

# Does Having a Chronic Liver Illness Make One More Likely to Become Melancholic and Anxious?

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## ABSTRACT

**Background:** Chronic liver disease is a highly prevalent illness globally and in Pakistan as well. The current study was designed to investigate the prevalence of anxiety and depression in patients with chronic liver disease (CLD) in hospitalized patients.

**Methods and materials:** Agha Khan University anxiety and depression scale (AKUADS), a questionnaire developed natively in Urdu language, was the instrument used for the study. Admitted patients with the diagnosis of chronic liver disease at a tertiary care hospital in Lahore were invited to take part in the study. A total of 107 patients volunteered to take part in the study (29.9% females) from February 2018 to November 2018. Descriptive statistics was employed to report the prevalence of anxiety and depressive disorders in the study population and independent samples T-test was used to analyze the gender difference between the participants.

**Results:** All study participants scored above the cut-off score of 20 on AKUADS. No significant gender difference was seen among the study participants on mean AKUADS scores.

**Conclusions:** The prevalence of depressive and anxiety disorders is very high in patients with CLD. These patients should be assessed for the presence of depressive and anxiety symptoms on a frequent and routine basis. Recognition and treatment of depressive and anxiety symptoms at an early stage may lead to avoidance of many adverse outcomes related to CLD.

**Keywords:** Depression, Anxiety, Chronic liver disease

## INTRODUCTION

Depressive disorders are the second leading cause of the years lost due to disability (YLD) worldwide, with anxiety disorders being the 7<sup>th</sup> leading cause on this list <sup>1</sup>. Patients suffering from chronic medical illnesses are at increased risk of suffering from anxiety and depressive disorders <sup>2</sup>. Depressed and anxious patients with chronic medical illnesses report higher number of medical symptoms as compared to patients who are not depressed or anxious <sup>3, 4</sup>. Depression is also a significant risk factor for non-compliance in patients who have chronic medical illnesses <sup>4, 5</sup>. Being given a diagnosis of Hepatitis C is significantly more stressful than undergoing a divorce, loss of source of income or migrating to another city <sup>6</sup>.

The National epidemiological survey of alcohol and related conditions surveyed 43,093 adults residing in the United States and found that patients having a liver illness were more than 2 times more likely to suffer from major depressive disorder and more than 3 times more likely to attempt suicide <sup>7</sup>. Combination therapy used for Hepatitis C infection is also a risk factor for the emergence of depressive symptoms. Many such patients are overlooked by routine clinical assessments. Patients who develop depression during treatment for Hepatitis C are more likely to discontinue their medication and have poorer outcomes on antiviral therapy <sup>8</sup>. Patients undergoing liver transplantation have higher mortality rates if they are depressed <sup>9</sup>.

Depressed patients who are on antidepressant treatment are significantly less likely to suffer from acute cellular rejection post-transplant, as compared to depressed patients not receiving treatment <sup>10</sup>. Similarly, patients awaiting transplant are more likely to die if they are suffering from depression as compared to patients who are not depressed <sup>11</sup>.

Pakistan has the second largest number of HCV infections in the world. Almost one tenth of all global infections are in Pakistan <sup>12</sup>. The prevalence of HCV positive individuals in the adult population in Pakistan is around 11%, but the prevalence rockets to 51% in IV drug users. The two main causes of HCV transmission in Pakistan are the reuse of syringes and needles and unsafe blood transfusions <sup>13</sup>. Experts are warning of an epidemic of undetected liver disease in the South Asian region, in particular Pakistan <sup>14</sup>.

The purpose of this study was to investigate the prevalence of anxiety and depression in patients suffering from chronic liver disease currently admitted at the medical wards of Jinnah Hospital, Lahore.

## MATERIALS AND METHODS

Agha Khan University anxiety and depression scale (AKUADS) <sup>15</sup> was the instrument used for the assessment of prevalence of anxiety and depression. AKUADS was developed indigenously in Urdu language from the presenting complaints of 150 depressed and anxious patients. The scale consists of 25 items in total, out of which 13 items assess for psychological symptoms of anxiety and depression and 12 items assess for somatic symptoms. The sensitivity of AKUADS at the cut-off score of 20 is 66%, while the specificity is 79%. Similarly the positive predictive value is 83% and a negative predictive value is 60% at this cut-off score. The decision to use AKUADS over other instruments was based on the fact that AKUADS was developed indigenously in URDU language and that it was available as an open source instrument.

The inclusion criterion was all inpatients admitted to the medical ward at Jinnah hospital, Lahore with the diagnosis of chronic liver disease. Patients who were already diagnosed with depressive disorder or other psychiatric disorder were excluded. Informed written consent was received from all study participants and confidentiality of the data ensured. This study was conducted from February 2018 to November 2018. All the information collected was entered and analyzed using the SPSS version 23. The study was formally approved by the Institutional review board of Azra Naheed Medical College, Lahore.

Descriptive statistics were used to report the prevalence of anxiety and depression the study population. Independent samples T-test was used to analyze the gender difference between the study participants on mean AKUADS scores.

## RESULTS

A total of 107 patients completed the AKUADS. These included 75 (70.09%) male study participants and 32 (29.9%) females. All of the patients surveyed scored above the cut off score of 20 on the AKUADs. The minimum score of our study participants on the AKUADS was 21 and the maximum score was 70 (the maximum

possible score on the AKUADS in 75. The mean score of all of our participants was 41.56 with a standard deviation of 10.58).

