

# Knowledge, Attitude and Practices Regarding Hepatitis C Among Adolescents in Multan, Pakistan

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## Abstract

**Objective:** To assess the knowledge, attitudes and practices of adolescents regarding Hepatitis C infection in Multan.

**Material and Methods:** From August 5, 2019, to February 5, 2020, an analytical cross-sectional study was undertaken in both private and government educational institutions in Multan. A sample of 278 participants was determined, maintaining a 95% confidence interval. The data was collected using a structured questionnaire with systematic random sampling. Data was analyzed through Chi-square test with a significance level of  $p < 0.05$  using SPSS version 22. **Results:** Among the total of 278 students, 167 (60.1%) were males, and 111 (39.9%) were females. The mean age of the participants was  $14.8 \pm 2.2$  years. Out of these 278 students, 185 (66.5%) were enrolled in classes up to the 10th level, while 93 (33.5%) were pursuing education in higher classes. A positive history of contact with Hepatitis C patients was reported by 28 (10.1%) students, injection therapy by 37 (13.3%), and ear/nose piercing by 111 (39.9%). No instances of a history of surgical procedures, blood transfusions, or tattooing were identified in this study. Adequate knowledge was observed in 64 (23%), a positive attitude in 18 (6.5%), and good practices were demonstrated by 14 (5%) of these students.

**Conclusion:** This study revealed that adolescents exhibited deficiencies in knowledge, attitude, and practices. The study identified a significant association between poor practices, negative attitudes, and variables such as gender, age, type of school, occupation, literacy, contact with patients, and ear/nose piercing ( $p$ -value  $< 0.05$ ).

**Keywords:** Knowledge, attitude, adolescents

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## Introduction

Hepatitis C virus infection continues to pose a notable obstacle to public health, as its worldwide occurrence is approximated at 2.5% of the population.<sup>1</sup> World-

wide, an estimated 185 million people have been infected, with 130-150 million chronically affected.<sup>2,3</sup> leading to an annual death toll of 70,000 from liver-related diseases.<sup>4</sup> Lack of awareness, inadequate blood screening, nosocomial transmission, and insufficient treatments contribute to the escalating Hepatitis C infection in many developing countries.<sup>5</sup> In Pakistan, the virus presents a significant healthcare concern, with an estimated prevalence of 6.7% and a viremic prevalence of 5.8% among adults. This places Pakistan as the second-highest country worldwide in terms of viremic infection.<sup>6</sup>

Hepatitis C infection often becomes chronic, potentially resulting in severe complications such as liver scarring, cirrhosis, liver failure, and hepatocellular carcinoma. Transmission occurs through unsterilized needles, con-

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taminated blood transfusions, surgical and dental procedures, intravenous drug usage, vertical mother-to-infant transmission, and practices like tattooing.<sup>7</sup> Hepatitis, which involves inflammation of the liver, is primarily triggered by the Hepatitis B virus (HBV) and Hepatitis C virus (HCV). This condition represents a significant worldwide health challenge, further aggravated by inadequate healthcare infrastructure, economic hurdles, and limited public understanding of infectious diseases.<sup>8</sup>

Pakistan, categorized in the "Intermediate zone" by WHO for viral hepatitis prevalence, encounters the spread of the disease through bloodborne, sexual, and mother-to-child transmission pathways.<sup>9</sup> In 50% to 80% of instances, HCV infection progresses to chronic hepatitis, exhibiting a greater likelihood of long-term carriage than hepatitis B.<sup>10</sup> In developing nations such as Pakistan, several activities facilitate the spread of HCV. These include blood transfusions, reusing needles for tattoos, ear and nose piercings, recycling syringes, drug consumption, shaving by barbers, and inadequate sterilization of dental and surgical tools. At present, no vaccine exists to prevent infection by HCV.<sup>11</sup>

Adolescents, who experience substantial psychological and social shifts as they move from childhood to adulthood, are especially susceptible to hazards like drug use, smoking, and unprotected sexual activities. These behaviors increase their exposure to infectious diseases, including Hepatitis C.<sup>12</sup> This study aims to assess adolescents' awareness and attitudes toward Hepatitis C, emphasizing the urgent need for heightened public awareness in Pakistan, particularly among youth. Comprehensive health education campaigns, awareness programs in schools, and government initiatives addressing surveillance, prevention, care, and treatment are crucial to alleviate the burden of Hepatitis C infection.

## Material and Methods

An analytical cross-sectional study was carried out in Multan, encompassing private and government schools and colleges, from August 5, 2019, to February 5, 2020. The sample size was determined using the open epi sample size calculator, considering a 32.2% positive attitude derived from prior studies, with a 95% confidence interval and a 5% margin of error. Data collection utilized a systematic random sampling technique and a pre-tested structured questionnaire. Participants, aged 10-18 years, were selected from both private and government educational institutions, excluding those who did

not provide consent.

