

## Knowledge and Educational Intervention Pertaining To Viral Hepatitis in Adolescent Male Students of Urban and Rural Sindh, Pakistan

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### ABSTRACT

**Background:** In Pakistan, collective infection rate of hepatitis B surface antigen (HBsAg) and anti-hepatitis C virus (HCV) is 7.6% where as their prevalence are 2.5% and 5% respectively. Most commonly occurring viral hepatitis is hepatitis C, closely followed by hepatitis B and in males both are common, with hepatitis B seen earlier than hepatitis C.

**Methods:** A cross sectional study was conducted on 585 adolescent college boys. Respondents were interviewed after informed consent and ensuring confidentiality. An anonymous questionnaire of close ended questions was completed followed by an educational intervention session.

**Results:** Knowledge regarding types of viral hepatitis was known to 11% urban and 22% rural respondents, while 75% from Karachi and 84% from interior Sindh had awareness that hepatitis B and C are infectious diseases. About 58% urban respondents knew that hepatitis B can develop cirrhosis and lead to liver cancer as compared to 73% rural inhabitants. Knowledge regarding spread of hepatitis B and C by transfusing infected blood or blood products or injury by infected sharp or tattooing/ body piercing was known to 43.5% from Karachi and 40% from interior Sindh. About 45% urban and 19% rural respondents were vaccinated for hepatitis B and reasons for not being vaccinated were non awareness and cost of vaccine.

**Conclusion:** Knowledge regarding all aspects of disease was surprisingly better in the rural than urban population. Low vaccination status makes adolescents vulnerable to hepatitis. It is crucial to generate understanding about the disease in general and vaccination for hepatitis B in particular.

**Key words:** Adolescent, Viral hepatitis, Vaccination status.

### INTRODUCTION

Globally, about 500 million people are affected by viral hepatitis more than the number affected by HIV/AIDS and a range of viruses are accountable for a variety of viral hepatitis. Hepatitis B and C infection can become persistent and show the way to cirrhosis of liver and cancer; is mainly acquired in the course of contaminated needles or tainted blood products and infection patterns are diffuse. Around 350 and 170 million people are anticipated to be infected with hepatitis B and C respectively. Precarious health care, injection and blood handling practices are common reasons for acquisition of the disease but the same can be prevented through vaccination and following safety education on blood handling and injection.<sup>1</sup>

In Pakistani population, collective infection rate of hepatitis B surface antigen (HBsAg) and anti-hepatitis C virus (HCV) is 7.6% where as their prevalence are 2.5% and 5% respectively; are the main causes of chronic liver diseases.<sup>2</sup> Most commonly occurring viral hepatitis is hepatitis C, closely followed by hepatitis B and in males both are common, with hepatitis B seen earlier than hepatitis C.<sup>3</sup> Both viruses increase through blood, its products and body secretions and key risk factors reported for the spread of hepatitis B and C in the community are injections, surgery and dental treatment.<sup>4</sup> In Pakistan, probable sources for an increasing trend in the frequency of hepatitis C virus appears to be common use of curative injections for trivial ailments, inappropriate sterilization of invasive medical devices and unscreened blood transfusions.<sup>5</sup>

World Health Organization (WHO) defined adolescents as 10-19 year olds and adolescence is stated as the period of transition from childhood to adulthood. Current adolescent population is probably the largest in the history of Pakistan. They are a preferred target, being at an age when prevalence is lowest<sup>2,6</sup> and when exposure to risk factors such as piercing and tattooing

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begins.<sup>7</sup> Thus it is imperative that their information, source of acquaintance and risk perceptions be evaluated in order to execute suitable interventions. This study was therefore conducted to evaluate the knowledge of adolescent college boys regarding viral hepatitis and also to find out the frequency of vaccination against hepatitis B in urban and rural Sindh. Perception of students was recorded, followed by an educational intervention session.

