

# PREVALENCE OF HEPATITIS-C VIRAL ANTIBODIES AMONG HIGH SCHOOL TEACHERS AND STUDENTS IN RURAL AREAS OF PUNJAB PAKISTAN

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## ABSTRACT

**Background:** Approximately 80 percent of patients who are suffering from Hepatitis C are uninformed of their infection. **Objective:** To assess the prevalence of hepatitis C viral antibodies in high school teachers and students in the rural areas of Punjab, Pakistan. **Methodology:** A total of 1200 apparently healthy high school teachers and students (9<sup>th</sup> and 10<sup>th</sup> class) from rural communities of Punjab were randomly selected from 1<sup>st</sup> January to 31<sup>st</sup> December 2016. Probability based random sampling method was used. 5ml blood was drawn from each individual. Subsequently serum was separated from the blood sample for testing the antibodies of hepatitis C virus. The data was entered and analyzed in SPSS version 22. **Results:** A maximum prevalence of 16.6% of the antibodies against hepatitis C virus infection was observed in the category of male high school students, followed by 10.6%, 8.3% and 5.3% in the category of male high school teachers, female high school teachers & female high school students in the descending order respectively. The prevalence rate of hepatitis C antibodies in Southern, Central and Northern Punjab was 10%, 14.25% and 6.5% respectively. Overall the prevalence of hepatitis C antibodies was 10.5%. **Conclusion:** The prevalence of hepatitis C antibodies was high in our study subjects. Male high school students were found mostly infected in the Central Punjab as compared to other categories in the rural communities of Punjab. **Keywords:** Prevalence, Hepatitis C viral infection, Anti HCV antibodies, Seropositive, Disease burden, Rural.

## INTRODUCTION

Hepatitis C viral infection (HCV) is a disease of public health importance with continuing increasing trend in the developing countries, with person to person transmission through blood.<sup>1</sup> The disease is spreading as a pandemic, especially in the developing countries. The cases of hepatitis C in people are either subclinical or with full blown disease and significant proportions have a chance to develop or convert into chronic liver disease or cirrhosis of liver.<sup>2</sup> At present according to estimate, eight million people in Pakistan are exposed to hepatitis C virus with burden of disease increasing many fold by 2025.<sup>3</sup>

Almost 15 – 45% of the primary infected subjects filter out the virus completely or partially within a period of six months without any intervention. Rest of the infections may develop into cirrhosis of liver or hepato-cellular carcinoma. Chronic HCV infection is the major reason for liver transplantation.<sup>4</sup> The major risk factors include HCV infected blood donors, use of unsterilized razor for scarification, sex with intravenous drug users, blood transfusion, reuse of needles, non-disposable glass syringes and surgical devices not properly sterilized.<sup>5</sup> Ideal management strategy for chronic hepatitis C patients is parenteral administration of pegylated interference alfa-2a

on weekly basis and ribavirin on daily basis.<sup>6,7</sup> The objective of this study was to determine the prevalence of antibodies against Hepatitis C information among high school teachers and students.

## METHODOLOGY

This was a cross sectional study conducted on apparently healthy high school teachers and students of Northern, Central and Southern rural communities of the Punjab province, Pakistan. Among all districts of Punjab, three districts were randomly selected, each from Southern (DG Khan, Muzaffar Garh and Rajan Pur), Central (Kasur, Gujranwala and Sialkot) and Northern (Chakwal, Attock and Taxala) rural area of Punjab. 1200 high school teachers and students were randomly selected. Among each of the four categories of male teachers, female teachers, male students and female students, 300 subjects were randomly selected. Thus a total of 1200 subjects from Southern, Northern and Central Punjab were selected. All 1200 teachers and students were physically checked and found healthy on the basis of measured vital sign parameters like temperature, pulse rate, respiration rate and blood pressure. After taken the consent of individuals, blood samples were drawn and tested for hepatitis C viral antibodies. Prevalence was calculated from each category as

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mentioned in the table from 1st January to 31<sup>st</sup> December 2016. Data was entered and analyzed by SPSS version 22.