The institute's ethical review committee granted approval for the study, ensuring that data gathering adhered to the standards of privacy and confidentiality. Permission from the principals of the respective schools and colleges was secured before initiating the research. Each participant provided their informed consent. Data, encompassing both quantitative variables like age and qualitative variables such as gender, history of blood transfusion, surgical procedures, contact with Hepatitis C patients, injection usage, and history of tattooing and ear piercing, were entered and analyzed using SPSS version 22.

For quantitative variables, the mean and standard deviation were computed, whereas qualitative variables were summarized using frequencies and percentages. To control for effect modifiers like age, gender, student class, school type (private vs. government), parents' education, family income, parents' occupation, history of blood transfusion, surgical procedures, contact with Hepatitis C patients, injection usage, and history of tattooing and ear piercing, stratification was employed.

**Table 1:** *Socio-demographic profile of respondents*

<b>Gender</b>	<b>Frequency (n=278)</b>	<b>Percentage</b>
Male	167	60.1
Female	111	39.9
<b>Age groups</b>	<b>Frequency</b>	<b>Percentage</b>
Up to 15 Years	175	62.9
More than 15 Years	103	37.1
<b>Type of institution</b>	<b>Frequency</b>	<b>Percentage</b>
Private	112	40.3
Government	166	59.7
<b>Family Income</b>	<b>Frequency</b>	<b>Percentage</b>
Less than upto Rs. 50000	175	62.9
More than Rs. 50000	103	37.1
<b>Occupation</b>	<b>Frequency</b>	<b>Percentage</b>
Job holder	113	40.6
Self business	119	42.8
Farmer	46	16.5
<b>Level of education of participants</b>	<b>Frequency</b>	<b>Percentage</b>
Up to 10 <sup>th</sup>	185	66.5
Above	93	33.5
<b>Literacy among parents of participants</b>	<b>Frequency</b>	<b>Percentage</b>
Illiterate	92	33.1
Literate	186	66.9

Subsequent to stratification, chi-square tests were conducted, establishing the level of significance at a p-value of less than or equal to 0.05. Adolescent: Individual whose age is between 10-18 years. Knowledge assessment was conducted through a questionnaire, with scores below 11 classified as poor and scores of 11 or higher considered as indicative of adequate knowledge regarding hepatitis C. Attitude: Attitude evaluation was performed using a scale within the questionnaire, categorizing attitudes as positive for scores above 4 and negative for scores of 4 or below.

Practices were assessed using scale for the questions asked about practices which classified practices as good with score >5, adequate with score 5 and poor for score less than 5.

## Results

This study included a total of 278 respondents who met the inclusion criteria established for our research. Mean age of students was  $14.81 \pm 2.20$  years. (Table No. 1).

**Table 2:** Stratification of knowledge regarding Hepatitis with confounders

Effect Modifiers		Knowledge		Total	P – Value
		Yes	No		
Gender	Male	28	139	167	0.003*
	Female	36	75	111	
Age groups (in years)	Up to 15	7	168	175	0.001*
	Above 15	55	48	103	
Type of school	Private	46	66	112	0.000*
	Government	18	148	166	
Father's occupation of respondents	Job	28	85	113	0.004*
	Business	18	101	119	
	Farming	18	28	46	
Level of education of participants	Up to Metric	9	176	185	0.000*
	Above Metric	55	38	93	
History of contact with patient	Yes	18	10	28	0.000*
	No	46	204	250	
Injection therapy	Yes	8	29	37	0.000*
	No	64	177	241	
History of ear/ nose piercing	Yes	36	75	111	0.003*
	No	28	139	167	

\*P- value  $\leq 0.05$  was taken as statistically significant

A significant association (p-value<0.05) was found when knowledge of participants was stratified with regards to gender, age, type of institution, father's occupation, level of education, history of contact with HCV patient and history of injection and ear / nose piercing. (Table No.2). A significant association (p-value<0.05) was found when attitudes and practices of respondents were stratified with regards to gender, age, type of institution, father's occupation, parent's education, history of contact with HCV patient and history of injection and ear / nose piercing.

