

AN EMPIRICAL ANALYSIS OF PUBLIC HEALTH AND PRODUCTIVITY LOSS “DEMOGRAPHIC AND SOCIOECONOMIC CONSEQUENCES OF HEPATITIS B AND C IN PAKISTAN”

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DOI: <https://doi.org/10.5281/zenodo.17875731>

Keywords

Hepatitis B, Hepatitis C, Socioeconomic Impact, Job Rejection, Visa Rejection, Absenteeism, Labor Market Outcomes

Article History

Received: 14 October 2025

Accepted: 24 November 2025

Published: 10 December 2025

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Abstract

Hepatitis B and C pose major public health challenges due to their long-term clinical complications and significant socioeconomic implications that cause physical and emotional weakness that create hurdles in individuals lives. Considering the health as one the key determinate of human capital and human development index (HDI), it is necessary to conduct and design a study that explore the consequence and significance of Hepatitis B and C in Pakistan.

Data source and methodology:

This study analyzes demographic patterns and the broader socioeconomic consequences experienced by 8,388 patients, including gender-based distribution, labor market outcomes, absenteeism, job rejection, and visa rejection. Data collected from Hepatitis B and C patients and their representatives at district head quarter hospitals (DHQ), private healthcare institution and doctors' private clinic from 77 districts of Pakistan, including Azad Kashmir and Gilgit Baltistan by a well-organized and structured questioner covering 36 questions based on patient's demographic and socioeconomic indicators. Descriptive and inferential statistical methods were used for data analysis.

Results and conclusion:

The current study finds considerable consequences of hepatitis B and C on labor mobility, labor productivity, presentism and absenteeism at work place, household income, mortality and life style in Pakistan. The results show that males constitute higher proportion of cases (59.8%) compared to females (40.2%), indicating potential differences in exposure risks and health-seeking

behavior. Beyond the clinical burden, affected individuals reported considerable employment-related challenges, including workplace absenteeism, reduced productivity, and rejection from job opportunities. Visa denial was also noted as a major social outcome, often linked to mandatory medical screening in domestic and international processes. These findings highlight not only the epidemiological prevalence of hepatitis B and C but also the economic and social barriers faced by patients. Strengthening early diagnosis, treatment access, workplace support policies, and awareness campaigns is crucial to reducing disease burden and improving the quality of life and economic prospects of affected individuals

Moreover hepatitis B and C has also originate significant adverse effect on labor mobility, employment, mortality and determined that 14.8 % visa denial, 6.8 % job rejection and 1.2 % of the respondents reported job termination by hepatitis B and C. correspondingly the consequence of viral hepatitis B and C was originate adverse effect and instigated decline in household income in form of decrease in working days that results sell of assets to finance the treatment and meet their daily expenses. This empirical analysis also initiates negative impact of viral hepatitis B and C on foreign reserves and determined high at 0.18 % decrease in foreign reserves of Pakistan.

INTRODUCTION

Hepatitis B and C remain among the most prevalent and life-threatening viral infections globally, posing a substantial burden on healthcare systems, labor productivity, and socioeconomic wellbeing. These blood-borne viruses primarily affect the liver, leading to chronic infection, cirrhosis, hepatocellular carcinoma, and premature mortality if left untreated. The World Health Organization recognizes hepatitis as a silent epidemic, with millions of people living undiagnosed due to limited awareness, inadequate screening, and barriers to treatment access especially in low- and middle-income countries.

The surveys conducted by Sajjad et al (2022, 2024, and 2025) explored that about 2.5 % of respondents were infected by hepatitis B virus whereas the incidence of hepatitis C was assessed at overall 5 % in Pakistan. The population infected of anti HCV in Punjab was found 6.7 % that is higher than the national average and the incidence of HBV cases was reported at 2.4%. At the overall the prevalence of hepatitis C at 5% estimated that about 8 million individuals in Pakistan are exposed to hepatitis C, whereas 4 million @ 2.5% population were found infected with Hepatitis B. Recently, the University of Bristol has conducted a study to estimate the pandemic of hepatitis C in Pakistan. The results of

study concluded that to accomplish the WHO goal for eradicating of hepatitis C from Pakistan by 2030, Pakistan has needed the treatment of overall 1.1 million hepatitis C patients annually.