## MATERIALS AND METHODS

A cross sectional study using convenience sampling technique was conducted in Karachi and Kamber, Shadadkot, Sindh. Karachi comprises of 263 colleges while in Kamber Shadadkot there were only six intermediate colleges (4 boy and 2 girls) and being a rural area enrolment was low. For this study, 5 intermediate colleges from Karachi (St Patrics' College, Government Sindh Muslim College, Degree College Lyari, Government College Korangi and Government Science College) were selected on the basis of upper, middle and low socio-economic status and urdu/ English medium and from Kamber Shadadkot all the four boys' college (Government Higher Secondary School Warah, Wagan, Nasirabad, and Khairpur Joshu) were selected. A total number of 585 adolescent college boys of age group 16- 19 years were included in the study after a written informed consent; 375 from Karachi (urban) and 210 from Kamber Shadadkot (rural) Sindh. Sample size of Karachi (urban) was calculated on the basis of a previous study where 54% adolescent college students had awareness that hepatitis B & C are infectious diseases<sup>11</sup> at 95 % confidence interval using computer package, EPI – info version 6.1. Ethical clearance was taken from the institutional review board of National Institute of Child health, Karachi.

After explaining purpose of the study a consent form was provided to all participants and written consent was obtained from the respondents before interview. An anonymous questionnaire of close ended questions was then administered by personal interview technique after ensuring confidentiality. It comprised information regarding viral hepatitis such as; type of hepatitis, mode of transmission; methods of prevention and status of vaccination to gain a better understanding of adolescent's knowledge and beliefs. This was followed by a 10 minutes educational intervention session. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 10. Mean and percentages were calculated for quantitative variables and  $\chi^2$  - test was applied for significance.

## RESULTS

Total respondents from district Karachi (urban) were 375 adolescent college boys of age group 16-19 years (demographic characteristics in table: 1). Of these, 122(32.5%) were from pre medical group, 207(55.2%) from pre engineering, 27(7.2%) from computer science and remaining 19(5.1 %) from commerce group.

Among urban respondents, knowledge regarding the various types of hepatitis was known to only 11% (41), while 75% (280) had awareness that hepatitis B and C are infectious diseases and 44 % (167), were unaware of the causative agent. Regarding transmission of hepatitis B and C by transfusing infected blood or blood products or injury by infected sharp or tattooing/body piercing was known to 43.5% (163) respondents while 58% (216) knew that hepatitis B and C can develop into cirrhosis leading to liver cancer. Vaccination against HBV, as the most effective way for prevention was found in 45.6% (171) and the reasons cited for non-vaccination were lack of awareness and cost of vaccine. About 32.5% (122) students acknowledged media/internet as the source of information for their knowledge.

From Kamber Shadadkot (rural), 210 adolescent males of 04 government higher secondary schools were interviewed. Of these, 50% (105) were from pre medical group, 47.6% (100) from pre engineering, and remaining 2.4% (5) from commerce group.

About 22% (47) rural respondents, had acquaintance regarding the various types of hepatitis while 84% (177) had inspiration that hepatitis B and C are infectious diseases and 73% (153) had awareness that hepatitis B and C runs into chronic disease. Regarding causative agent, 86% (180) students knew that it is a viral disease, while mode of transmission by blood or blood product, body fluids, sharp instrument injury and by tattooing/body piercing was known to 40 % (84). Compared to their urban counterpart, only 09 % (19) rural boys were vaccinated against hepatitis B and also cited similar reasons for not being vaccinated i.e lack of awareness (71%) and cost of vaccine (29%).

Table: 2 represent the knowledge about hepatitis in students of both urban and rural areas. It was observed that students from rural population had a better concept about the disease and the difference in perception was statistically significant; reason being more pre-medical students in the rural set up as compared to their urban counterpart.

