56.3%)	0.541
No	50 (37.9%)	82 (62.1%)	
Satisfaction with life (n=164)			
Yes	7 (14%)	43 (86%)	<0.001
No	57 (50%)	57 (50%)	
Suicidal ideation (n=164)			
Yes	48 (59.3%)	33 (40.7%)	<0.001
No	16 (19.3%)	67 (80.7%)	
Suicidal attempts (n=164)			
Yes	8 (57.1%)	6 (42.9%)	0.146
No	56 (37.3%)	94 (62.7%)	

depression ($p<0.001$). Depression was observed to be higher among those with very severe levels of disability. Reported comorbidity ($p=0.030$), treatment received for existing conditions ($p=0.010$), satisfaction with life ($p<0.001$) and suicidal ideation ($p<0.001$) were found to be significantly associated with depression.

Table 4 shows the four different regression models assessing the association of disability and disease status with depression among people with disabilities. Model 2 was significant with pseudo- $R^2=38.1\%$, Hosmer-Lemeshow significance=0.31; model 3 was significant with pseudo- $R^2=33.68\%$, Hosmer-Lemeshow significance=0.94; and model 4 was significant with pseudo- $R^2=43.43\%$ and Hosmer-Lemeshow significance=0.654. Variance Inflation Factors calculated for each independent variable in

the model using the R^2 value were less than 2 for all the variables in the model.

In the crude model, which did not adjust for any factors, disease status (comorbidity), treatment status, level of disability and time of onset of disability were significantly associated with depression ($p<0.05$). Respondents with comorbidities had higher odds of depression compared with those without comorbidities ($OR=2.23$). Health service access was another significant factor associated with depression, with those who did not receive medical care having higher odds of depression compared with those who were receiving care ($OR=2.37$). The severity of disability was also a significant factor, with respondents with very severe, severe and moderate disabilities having higher odds of depression ($OR=17.5, 2.43, 3.97$, respectively) compared with those with mild disabilities. Respondents who acquired disability later in life had 1.9 times higher odds of depression than those who had disabilities at birth. However, the association between type of disability and depression was not statistically significant at 0.05 level of significance.

Model 2 assessed the association between disability, disease status and depression, adjusting for individual-level factors (age, sex, education, employment status and physical activity level of the respondents). Treatment received was significantly associated with depression, with individuals not receiving any care having 3.41 times the odds of depression compared with those under some form of treatment. A similar association was observed with the level of disability, with very severe, severe and moderate disabilities having 26.8, 3.96 and 8.03 times higher odds of depression, respectively, than those with mild depression.

Model 3 examined the association between disability, disease status and depression, adjusting for family/community-level factors (economic status, experience of violence and social participation). The model demonstrated a significant association of depression with the presence of comorbidities, treatment received and the level of disabilities. Individuals with comorbidities had 4.63 times higher odds of depression than those without comorbidities ($p=0.009$). Likewise, individuals receiving no treatment had 3.37 higher odds of depression compared with those under some form of treatment ($p=0.02$). The association between the level of disability and depression was still significant in model 3 consistent with model 1 (crude model) and model 2 (adjusted for individual-level factors). Individuals with very severe, severe and moderate disabilities had 7.6, 1.7 and 4.59 times higher odds of depression, respectively, than those with mild levels of disability.

After adjusting for both individual-level and family/community-level factors in model 4, only the level of disabilities was found to be significantly associated with depression, where those with very severe, severe and moderate level disabilities had 13.3, 2.1 and 6.4 times the odds of depression among those with a mild level of disabilities.

Table 4 Association between disability, disease status and depression (n=164)