At present, Organizations in the entire the world are experiencing various challenges including worldwide economic crisis, increasing trends in the demand for improved output, gradually fast-growing business atmosphere and more significant, mature and apparently healthy work force. As the incidence of chronic viral diseases e.g. Hepatitis, hypertension, HIV, diabetes, heart disease, and cancer are increasing workforces are becoming un healthy, sick and low productive. One of the British health insurance corporation stated a miserable description of the future work force. Employees will be older by long term environments and life style condition, anxious for others, living with Hepatitis, heart problems and diabetes. The workers' health condition is becoming an important factor for business in relations of both cost and asset. Companies were not conscious in the lowering of healthcare expenses through repression policies because of intimidating demographic factors and existing diseases trend. Tied with growing trends in demand for output in the global marketplace,

organization's managers are reported the fact of current work-related healthcare settings are scarce. They originate sick leave an important factor in the decrease of firm's productivity

Pakistan is one of the countries with a high endemic burden of hepatitis B and C, where transmission is often linked to unsafe medical procedures, reuse of syringes, inadequate sterilization practices, and lack of public awareness regarding preventive measures. As the disease progresses, patients experience not only deteriorating health outcomes but also face significant disruptions in their social and economic lives. Beyond clinical symptoms, hepatitis contributes to reduced workforce participation, increased absenteeism, and decreased productivity, ultimately affecting income generation and household stability. Furthermore, individuals living with hepatitis often encounter discrimination in employment processes, visa approvals, and job retention due to mandatory medical screening and stigma associated with the disease.

This study focuses on assessing the demographic distribution of hepatitis B and C patients and examining associated socioeconomic challenges, including job rejection, visa denial, and workplace absenteeism. Understanding these dimensions is essential for informing public health policy, designing targeted intervention programs, and developing strategies that support affected individuals both medically and economically. By exploring these intersecting impacts, the research aims to highlight the importance of inclusive healthcare planning and comprehensive hepatitis control efforts to improve overall wellbeing and social integration of patients within the community.

DATA SOURCES AND METHODOLOGY

Research Design

This study is quantitative in nature and employs both econometric and statistical methods to examine the consequence of hepatitis B and C on Pakistan's economy and to ascertain its effect on various economic indicators. A survey method was used for the collection of data from hepatitis B and C patients in 77 districts of Pakistan including Azad Jammu and Kashmir and Gilgit Baltistan. The survey was conducted by using well designed questionnaire.

Keeping in view the economic assessment of Hepatitis, Numerous questions were constructed for the survey based on demographic, social and economic characteristics of patients and society. Human capital theory states that anything that affect an individual's productivity will also affects his/her health, standard of life and earnings. This research tried to identify and explore all the economic indicators significantly affected by Hepatitis B and C in Pakistan.

Population of the Study

The entire population infected with either Hepatitis B or Hepatitis C indifferent districts of Pakistan, Azad Jammu and Kashmir and Gilgit Baltistan are constituted as population of the study.

Sample size and sampling techniques

In order to obtain the representative data, assuring the accuracy of sample size and comfort of organization, 77 districts amongst 154 districts of Pakistan containing Azad Kashmir and Gilgit Baltistan, where the facility of Government and private hospital were existing was included for survey and sample was collected from people infected with either Hepatitis B or C or patients representatives aged between 5 and 65 years and completed their treatment or in the course of treatment for Hepatitis B or C. Multistage stratified cluster sampling method were applied for data collection. In the initial phase 77 districts were selected whereas in the second step hospitals selected randomly and categorized in government and private hospitals and at the third phase the patient or their representative/caregiver were interviewed randomly. The selected healthcare facilities were categorized by government and private hospitals whereas patients were further classified by gender, profession, demographic and socioeconomic characteristics. The overall sample includes 8,388 respondents' in which 6,535 was Hepatitis C patients and Hepatitis B patients were recorded as 1853. The data of 1,395 patients are from government THQ hospitals and 6,819 patients were from private healthcare institution and doctor's own clinic. While 37 patients were from homeopathic clinics and 48 patients from spiritual healers.

