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Depression among Patients with Chronic Viral Hepatitis Attending Tertiary Level Hospital

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ABSTRACT

Background

Chronic viral hepatitis is a major public health problem worldwide. Patients with chronic viral hepatitis face both physical and mental problems. So, this study aimed to determine the prevalence of depression among patients with chronic viral hepatitis.

Methods

A cross-sectional analytical study was conducted at the outpatient department of hepatology unit of Bir Hospital. Consecutive sampling technique was used. Total sample size was 208. Pretesting was conducted in 10% of the total sample size. The research tool consisted of two parts, Part A consisted of information related to socio-demographic and economic characteristics and disease related information and Part B consisted of Beck Depression Inventory 1 a. Data were analysed using descriptive statistics like frequency, percentage, mean, standard deviation, median and inferential statistics like chi square and multiple logistic regression.

Results

Less than half (38.9%) of the respondents belonged to age group 25-40 years. Less than half (43.8%) had completed secondary level education. Around 1/3rd (35.1%) of the respondents belong to upper middle socio-economic class. Majority (87.9%) of the respondents were diagnosed with Hepatitis B. Less than 1/4th (15.4%) of the respondents had moderate depression with the need for mental health intervention. Age, religion, ethnicity, socioeconomic status, types of hepatitis and duration of diagnosis were significantly associated with depression. Multivariable model shows ethnicity, socio-economic status, type of hepatitis and duration of diagnosis as the predictors of depression.

Conclusions

Despite of the lower prevalence of depression among the patients with chronic hepatitis, it is crucial to address mental health dimension while treating the patients and implement mental health interventions among those with different severity of depression.

Keywords: beck depression inventory; chronic viral hepatitis; depression; prevalence.

INTRODUCTION

Hepatitis may be caused by viral, bacterial, fungal, and parasitic infections and noninfectious factors.[1] The most common causes of viral hepatitis are Hepatitis A, B, C, D and E viruses.[2] Viral hepatitis was the seventh leading cause of death worldwide in 2013.[3] Chronic viral hepatitis is a major cause of high morbidity and mortality.[4,5] In Nepal, the prevalence of Hepatitis B and C is 0.9% and 0.6% in general population respectively.[6-10] Advancements in medical science have turned many fatal diseases into chronic conditions, and chronic liver disease, with its physical, cognitive, and functional impairments, often leads to psychiatric symptoms.[11-14] Various studies show that depression is common in patients with chronic viral hepatitis, and is also noted as a serious side effect of antiviral therapy.[10,15-18] Depression exacerbates physical symptoms, impairing quality of life and

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functionality. Despite its impact, depression in patients in chronic hepatitis is often overlooked.

METHODS

A cross-sectional analytical studywas conducted at the outpatient department of hepatology unit of Bir Hospital, Mahaboudhha from Chaitra 2077 to Bhadra 2078. Consecutivesampling technique was done until the required sample size was obtained. Samplesize was calculated using the formula, $n=(z_{\alpha/2})^2pq/d^2$ assuming prevalence of severe depression among patients withchronic hepatitis B of 40.6% in Turkey.[13] Total sample size wascalculated to be 208. Patients aged ≥ 18 years, able to communicate properlyand diagnosed with chronic viral hepatitis for at least six months wereincluded whereas patients diagnosed with or having previous history of hepaticencephalopathy, patients previously diagnosed with any psychiatric illness orneurological disorder, patients having a hearing, speech or cognitive deficitsthat would impair understanding of the questions and patients on antidepressantdrugs, or being on treatment for any neurological or psychological diseases, atthe time of data collection were excluded. Pretesting was conducted in 10% ofthe total sample size. The research tool consisted of two parts, Part A consistedof information related to socio-demographic and economic characteristics anddisease related information and Part B consisted of Beck Depression Inventory 1a (BDI-1a). Part A was constructed by the researchers based on theliterature search and discussion with experts. Part B consisted of standard structuredquestionnaire consisting of 21 items. It is a tool for assessing depressionover the prior two weeks. Each question has a set of 4 possible responsesindicating how an individual has been feeling in the last two weeks from theday of interview. This tool is validated for use in Nepal with sensitivity 0.73 and specificity of 0.91 at a cut-off score of 20 indicating clinical levels ofsymptoms severity i.e., <20: No Depression, ≥20: Moderate depression withthe need for mental health intervention. Test re-test reliability was 0.90 andinternal reliability was 0.92.[19] Part B in Nepali version wasobtained from the author who has already used this tool in Nepal.[20] Ethicalapproval was obtained from institutional review board (IRB) of National Academyof Medical Sciences (NAMS) [Ref. No. 578]. Informed consent was obtained fromthe respondents. Face to face interview was conducted and it took around 10-15minutes to complete the questionnaire. Data were analyzed using descriptivestatistics like frequency, percentage, mean, standard deviation, median andinferential statistics like chi square and multiple logistic regression. Thevariables that were significant at p <0.2 from the bivariate analysis wereconsidered for multivariate analysis using multiple logistic regression where backward logistic regression method was specified in order to identify thefactors associated with depression among people with chronic viral hepatitis.