## RESULTS

From a total of 300 male high school teachers in the rural communities of Southern, Central and Northern Punjab 32 (10.6%) were found positive for the hepatitis C viral antibodies. Separately in each category of Southern, Central and Northern rural communities of Punjab a prevalence rate in male high school teachers was 15%, 10% and 7% respectively. (Table.I) Among the 300 female high school teachers a prevalence 8.3% was observed from all three rural communities of the Punjab. Separately in each category of Southern, Central and Northern rural communities of Punjab a prevalence in female teachers was 4%, 19% and 2% respectively (Table.I). In all the 300 male high school students of 9<sup>th</sup> & 10<sup>th</sup> grade, a prevalence of 16.6% was estimated. The prevalence in Southern, Central and Northern rural communities of Punjab prevalence was 15%, 25% and 10% respectively. Similarly in female high school students of 9<sup>th</sup> & 10<sup>th</sup> class, prevalence was 5.3% while separately in Southern, Central and Northern rural communities the period prevalence was 6%, 3% and 7% respectively. The overall prevalence in the descending order was 14.25%, 10% and 6.5% in the rural communities of Central, Southern and Northern Punjab.

**Table I : Prevalence of hepatitis-C antibodies in the apparently healthy male and female high school teachers and students of 9<sup>th</sup> and 10<sup>th</sup> class in the rural communities of Southern, Central and Northern Punjab, Pakistan.**

Category	Punjab (n=1200)						Total (N=1200)	
	Southern		Central		Northern		Numbers tested	HCV positive (%)
High school category	Number tested	HCV Positive No(%)	Numbers tested No (%)	HCV positive No (%)	Numbers tested	HCV positive (%)	Numbers tested	HCV positive (%)
Male teachers	100	15 (15)	100	10(10)	100	7(7%)	100	32(10.6%)
Female teachers	100	4 (4)	100	19(19)	100	2(2%)	100	25(8.3%)
Male students	100	15(15)	100	25(25)	100	10(10%)	100	50(16.6%)
Female Students	100	6(6)	100	3(3)	100	7(7%)	100	16(5.3%)
Total	400	40(10%)	400	57(14.25%)	400	26(6.5%)	400	123(10.5%)

## DISCUSSION

The prevalence of hepatitis C virus infection is rising specially in rural areas, and its consequences are so grave.<sup>8,9</sup> HCV Infection among communities like high school teachers and

as students of the rural area of Southern, Central and Northern Punjab was noted. For prevention, it is necessary to know about the prevalence, risk factors and mode of transmission of hepatitis C infection is known.<sup>8,9</sup>

Current study showed that overall 10.5% of the apparently healthy teachers and high school students are positive for anti HCV, a potential source of infection to other individuals. Among the risk factors, which could be important intervention points for control of transmission are poverty, blood transfusions without screening of the donors, use of un-sterilized glass syringes lack of education, and awareness. This has been noted as an alarming situation for the communities residing in the rural areas in particular.<sup>10</sup> Low budgetary allocations for health and scarcity of qualified health care providers in rural areas has further deteriorated the situation.<sup>11,12,13</sup> Re-use of disposable in the rural areas is still prevalent and could be a source of transmitting the hepatitis C virus to the healthy individuals.<sup>13</sup> This may reflect high prevalence (10.6%) of HCV infection in our rural study subjects.

Frequent injection practices to the patients even for minor illnesses is get another issues.<sup>14</sup> The hospitals in the rural areas, screening of the pre-operative patients is not practiced because of the negligence or non-availability of the reagents and trained technicians. Therefore the patients and doctors are at high risk to the infection of hepatitis C virus.<sup>15</sup>

In renal dialysis patients prevalence of HCV infection is much higher in Pakistan as compared to other developing countries. Another source of infection in dental patients is the use of non-sterilized dental equipments.<sup>16</sup> People who are involved in the business of solid waste collection from the hospitals, clinics, dispensaries and medical stores are at risk of hepatitis C infection.<sup>17,18</sup>

Other important risk factor which are practiced by younger people as in current study high school male students were having highest (16.6%) prevalence of HCV infection are the sharing of razors during shave and hair cutting circumcision by using unsterilized instruments and drug addicts are other factors.<sup>19</sup>

As the literacy rate is low and poverty is high in rural areas majority of population in the rural areas become unaware. Communication of the knowledge through mass medication is not practiced as much as in developed countries.<sup>20</sup>

## CONCLUSION

The prevalence of hepatitis C antibodies was high

among apparently healthy high school students and teachers. Male high school students were found mostly infected in the Central Punjab as compared to other categories in the rural communities of Punjab.

### Conflict of interest

The authors have declared no conflict of interest.

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