Data Analysis and Their Interpretation

Demographic analysis of the data

Table 1. Gender of the Patient

	Frequency	Percent	Valid Percent	Cumulative Percent
Female	3373	40.2	40.2	40.2
Male	5015	59.8	59.8	100.0
Total	8,388	100.0	100.0	

Table 1 demonstrates the prevalence of viral hepatitis B and C in Pakistan. Among 8,388 respondents (Hepatitis Patients) 5015 (59.8%) were male and 3373 (40.2%) were female. The gender wise distribution of hepatitis prevalence indicates that male founded by larger proportion of the population as compared to females.

Table 2. Age of the Patient and their Mean age with standard deviation

Age group of the patients	Frequency	Percent	Valid Percent	Cumulative Percent
5 - 18 Year	304	3.6	3.6	3.6
19 - 32 Year	2,899	34.5	34.5	38.2
33 - 46 Year	2,722	32.4	32.4	70.6
47 - 60 Year	1,510	18.0	18.0	88.6
> 60 Year	953	11.4	11.4	100.0
Total	8,388	100.0	100.0	

	N	Minimum	Maximum	Mean	Median	Std. Deviation
Patient's age	8,388	5	70	39.99	4.00	1.061
Valid N (listwise)	8,388					

Tables 2 presents the age wise distribution of hepatitis patients with their corresponding mean, median, and standard deviation. The table results explored that 3.6 % of the respondents were fall within the age group of 5–18 years, all of them were dependent and fall outside the employment age population. The table also indicated that most of hepatitis patients were adults, with 34.5% fall in the aged 19–32 years, 32.4% aged 33–46 years and 18.0% of the patients were aged 47–60 years, and 11.4% above 60 years of age. Particularly, 84.9% of the respondents were from the working age population, considered the endorsed retirement age of 60 years in Pakistan. The estimated mean age of the respondents was 39.99 years, with median age was 40 years and standard deviation of 1.061.

Table 3: Marital status of the patient:

Material status	Frequency	Percent	Valid Percent	Cumulative Percent
Married	6,709	80.0	80.0	80.0
Unmarried	1,679	20.0	20.0	100.0
Total	8,388	100.0	100.0	

Table 3 presents the material status of the respondents / patients. The figures indicated that 6,709 (80%) respondents were married whereas 1,679 (20%) of the respondents were not married. This determines that four out of every five respondent/patients of were married in the study population, reflecting a high prevalence of hepatitis among married population.

Table 4: Geographical Regions of the patients

Geographical Region	Frequency	Percent	Valid Percent	Cumulative Percent
PUNJAB	4,210	50.2	50.2	50.2
Sindh	865	10.3	10.3	60.5
Gilgit Baltistan	77	1.0	1.0	61.6
Khyber Pakhtunkhwa	2,482	29.6	29.6	90.1
Baluchistan	480	5.7	5.7	95.9
Azad Kashmir	149	1.8	1.8	97.6
Islamabad Capital Territory	125	1.4	1.4	100.0
Total	8388	100.0	100.0	

Table 4.1 Cast / Race / Ethnicity

Cast of the patient	Frequency	Percent	Valid Percent	Cumulative Percent
Punjabi	2,495	29.7	29.7	29.7
Pashtun	2,500	29.8	29.8	59.5
Sindhi	1,316	15.7	15.7	75.2
Saraiki	1,200	14.3	14.3	89.5
Muhajir	201	2.4	2.4	91.9
Hindko	450	5.3	5.3	97.2
Chitrali	77	1.0	1.0	98.2
KASHMIRI	149	1.8	1.8	100.0
Total	8,388	100.0	100.0	