RESULTS

Table 1 depicts the sociodemographic characteristics of the respondents. Less than half (38.9%) of the respondents belonged to age group 25-40 years and least (13%) belonged to age ≥ 60 years. More than 3/4th (77.4%) of the respondents were male. More than 1/3rd (37%) belonged to Janajati. Most (88.9%) of the respondents followed Hindu religion. More than 3/4th (77.9%) were married. Less than half (43.8%) had secondary level education. Less than 1/5th (18.3%) of the respondents were home maker. Around 1/3rd (35.1%) of the respondents belong to upper middle socio-economic class according to Kuppuswamy's socioeconomic status.

Table 2 shows the disease related information of the respondents. Majority (87.9%) of the respondents were diagnosed with Hepatitis B. Mean age of diagnosis was 35 (± 14.5) years. More than 1/3rd (37.5%) of the respondents were diagnosed at the age group 25 – 40 years. More than half (62.5%) of the respondents were diagnosed for 1-5 years. Less than half (42.8%) were under medication. More than 1/4th (27.4%) had comorbid conditions like hypertension, diabetes mellitus, HIV/AIDS, etc. Most of the respondents (97.1%) had no family history of mental illness.

Table 1. Socio-demographic characteristics of the respondents. (n = 208)	
Characteristics	**Frequency (%)**
Age	
18 - 25 years	36 (17.3)
25 - 40 years	81 (38.9)
40 - 60 years	64 (30.8)
≥60 years	27 (13.0)
Mean ± SD (min, max)	39.18 ± 14.75(18, 85)
Gender	
Female	47 (22.6)
Male	161 (77.4)
Ethnicity	
Brahmin/Chhetri	73 (35.1)
Janajati	77 (37.0)
Madhesi	39 (18.8)
Muslim	4 (1.9)
Others	2 (1.0)
Religion	
Buddhist	17 (8.2)
Hindu	185 (88.9)
Muslim	4 (1.9)
Marital status	
Divorced	1 (0.5)
Married	162 (77.9)
Unmarried	43 (20.7)
Education	
Illiterate	29 (13.9)
Basic level	55 (26.4)
Secondary level	91 (43.8)
University level	33 (15.9)
Occupation	
Home maker	38 (18.3)
Agriculture	24 (11.5)
Service	22 (10.6)
Business	37 (17.8)
Labour	9 (4.3)
Retired	6 (2.9)
Student	25 (12.0)

Table 3 presents the prevalence of depression. Less than 1/4th (15.4%) of the respondents had moderate depression with the need for mental health intervention.