Primary independent variables	Model 1			Model 2			Model 3			Model 4		
	OR	95% CI	P value*	OR	95% CI	P value*	OR	95% CI	P value*	OR	95% CI	P value*
Comorbidity			0.032†			0.088			0.009†			0.105
Yes	2.23	(1.07, 4.62)		2.87	(0.85, 9.65)		4.63	(1.47, 14.6)		3.05	(0.8, 11.79)	
No	1	---		1	---		1	---		1	---	
Treatment received			0.011†			0.022†			0.02†			0.106
Yes	1	---		1	---		1	---		1		
No	2.37	(1.22, 4.60)		3.41	(1.2, 9.71)		3.37	(1.21, 9.41)		2.55	(0.82, 7.93)	
Level of disability			0.001†			0.017†			0.036†			0.045†
Mild	1	---		1	---		1	---		1	---	
Moderate	3.97	(1.34, 11.8)		8.03	(1.42, 45.3)		4.59	(1.22, 17.3)		6.36	(1.1, 36.7)	
Severe	2.43	(0.8, 7.40)		3.96	(0.63, 24.8)		1.7	(0.41, 7.15)		2.11	(0.31, 14.0)	
Very severe	17.5	(4.03, 75)		26.81	(2.62, 27.4)		7.6	(1.22, 47.4)		13.3	(1.2, 14.7)	
Type of disability			0.127			0.704			0.719			0.478
Physical	1.93	(0.74, 5.01)		1.93	(0.39, 9.67)		1.68	(0.46, 6.19)		2.5	(0.4, 15.03)	
Vision	0.85	(0.25, 2.91)		2.15	(0.30, 15.2)		1.39	(0.25, 7.78)		3.88	(0.43, 34.8)	
Hearing	1	---		1	---		1	---		1		
Time of disability			0.05†			0.253			0.083			0.672
Acquired	1.86	(1.01, 3.5)		1.83	(0.65, 5.13)		2.12	(0.9, 4.96)		1.28	(0.41, 3.93)	
At birth	1	---		1	---		1	---		1		

Model 1: Crude model without adjustment.
 Model 2: Adjusted for individual-level sociodemographic factors.
 Model 3: Adjusted for family/community-level sociodemographic factors.
 Model 4: Adjusted for both individual-level and family/community-level sociodemographic factors.
 *Likelihood ratio χ^2 test.
 †Statistically significant at $\alpha=0.05$.

Pseudo- R^2 values of 36%, 33% and 43% were reported by model 2, model 3 and model 4, respectively. This shows that both the individual-level and family/community-level factors together better predict depression among individuals with disabilities.

Discussion

The prevalence of depression among people with disabilities (39%) and those with borderline depression (29.9%), reported from this study, is higher than the national average (10%) among the general population, which shows depression as a legitimate concern among the disabled population.¹⁹ A hospital-based study conducted on depression among 35 physically disabled individuals in Pakistan showed a 97% prevalence rate, higher than the findings of this study.¹² Another study conducted in Nepal among people with physical disabilities in a selected disability care home also reported a higher prevalence of depression at 77%.²⁰ These discrepancies in the findings could stem from the difference in study setting (community-based vs institutional setting) and the cultural differences of the study population.

The study explored cursory factors associated with depression with a crude (unadjusted) analysis (see table 3 and online supplemental table S2). The analysis showed a significant association between age (the older population aged 56–65 years had higher prevalence of depression than the younger population), similar to multiple studies reported in the literature.^{21–23} A significant association was also observed with sex, with a higher prevalence of depression in women than men, in line with other studies.^{21–23} The analysis also showed that physical activity, education level, satisfaction with life and employment were negatively associated with depression. In contrast, experience of violence, time of onset of disability, having a comorbidity and level of disability were positively associated. Multiple studies have reported that violence is a major problem in adults with disabilities.^{24–26} A high prevalence of violence of 66.5% among people with disability was observed in this study. This is a major concern for disabled individuals and might warrant a detailed study of its own. Social stigma may help explain these high levels of violence experienced by this vulnerable population. Respondents with better social participation showed less depression, similar to prior research.²³ Economic status also significantly influenced depression, with poorer individuals reporting a higher prevalence, consistent with other studies.^{14 23 27} The analysis shows a higher prevalence of depression among those who were not physically active. Similarly, findings are reported in the literature.^{28–30} As the scope of this study is the analysis of the association of depression with disease and disability status, all these significant factors discussed above were controlled in adjusted models.

Depression is a major risk factor for suicide, and in this study, we observed 49.4% of the respondents with suicidal ideation, of which 8.5% had attempted suicide.³¹ This is significantly higher than reported in a study by Nosek *et*

al, which showed a 20% prevalence of suicidal ideation.³² The difference may be attributed to the fact that the study was conducted only among women in a different sociocultural setting.