The above Tables 4 and 4.1 stats the caste and geographical region of the respondents. As the data was collected almost all corner of Pakistan, the major caste was mentioned in the questioner to highlight the geographical region of the patients. In the table 5.4.1 the Saraiki caste represents the respondents from southern Punjab that are 14.3% of the total respondents whereas 29.7% are from other parts of Punjab. On the other side table 5.4 indicated that 50.4% of the respondents are from Punjab whereas table 5.1.4.1 shows that 44% of the respondents are Punjabi. The difference of 6.4% respondents indicates the patients from other parts of the country travel towards Punjab for medication or the people migrated to Punjab for better employment opportunities or may be include both of them. The patients belong to Pashtuns and Hindko casts were geographically from Khyber Pakhtunkhwa weather residents of Khyber Pakhtunkhwa or any other parts of the country. The ratio of Hepatitis patients from Khyber Pakhtunkhwa are estimated 35.1% (29.8% Pashtun + 5.3% Hindko's) of the total sample size whereas in table 5.4 it shows a ratio of 29.6%. The difference of 5.5% of Khyber Pakhtunkhwa people infected with either Hepatitis B or C were approach to other province of the country for hepatitis treatment or they were residents outside of Khyber Pakhtunkhwa or either includes both of them. Total of 480 (5.7%), 145 (1.8%) and 125 (1.4) of the patients were from Baluchistan, Azad Kashmir and Islamabad capital territory.

Table 5 Education and Awareness

Education	Frequency	Percent	Valid Percent	Cumulative Percent
Illterate	2,644	31.5	31.5	31.5
Primary	1,788	21.3	21.3	52.8
High School	2,355	28.1	28.1	80.9
Collage/University	1,601	19.1	19.1	100.0
Total	8,388	100.0	100.0	

Table 5 expresses the education level of the hepatitis patients in Pakistan. The figures shows that 31.5% of the hepatitis patients were uneducated and 21.3% of the respondents were only primary level education. That indicate significant relation of education with diseases burden. Only 19.1% of the patients were highly educated. People with higher education were less chance of chronic hepatitis infection because of knowledge and education.

Table 6 Profession of the respondent

Profession	Frequency	Percent	Valid Percent	Cumulative Percent
Unemployed	44	.5	.5	.5
Labor	1136	13.5	13.5	14.1
House Wife	2836	33.8	33.8	47.9
Students	1348	16.1	16.1	63.9
Teacher	434	5.2	5.2	69.1
Tailor	125	1.5	1.5	70.6
Army	64	.8	.8	71.4
Driver	246	2.9	2.9	74.3
property dealer	15	.2	.2	74.5
doctor	15	.2	.2	74.7
former	1078	12.9	12.9	87.5
jeweler	37	.4	.4	88.0
shopkeeper	434	5.2	5.2	93.1
security guard	7	.1	.1	93.2
government job	149	1.8	1.8	95.0
bank employee	107	1.3	1.3	96.3
Own business	138	1.6	1.6	97.9
lawyer	45	.5	.5	98.5
unemployed	115	1.4	1.4	99.8
Private Job	15	.2	.2	100.0
Total	8388	100.0	100.0	

Table 7 Employment Status of the patient

Employment Status	Frequency	Percent	Valid Percent	Cumulative Percent
Full time worker	708	8.4	8.4	8.4
Part time worker < 30 hr / week	127	1.5	1.5	10.0

Self employee	3,380	40.3	40.3	50.3
Dependent	3,983	47.5	47.5	97.7
Retired	57	.7	.7	98.4
un-employed	133	1.6	1.6	100.0
Total	8388	100.0	100.0	

The occupation and employment status of the patient are explained in the above table 6 and 7, Housewives, labor, students and former were the utmost infected individuals with their corresponding ratios of 33.8 %, 13.5 %, 16.1 % and 12.9 % correspondingly. Data were obtained from all field of professional and un-professional persons. In respect to their employment status 47.5% of the patients were un-employed and reliant on their family member’s incomes, 40.3 % were self-employed and are involved self-generated employment, 8.4 % were full time employee in public sector, 1.5% were part time employees and looking for full time employment opportunities. 0.7 % of the patients are retired peoples and 1.6 % patients were found to be jobless.