Table 3. Prevalence of depression. (n = 208)	
Characteristics	**Frequency (%)**
Depression	
No (<20)	176 (84.6)
Yes (≥20)	32 (15.4)

Table 2. Disease related information of the respondents. (n = 208)	
Clinical characteristics	**Frequency (%)**
Type of hepatitis	
Hepatitis B	183 (87.9)
Hepatitis C	25 (12.1)
Age of diagnosis	
< 25 years	59 (28.4)
25 - 40 years	78 (37.5)
≥40 years	71 (34.1)
Mean ± SD (min, max)	35 ± 14.5 (15 ,83)
Duration of diagnosis	
< 1 year	9 (4.3)
1 - 5 years	130 (62.5)
5 - 10 years	42 (20.2)
10 years and more	27 (13.0)
Median (Q1, Q3)	24 (12 ,69.75)
Undergoing treatment	
Follow up	119 (57.2)
Medication	89 (42.8)
Any medications used	
No	119 (57.2)
Yes	89 (42.8)
Comorbid conditions	
No	151 (72.6)
Yes	57 (27.4)
Family history of mental illness	
No	202 (97.1)
Yes	6 (2.9)

Table 4 displays the bivariate analysis of the depression with sociodemographic characteristics where variables like age (p=0.020), ethnicity (p=<0.001), religion (p=0.017) and socio-economic status (p=0.024) were significantly associated with depression.

Table 5 depicts the bivariate analysis of the clinical related variables with depression where variables like types of hepatitis and duration of diagnosis were significantly associated with depression.

Table 6 shows the multivariable model where the predictors of depression were ethnicity, socio-economic status, type of hepatitis and duration of diagnosis. From the odds ratio evaluation, the odds of having depression among janajati, dalit and others were higher (25.19, 2.33 times and 2.39 times respectively) than the Brahmin/Chhetri. The probability of depression was 2.61 times higher

Table 4. Association of depression with socio-demographic characteristics. (n = 208)

Variables	Depression		p-value
	No n(%)	Yes n(%)	
Age			
<40 years	93(79.50)	24(20.50)	0.020**
≥40 years	83(91.2)	8(8.80)	
Gender			
Female	38(80.90)	9(19.10)	0.416
Male	138(85.70)	23(14.30)	
Ethnicity			
Brahmin/Chhetri	64(87.70)	9(12.30)	<0.001**#
Dalit	4(30.80)	9(69.20)	
Janajati	67(87.00)	10(13.00)	
Others	41(91.10)	4(8.90)	
Others	2(100)	0	
Religion			
Buddhist	17(100)	0	0.017**#
Hindu	153(82.70)	32(17.30)	
Others	6(100)	0	
Marital status			
Married	141(85.50)	24(14.50)	0.511
Unmarried	35(81.40)	8(18.60)	
Education			
Cannot read and write	21(72.40)	8(27.60)	0.260#
Basic level	49(89.10)	6(10.90)	
Secondary level	77(84.60)	14(15.40)	
University level	29(87.90)	4(12.10)	
Occupation			
Unemployed	27(75.00)	9(25.00)	0.196#
Home maker	32(84.20)	6(15.80)	
Employed	111(86.70)	17(13.30)	
Retired	6(100)	0	
Socioeconomic class			
Lower middle	74(91.40)	7(8.60)	0.024**
Upper Lower	40(74.10)	14(25.90)	
Upper middle	62(84.90)	11(15.10)	

*#Likelihood ratio applied ** p-value significant at 0.05 significance level*

among the age group 40 years and more. Similarly, the probability of depression was 5.79 times higher among the patients with the duration of diagnosis 5 years and more.