Independent samples T-test was used to analyze the gender difference among the study participants on AKUADS scores. No

statistically significant difference was found between the female and male study participants on AKUADS scores ( $p= 0.361$ ; Confidence interval -6.48 to 2.38) as depicted in table 1.

Table 1: Independent samples T-test for the effect of gender on AKUADS scores

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2 tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Total. Score	0.031	0.860	0.918	105	0.361	2.05333	2.23646	6.48781	2.38115
Equal variances assumed			0.918	58.537	0.363	2.05333	2.23797	6.53223	2.42557
Equal variances not assumed									

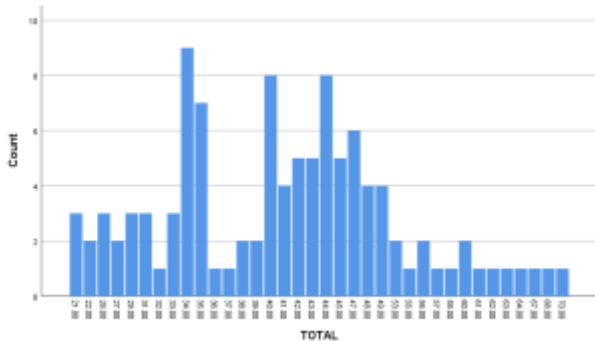


Figure 1: A bar graph of the scores on AKUADS of the study participants

**DISCUSSION**

Although finding such high prevalence rates in patients with CLD was surprising at first, a closer look at previous research carried out in this field made this finding appear less out of ordinary. Other studies have also reported high rates of prevalence of anxiety and depression in this population. Qureshi and others assessed 206 patients of chronic liver disease (CLD) at Shifa international hospital, Islamabad and found a frequency of 72.6% in patients with chronic liver disease due to hepatitis C, 58.6% in patients of CLD due to HBV and 37.8% in healthy controls<sup>16</sup>. Memon and colleagues assessed patients suffering from chronic hepatitis C who were about to start interferon therapy using the CES-D (Urdu translation) and noted that 59.4% of the patients were suffering from depression<sup>17</sup>. A study done at Sheikh Zayed hospital, Lahore found that 39% of the patients receiving interferon alpha/ ribavirin for chronic HCV were suffering from major depressive disorder<sup>18</sup>.

Prevalence rates of anxiety and depression reported in other parts of the world have been on the higher side too. A study conducted in Serbia, which used the Hamilton depression scale (HDRS) and Hamilton anxiety (HARS) scales, found a prevalence rate of 62.9% for depression and of 13.9% for anxiety in patients with CLD<sup>19</sup>. Bianchi and others used the Beck depression inventory (BDI) in 156 patients of cirrhosis. 56.7% of the patients scored above the cut off score for depression<sup>20</sup>. Lehman and others assessed 120 US veterans with chronic hepatitis C and found that 44.2% of their study participants suffered from depression, 38.1% from anxiety and 20.8% from PTSD<sup>21</sup>.

Some studies have found lower rates of depression and anxiety in chronic liver disease patients. Fabregas and others assessed 75 patients with chronic hepatitis C with multiple psychiatric rating scales and found that 28% of the patients were suffering from depression<sup>22</sup>. A study from Karachi Pakistan used the patient health questionnaire (PHQ-9) in 143 patients of chronic liver disease with at least 6 months duration and found that 31.4% of their patients were suffering from depression<sup>23</sup>. A study of 878 patients who had nonalcoholic fatty liver disease and were hepatitis B and C positive found that 23.6% already had a diagnosis of depressive disorders<sup>24</sup>. An Irish study found 1 month prevalence of 28% for depressive disorders and of 24% for anxiety disorders in patients awaiting interferon therapy<sup>25</sup>.

One possible reason why we have found such high prevalence rates could be the fact that we have used the AKUADS to investigate the prevalence of depression and anxiety in our patients. AKUADS has 12 items that assess the somatic symptoms of anxiety and depression e.g. constipation, breathing difficulties and numbness etc. In Pakistani and other eastern cultures depressive and anxiety disorders not uncommonly present with somatic symptoms rather than the psychological symptoms of depression. Therefore it is useful to include somatic symptoms in a screening instrument that assesses depressive and anxiety disorders in Pakistani and other eastern cultures. However, in patients suffering from severe physical illnesses like the chronic liver disease, such an instrument has the potential to inflate the scores obtained. This might be one of the reasons why prevalence rates in our study are considerably higher than in previously carried out studies in patients with CLD.

This issue can be dealt with in two possible ways in our opinion. Firstly these finding will need to be replicated in other patients and other centers. Our team has already started assessing the prevalence rates in other patient groups, for example, in patients with end-stage renal disease and ischemic heart disease. The second approach would involve studies that use AKUADS with another rating scale for depression like the Beck Depression inventory. We plan to conduct a study on these lines in the near future as well.

**CONCLUSIONS**

We have reported excessively high rates of anxiety and depression in patients suffering from chronic liver disease. All the patients assessed scored above the cut-off level in this study. A patient suffering from a chronic illness such as chronic liver disease does not only have to deal with the physical manifestations of the disease itself, but also with the financial and resource related stresses associated with the treatment of a chronic illness. It is important that all CLD and other chronic illness patients are asked questions that assess for the presence of anxiety and depressive symptoms. Treatment of anxiety and depressive disorders in these patients may not only improve the quality of life in such patients but also is likely to reduce the mortality and morbidity associated with the disease as well.

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