Socio and economic analysis of the data

Table 8 The prevalence of Co-infection of hepatitis C with other Viruses

Co-infection	Frequency	Percent	Valid Percent	Cumulative Percent
None	7817	93.2	93.2	93.2
HBV	291	3.5	3.5	96.7
HBV-HDV	160	1.9	1.9	98.6
HEV	27	.3	.3	98.9
HDV	15	.2	.2	99.1
HIV	78	.9	.9	100.0
Total	8388	100.0	100.0	

Table 8 expressed the prevalence of co-infection of Viral Hepatitis C with another chronic virus. The above mentioned table concluded that 291 respondents (3.5%) of hepatitis C has also infected with viral hepatitis B and 160 patients hepatitis C has also a dual viral disease Hepatitis B and Hepatitis D. the table also shows that 27, 15 and 78 peoples with chronic hepatitis C disease has also infected and positive for Hepatitis E, Hepatitis D and HIV with their respective ratio of 0.3%, 0.2% and 0.9%.

Other complication reported by Viral Hepatitis patients were displayed in table 9 with full details. The main complications reported by patients itself are diabetes, genetic disorder, anemia, H. Pylori, depression and skin infections.

Table 9: Other Complications associated with viral hepatitis patients

Other Complications	Frequency	Percent	Valid Percent	Cumulative Percent
Sexual weakness	50	.6	.6	.6
NONE	6043	72.0	72.0	72.6
Diabetes	1477	17.6	17.6	90.2
genetic disorder	290	3.5	3.5	93.7
Anemia	22	.3	.3	94.0
H.pylori	27	.3	.3	94.3
Depression	411	4.9	4.9	99.2
skin infection	18	.2	.2	99.4
Fatigue	50	.6	.6	100.0
Total	8388	100.0	100.0	

Mainly these complications were reported by patients treated with interferon and PEGylated interferon. Diabetes has found the most associated disease viral hepatitis and reported by 1477 patients accounting to 17.6% of the total data whereas depression, genetic disorder, sexual weakness, fatigue and H. pylori were the other main complication reported by 4.9%, 3.5%, 0.6%, 0.6% and 0.3% patients. The above-mentioned complication also imposed high direct and indirect healthcare cost as these are life lasting diseases.

Table 10: Total number of Family Members

Number of infected persons	Frequency	Percent	Valid Percent	Cumulative Percent
2-4	236	2.8	2.8	2.8
5-7	2144	25.6	25.6	28.4
8-10	4492	53.6	53.6	81.9
11-13	1406	16.8	16.8	98.7
14-16	110	1.3	1.3	100.0
Total	8388	100.0	100.0	

Table 11: Total Number of Infected Family Members

Number of Infected	Frequency	Percent	Valid Percent	Cumulative Percent
1	4452	53.1	53.1	53.1
2	2976	35.5	35.5	88.6
3	804	9.6	9.6	98.1
4	125	1.5	1.5	99.6
5	21	.3	.3	99.9
6	10	.1	.1	100.0
Total	8388	100.0	100.0	

Statistics (mean and standard deviation)

		Total number of Family Members	Number of Infected Family Members
N	Valid	8388	8388
	Missing	0	0
Mean		9.88	1.60
Std. Error of Mean		.008	.008
Std. Deviation		.758	.773
Minimum		1	0
Maximum		5	7

Table 10 and 11 presented the total family members and of infected family members of all the respondents while their mean and standard deviations are highlighted in table The descriptive statistics indicated that on average the total family members of Hepatitis B and C infected person were 9.88 with standard deviation of 0.758 and the mean of infected family members are estimated 1.6 with standard deviation of 0.773. Furthermore 53.6% of the respondents reported 8 to 10 persons in their family followed by 25.6% and 16.8% of the patients recorded 5 to 7 and 11 to 13 persons in their family. 46.9% of the hepatitis B and C patients stated that their family has more than 1 hepatitis patients in their family. The estimated 35.5% patients reported 2 patients in the family followed by 9.6%, 1.5%, 0.3% and 0.1% reported 3, 4, 5 and 6 viral hepatitis B or C patients in their family.