DISCUSSION

This study aimed to assess the prevalence of depression and the factors associated with depression among the patients with chronic viral hepatitis attending tertiary level hospital. In our study, majori-

Table 5. Association of clinical related variables with depression. (n = 208)

Variables	Depression		p-value
	No n(%)	Yes n(%)	
Type of hepatitis			
Hepatitis B	160(87.40)	23(12.60)	0.002**
Hepatitis C	16(64.00)	9(36.00)	
Age at diagnosis			
<40 years	113(82.50)	24(17.50)	0.236
≥40 years	63(88.70)	8(11.30)	
Duration of diagnosis			
< 5 years	110(79.10)	29(20.90)	0.002**
≥ 5 years	66(95.70)	3(4.30)	
Any medication used			
No	100(84.00)	19(16.00)	0.788
Yes	76(85.40)	13(14.60)	
Co-morbid condition			
No	131(86.80)	20(13.20)	0.164
Yes	45(78.90)	12(21.10)	
Family history of mental illness			
No	171(84.70)	31(15.30)	1.000*
Yes	5(83.30)	1(16.70)	

**Fisher exact test applied ** p-value significant at 0.05 significance level*

Table 6 Multivariate analysis of factors associated with depression. (n = 208)

Variables	β Coefficient	p-value	Odds Ratio with 95% C. I.
Age			
<40 years			Ref
≥40 years	0.958	0.057	2.61 (0.97-6.99)
Ethnicity			
Brahmin/ Chhetri		0.003	Ref
Dalit	0.844	0.215	2.33 (0.61-8.82)
Janajati	3.226	0	25.19 (4.45-142.58)
Others	0.874	0.182	2.39 (0.66-8.65)
Socio-economic status			
Lower middle		0.046	Ref
Upper lower	-0.594	0.148	0.44 (0.14-1.34)
Upper middle	0.683	0.238	1.88 (0.66-5.35)
Type of hepatitis			
Hepatitis B			Ref
Hepatitis C	-1.406	0.021	0.25 (0.07-0.81)
Duration of diagnosis			
<5 years			Ref
≥5 years	1.758	0.009	5.79 (1.56-21.59)

ty (87.9%) of the respondents were diagnosed with Hepatitis B whereas in contrast, in a study conducted in Greece and Islamabad, 53.2% and 14% had Hepatitis B.[21,22] More than 1/4th (27.4%) had comorbid conditions like hypertension, diabetes mellitus, HIV/AIDS, etc. which was similar to the findings of a study conducted in Greece where 33.3% patients had comorbid conditions.[21] Less than 1/4th (15.4%) of the respondents had moderate depression with the need for mental health intervention whereas in contrast, in different studies conducted in Islamabad and Iraq, more than half (56.7%) and more than 3/4th (79.1%) were found to have some degree of depression ranging from mild, moderate to severe class respectively.[22,23] Similarly, in a study conducted in Turkey, 49% and 40.6% had mild and severe depression respectively and in a study conducted in Vietnam, 37.5% of the respondents were experiencing depressive symptoms.[13,24] In a study conducted in The Center for Liver Diseases at Inova Fairfox Hospital, USA, 3.7% and 29.8% of the patients with chronic viral hepatitis B and C had depression respectively which is similar to the findings of our study.[25] In different studies conducted in Iran, Iraq and Lahore, the prevalence of depression was found to be 55.7%, 79.1% and 61.5% respectively which is in contrast to our research findings.[15,23,26] In our study, sociodemographic variables like age, ethnicity, religion and socio-economic status were significantly associated with depression which is in line with the study conducted in Morocco, where depression was significantly associated with age and socio-economic status of the respondents. Clinical related variables like types of hepatitis and duration of diagnosis were significantly associated with depression which is in line with the study conducted in Morocco, where disease-related complications were found as a risk factor for depression.[27]

In our study, age was not the factor associated with the risk of depression whereas in contrast in different studies conducted in Morocco and Serbia, age was a factor associated with the risk of depression which reported a high level of depression in elderly respondents.[27,28] In our study, the predictors of depression were ethnicity, socio-economic status, type of hepatitis and duration of diagnosis.

CONCLUSIONS

In conclusion, despite of the lowerprevalence of depression among the patients with chronic hepatitis, it iscrucial to address mental health dimension while treating the patients andimplement mental health interventions among those with different severity ofdepression. Factors associated with depression like; ethnicity, socio-economicstatus, type of hepatitis and duration of diagnosis should be considered whileplanning medical care modalities among the patients with chronic viralhepatitis.

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