**Table 3:** Stratification of attitude and practices regarding Hepatitis with confounders

Effect Modifiers		Practice		Total	P – Value
		Yes	No		
Gender	Male	7	160	167	0.000*
	Female	14	97	111	
Age groups (in years)	Up to 15	5	170	175	0.001*
	>15	14	89	103	
Type of school	Private	14	98	112	0.001*
	Government	16	150	166	
Father's occupation of participants	Job	14	99	113	0.000*
	Business	9	110	119	
	Farming	7	39	46	
Parent's literacy	Illiterate	14	78	92	0.001*
	Literate	5	181	186	
Level of education of participants	Up to Metric	12	173	185	0.000*
	Above Metric	14	79	93	
History of contact with patient	Yes	8	20	28	0.001*
	No	6	244	250	
History of ear/ nose piercing	Yes	14	97	111	0.001*
	No	6	161	167	

\*P- value  $\leq 0.05$  was taken as statistically significant

## Discussion

Among the 278 participants, 167 (60.1%) were identified as male, while 111 (39.9%) were female patients. Significantly, research carried out in Faisalabad, Pakistan by Iqbal et al. revealed a predominance of female participants at 59.4%, a result that diverges from our own observations.<sup>13</sup> This variance can be attributed to the fact that their study was conducted among medical students, and the majority of medical students in our society are female. In contrast, research conducted in Malaysia by

Ahmed et al. found a majority of male participants, accounting for 59%, which closely corresponds with the outcomes of our study.<sup>14</sup> Positive history of contact with Hepatitis C patients was noted in 28(10.1%), injection therapy in 37 (13.3%), and ear/nose piercing in 111 (39.9%). No instances of a history of surgical procedures, blood transfusion, or tattooing were found in our study. In contrast, a study in Iran revealed that 27% of respondents were unaware that HCV could be transmitted between individuals, while 72.1% were aware of needle-sharing as a transmission route.<sup>15</sup> Additionally, only 21.5% and 19.4% knew about sexual intercourse and mother-to-baby transmission, respectively. Another study in Faisalabad, Pakistan, reported a 19% family history of hepatitis, aligning with our study results.<sup>13</sup>

Among the total participants, 64 (23.0%) exhibited adequate knowledge, 18 (6.5%) had a positive attitude, and 14 (5.0%) demonstrated good practices. A study conducted in Abbottabad reported that 62% of respondents had poor knowledge, while 38% possessed adequate knowledge of hepatitis C. Regarding attitudes, 67.8% of total participants displayed a negative attitude, with 32.2% exhibiting a positive attitude towards hepatitis C. In terms of practices, 66.2% showed negative practices, while 33.75% maintained good practices, which closely mirrors our study results.<sup>16</sup> Similarly, a study in Malaysia by Ahmed et al. also indicated poor and average levels of knowledge among students, aligning with our findings.<sup>14</sup> Another study in Iran found a low level of knowledge regarding Hepatitis C among nurses, consistent with our study results.<sup>17</sup> Additionally, a study in Egypt revealed that 68.2% of participants lacked sufficient knowledge about HCV disease, and 86.4% exhibited negative practices. Notably, statistically significant improvements in knowledge and practices were observed after the application of an educational program.<sup>18</sup>

A survey involving 340 dental students in Brazil revealed that over half (54%) exhibited a high level of knowledge, and 97.7% displayed positive attitudes towards Hepatitis C (HCV). Notably, the students' advanced year of study (last year) ( $P < 0.001$ ) and the type of university (federal) ( $P = 0.049$ ) significantly influenced their high knowledge levels about HCV. Additionally, a positive attitude toward HCV-infected patients was notably influenced by age ( $P=0.004$ ) and male gender ( $P=0.022$ ).<sup>19</sup> These findings are in contrast with our study, possibly reflecting the higher educational and awareness levels in Brazil.

In an Indian study involving students, it was observed that a majority (72.5%) were aware of the Hepatitis C vaccine but possessed limited knowledge about the mode of infection spread, preventive measures, associated complications, and the availability status of the vaccine against Hepatitis C virus.<sup>20</sup> These results align with our study, considering the proximity and similar developmental status of India as our neighboring country.

In a study targeting medical students in Dammam, it was found that around 75% demonstrated a lack of understanding concerning HCV transmission, with fewer than 25% showing a moderate level of awareness. More than half of the students possessed an adequate knowledge of HCV screening, prevention, and treatment. A significant majority were well-informed about the clinical manifestations and complications associated with HCV.<sup>21</sup>

## Conclusion

Our study revealed inadequacies in knowledge, attitude, and practices among adolescents. Subpar knowledge, negative attitudes, and inadequate practices were notably associated with gender, age, school type, father's occupation, parental literacy, student's education level, and history of contact with hepatitis patients, as well as ear/nose piercing ( $p\text{-value} < 0.05$ ). A considerable 39.9% of the total respondents had a history of ear/nose piercing, while 13.3% reported a history of injection therapy.

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**Conflict of Interest:** None

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#### Authors Contribution

**SS, IQ:** Conceptualization of Project

**AW:** Data Collection

**HK:** Literature Search

**MF:** Statistical Analysis

**AS:** Drafting, Revision

**SS, IQ:** Writing of Manuscript