Table 12: Death of a Family member associated to hepatitis B or C

Number of Death	Frequency	Percent	Valid Percent	Cumulative Percent
0	6886	82.1	82.1	82.1
1	1398	16.7	16.7	98.8
2	82	1.0	1.0	99.7
3	11	.1	.1	99.9
4	11	.1	.1	100.0
Total	8388	100.0	100.0	

Death of a Family member with mean and standard deviation

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Death of a Family member	8388	0	4	.20	.448	.200
Valid N (listwise)	8388					

The mortality associated with viral hepatitis B and C reported by the respondents has presented in table 12. The statistics in the above table explore significant association of mortality and viral hepatitis B and C mean of 0.20 deaths and standard deviation of 0.448 with minimum of zero death and maximum of 4 death caused by viral hepatitis B and C. in the current study 1398 families reported 1 causality in their family related to either Hepatitis B or C accounting to 16.7% of the total population included in the study while 82 families reported 2 deaths (1%) and 11 each family reported 3(0.13%) and 4 (0.13%) death caused by Hepatitis Band C in their family.

Table 13: Insurance Status of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Complete health insurance	197	2.3	2.3	2.3
Partial health insurance	118	1.4	1.4	3.8
None	8057	96.1	96.1	99.8
Other	16	.2	.2	100.0
Total	8388	100.0	100.0	

The insurance status and perception of population in Pakistan were discussed in table 13 that enlightened on average on 2.94% of respondents are insurance policy either complete health insurance or partial health insurance with standard deviation of 0.326 and standard error of mean 0.004 respectively. 96% of the respondents was unaware of the health-related insurance policies even they are ignorant of insurance policies prevail in Pakistan. 2.3% of the respondents reported that they have health insurance policy and all of them are educated and highly paid employment status whereas 1.4% of the respondents avail partial health care insurance.

Table 14: Mode of Communication used for hepatitis treatment

	Frequency	Percent	Valid Percent	Cumulative Percent
Local Transport	7023	83.7	83.7	83.7
By-Foot	445	5.3	5.3	89.0
Personal convince	909	10.8	10.8	99.9
others	11	.1	.1	100.0
Total	8388	100.0	100.0	

Table 14 explored the mode of communication adopted by patients and their families. The table explored that only 10.8% of the families have their own connivance to reached healthcare center while 83.7% of the respondents used local transport during their treatment period. These statistics also showed their standard of living

Table 14: Monthly Income of the family of infected person

Monthly Income	Frequency	Percent	Valid Percent	Cumulative Percent
<10000	171	2.0	2.0	2.0
10001-20000	4316	51.5	51.5	53.5
20001-30000	2677	31.9	31.9	85.4
30001-40000	1004	12.0	12.0	97.4
>40000	209	2.6	2.6	100.00
Total	8388	100.0	100.0	

The economic condition of Hepatitis B and C patients were highlighted in table 14 The above-mentioned figure explored that 53.5% belongs to those families whose monthly income fall below Rs. 20,000 and live below or at poverty line determined by World health organization (WHO). Families with monthly income more than Rs. 40,000 was reported only 209 (2.6%) of the all respondents while 31.9% and 12.0% of the patients recorded their monthly income fall between Rs. 20,001 to Rs. 30,000 and Rs. 30,001 to Rs. 40,000 respectively. These statistics indicated that 85.4% of the Hepatitis Patients were from poor families.