Individuals with comorbidities had significantly higher odds of depression which is consistent with findings from another study in Pakistan.³³ The association of comorbidity and depression was significant at a 0.05 level of significance after adjusting for individual-level factors. This suggests that comorbidity is a strong predictor of depression; the presence of prediagnosed diseases other than disabilities also influences the mental health status of the individual with disabilities. However, the association was not significant at the same significance level when adjusted for both individual-level and family/community-level factors. This suggests potential interaction in the association of comorbidity and depression by family/community-level factors, which were not assessed in this study and should be explored further in future research.

Treatment accessibility was found to be significantly associated with depression in an unadjusted model as well as the adjusted model 2 (adjusted for individual-level factors) and model 3 (adjusted for family/community-level factors), which is consistent with findings from other studies.^{23 23} This study shows poor mental health among those who are deprived of health services. Access to medical care is likely to be affected by the economic and social conditions of the respondent. The study reported about 59% of respondents without access to care, which is a concern that needs serious attention.

Though higher odds of depression were seen among people with physical disabilities, no significant association between the type of disability and depression was observed. A statistically significant association between the level of disability and depression was observed in both unadjusted and adjusted analyses, which indicates that the severity of the disability is a crucial factor influencing depression. Those with very severe disabilities were the most vulnerable ones and had higher odds of depression than those with mild disabilities. This might be because individuals with mild levels of disabilities have better physical performance and fewer activity limitations than those with severe or very severe levels of disabilities. Similar to this result, several studies also showed that the overall odds of depression were markedly lower in people with better physical performance or less functional disability.^{27 34}

Disabilities acquired later in life had higher odds of having depression than those with disabilities from birth. The association of time of disabilities and depression was statistically significant in unadjusted analysis. However, this association was statistically insignificant after adjusting for sociodemographic factors (individual-level, family/community-level or both). This suggests some influence of sociodemographic factors in the crude association between the timing of disability and depression.

This study assessed the underexplored and stigmatised subject of depression among people with disabilities. To

the best of our knowledge, this type of community-based study focusing on the mental health of individuals with different disability types is limited in the context of Nepal. The majority of the studies are conducted in an institutional setting and focus on a single type of disability. This community-based study includes people with multiple disability types. The study is limited to one rural municipality of Nepal and only includes the people with disabilities listed on the municipality disability list and does not consider people not in the listed records. Another major limitation of the study is that it has no comparison group, as it was focused more on assessing the magnitude of the problem among people with disabilities rather than on comparison with the general population. A large-scale study on the mental health of people with disabilities is recommended to grab a globally representative scenario.

CONCLUSION

The study showed that out of 164 people with disabilities in Ilam municipality, 39% of the respondents had depression, and about a third of the participants were under borderline depression. In an analysis of the association between disability, disease status and depression, after adjusting for various levels of sociodemographic factors, the level of disability was a significant factor contributing to depression. Likewise, based on different models, having pre-existing disease conditions other than disability and service accessibility (treatment status) for the existing conditions were found to have significant associations with depression among individuals with disabilities. Findings from the study revealed that both the individual-level and family/community-level factors together have a strong influence on depression among individuals with disabilities. Therefore, these factors should be considered in planning and strategy development to improve health, enhance well-being and prevent depression among people with disabilities.

Acknowledgements The authors thank the reviewers and editors for all the constructive and insightful comments on the manuscript. The authors also thank Mr Albert Dahal for his help in reviewing and editing the manuscript. The authors also thank all the participants of this study, the faculty members of the Department of Public Health, Manmohan Memorial Institute of Health Sciences, Ilam municipality and Karuna Foundation, Nepal, for their support.

Contributors Conceptualisation: AG, DKKM; Methodology: AG; Formal analysis and investigation: AG; Writing—original draft preparation: AG; Writing—review and editing: AG, DKKM; Resources: AG, DKKM; Supervision: DKKM. AG is the guarantor for the study.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by the Institutional Review Committee, Manmohan Memorial Institute of Health Sciences (ID: MMIHS IRC 320). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. Additional data can be provided upon request to the corresponding author.

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