**Table 1: Demographic characteristics of study participants**

Variables	Karachi	Kamber Shadadkot
Respondents	375	210
Age Group(yrs)		
16-16.9	128	74
17-17.9	105	71
18-18.9	142	65
Academic Qualification		
First Year	238	117
Second Year	137	93

**Table 2: Knowledge about viral hepatitis in adolescents of urban and rural Sindh**

Issues	Karachi (Urban) (n=375)		Sindh (Rural) (n=210)		P-value
	No.	%	No.	%	
1. Knowledge about types of hepatitis.	41	11	47	22.4	*0.001
2. Knowledge about hepatitis B and C.	280	74.7	177	84.3	*0.006
3. Knowledge about Chronic Hepatitis.	238	63.5	144	67	*0.001
4. Knowledge regarding causes of hepatitis.	208	55.5	180	85.7	*0.001
5. Routes of transmission (Blood / blood products, sharps instrument injury, tattooing/ body piercing.)	118	31.5	76	36.2	0.244
6. Vaccination against hepatitis	171	45.6	19	9.05	*0.001

## DISCUSSION

The overall level of knowledge about viral hepatitis was mediocre among the adolescents in the current study, irrespective of urban and rural setup. This situation is quite worrying as an earlier study reported that due to youth related risk factors, about 70% of new hepatitis B infections crop up in adolescents and young adults and according to the CDC (Centre for Disease Control and Prevention), HBV is about 10 times easier to transmit than HIV virus.<sup>8</sup> Present findings are comparable to a former study conducted in 05 public and private dental colleges of Karachi, where 38% dental students had insufficient understanding concerning avoidance of HBV infection<sup>9</sup> while another study reported that adolescents knowledge regarding hepatitis B and its modes of transmission was scarce.<sup>10</sup>

Current finding that adolescents view themselves not at risk for disease are in accordance with previously reported studies.<sup>11-13</sup> However, this perception has no eminence as adolescents are at heightened risk for hepatitis because they rarely seek health care<sup>14</sup> and are often engage in activities such as tattooing and body piercing.<sup>15-16</sup>

Although diminution of hepatitis B infection is a countrywide main concern and extensive efforts are being witnessed for promoting hepatitis B immunization for infants and children<sup>17</sup> but unfortunately efforts targeting adolescents whose risk is high are either limited or not available. The percentage of unvaccinated adolescent boys in our study is very striking as hepatitis B and C prevalence in the province of Sindh is about 2.5% and 5% respectively.<sup>2</sup> Situation is particularly grim in interior Sindh where only 9% students were found vaccinated and the reasons cited for not being vaccinated were non awareness and cost of the vaccine. Moreover, lower vaccination status in subjects residing in under privileged areas is a matter of concern as lower socio-economic surroundings are coupled with higher HBV infection and contact to associated hazard factors makes hepatitis B as an infection of poverty.<sup>2</sup>

For promotion of health education, services of mass media is often utilized as it is basically influential and accessible, and can play a vital role in altering attitudes and conduct of the community.<sup>18</sup> In response to a query regarding information about the disease, it was found that respondents were of the view that their best source of information was electronic media/internet, followed by friends and books.

During the interventional session emphasis was laid on vaccination against hepatitis B and related preventive measures were discussed in detail as primary prevention is the most effective and desirable way to prevent the spread of the infections and educational interventions have proved to be highly effective.

The research should be viewed with following limitation and strength in mind. All collected data was self reported and therefore not verifiable while the strength of the study includes the description of hepatitis B related knowledge among adolescents along with vaccination status that can provide information for future research and intervention.

## CONCLUSION

Knowledge regarding all aspects of disease was surprisingly better in the rural than urban population which could be attributed to more pre-medical students in the rural setup.

Low vaccination status makes adolescents vulnerable to hepatitis. It is crucial to generate understanding about the disease in general and vaccination for hepatitis B in particular as viral hepatitis can only be barred through vaccination and blood and injection safety education.

**Competing Interest: None declared.**

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