Table 15: Number of patients Rusticated or Terminated due to Hepatitis B or C

Rusticated or Terminated from job	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	112	1.3	1.3	1.3
No	8276	98.7	98.7	100.0
Total	8388	100.0	100.0	

The number employees rusticated from job and Job rejection because of Viral Hepatitis B or C were presented in table 15 and table 5.17. Out of 8,388 hepatitis patients 112 (1.3%) respondents reported job loss/Rusticated due to viral Hepatitis B or C while 542 (6.5%) out of total 8388 respondents recorded their caused of job rejection because of Hepatitis. The above

Table 16: Rejection from Job/ unemployment Caused by Viral Hepatitis B and C

Job Rejection	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	542	6.5	6.5	6.5
No	7846	93.5	93.5	100.0
Total	8388	100.0	100.0	

tables concluded unemployment caused by viral hepatitis and an estimated 6.8% of the total unemployment was associated with viral hepatitis.

Table 17: Number of patients reported Visa Rejection Due to Hepatitis

Visa Rejection	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	1239	14.8	14.8	14.8
No	7149	85.2	85.2	100.0

Total	8388	100.0	100.0	
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Table 17 determined the amount of total work visa rejected of Hepatitis patients. The figure showed that 14.8% (1239) patient’s work visa was rejected based on viral Hepatitis infection. The people that can generate remittance for Pakistan was restricted to the country and caused unemployment.

Table 18: Total number of Patients sell their Assets for Hepatitis Treatment

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	1520	18.1	18.1	18.1
No	6868	81.9	81.9	100.0
Total	8388	100.0	100.0	
N	Valid	8388		
	Missing	0		
Mean	1.82			
Std. Deviation	.385			

Table 4.1.19 exhibited the number of Hepatitis patients sell their assets to meet the pay the direct and indirect cost of treatment. The table showed that 18.1% of the patients sold some type of their assets and bear the expenditure associated to hepatitis B and C treatment. The sale of assets caused and increase in poverty in backward areas of the country.

Conclusion:

Hepatitis B and C pose major public health challenges due to their long-term clinical complications and significant socioeconomic implications and will cause physical and emotional weakness that caused deterrents in individuals lives. considering the significance of health to the human capital and human development index, it is significant to carried out a study that explored the socioeconomic consequence of Hepatitis in Pakistan. This study analyzes demographic patterns and the broader socioeconomic consequences experienced by 8,388 patients, including gender-based distribution, labor market outcomes, absenteeism, job rejection, and visa rejection. Data collected from 77 districts in Pakistan, including Azad Kashmir and Gilgit Baltistan, at district headquarter hospitals (DHQ), private hospitals, and medical clinics through a well-designed questionnaire containing 36 questions based on demographic and economic indicators from hepatitis B and C patients or their representatives. Descriptive, inferential statistical tools were applied for data analysis. The demographic analysis of viral hepatitis B and C patients concludes a predominance of male patients

(59.8%) as compared to female patients (40.2%), demonstrating a higher prevalence of hepatitis in males in Pakistan. This gender inequality may be attributed to larger working exposure, lifestyle associated risk aspects, and increased healthcare conscious behavior amongst males. The conclusions underline the requirement for gender penetrating awareness, screening, and prevention policies, confirming that both men and women have reasonable access to diagnostic and treatment services. Overall, the demographic design highlighted the fundamental understanding for further epidemiological, clinical, and socioeconomic analysis of hepatitis B and C in the considered population. The study reveals that hepatitis B and C in Pakistan are most prevalent among middle aged, low income population with limited education and awareness. Household clustering, high dependency ratios, lack of insurance, and treatment-related asset liquidation indicate a **high economic and social burden**. The disease not only affects health outcomes but also contributes to unemployment, visa rejection, and long-term financial distress. Strengthening preventive awareness, screening programs, health financing coverage, and accessible treatment facilities is

essential to reduce national disease burden. These consequences highlight how hepatitis not only compromises health but also restricts social and economic opportunities, limiting employability and international mobility due to medical screening requirements. The combined clinical and socioeconomic impacts demonstrate the need for targeted interventions, workplace health policies, and inclusive support systems, alongside efficient screening and treatment programs, to reduce disease burden and improve the livelihoods of affected populations.

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