

# A Survey on Hepatitis C on Saudi Female University Students.

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## ABSTRACT

**Background:** Hepatitis C virus is a blood-borne RNA virus. An estimated 3 to 4 million people worldwide are infected with acute Hepatitis C each year. **Methods:** Among Saudi people the overall anti-HCV antibodies were detected in 7.3% (1124/15323) of the examined individuals in one of the latest study done. The incidence of Hepatitis C is increasing every year, the main reason found by previous similar studies is lack of awareness in public regarding its different modes of transmission. Hence this study was planned where the researchers did a cross sectional survey on 402 students of Princess Nourah Bint Abdul Rahman University (PNU), Kingdom of Saudi Arabia. The purpose of present study was to assess the knowledge of female students of PNU, about modes of transmission and different signs and symptoms of Hepatitis C. A non-probability consecutive sampling technique was adopted. A large percentage answered that Hepatitis C spreads by droplet and sharing tooth brushes. **Results:** Piercing body parts and tattooing are not sources of Hepatitis C as answered by 58% and 57% respectively. Sharing needles and blades at barber's shop (68%), and through sexual contact (68%) were marked as risk factors for Hepatitis C infection transmission. Just 49.5% knew that it can spread by unscreened blood transfusion. Most of the students did not know that there is change in stool color (142/402=35%), urine color (138/402=34%), abdominal pain (170/402=42.5%) and fever (167/402=42%) as symptoms of Hepatitis C. Majority of the respondents did not have any idea (No 261/402=65%) that health workers are at risk of contracting Hepatitis C. When cross tabulation was done by applying Chi-square test, as a test of significance, it was found that, respondents did not have the correct knowledge regarding the different modes of spread of disease with the exception of sharing needles and blades ( $p=0.008$ ) and sexual contact (0.05). **Conclusion:** Hence it is concluded that there is lack of knowledge regarding hepatitis C virus infection transmission and its prevention among the students.

**Keywords:** Hepatitis C, Awareness, Saudi Female Students.

## INTRODUCTION

Globally, between 130–150 million people globally have chronic hepatitis C infection.

A significant number of those who are chronically infected will develop liver cirrhosis or liver cancer. Approximately 700 000 people die each year from hepatitis C-related liver diseases.<sup>[1]</sup>

Among Saudi people The HCV sero-prevalence was conducted on 15,323 Saudi nationals. The overall anti-HCV antibodies were detected in 7.3% (1124/15323) of the examined individuals.<sup>[2]</sup> The HCV seropositive percentages over 4 years were ranged from (6.9–9.0%) in males and (5.3–8.5%) in females.<sup>[3,4]</sup>

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Most of the patients are asymptomatic till the disease is at its terminal stage posing a great danger to spread this infection silently.<sup>[4]</sup>

Risk groups for HCV include injection drug users (IDU), hemodialysis patients, patients getting repeated blood transfusion, sexual contacts of infected persons, persons with multiple sex partners, infants born to infected mothers and health care workers.<sup>[2]</sup> Saudi Arabian surveillance report showed unscreened blood transfusion and IVD as major modes of transmission 5,6. Health care workers are at high risk due to accidental needle pricks or cuts while handling patient suffering from Hepatitis C. Unsafe injection practices, inadequate sterilization of medical equipment in health-care setting and tattooing, are also the contributory factors.<sup>[2]</sup>

When present, symptoms include fatigue, jaundice, nausea, vomiting and abdominal pain.<sup>[3]</sup> Chronic HCV infection develops in 70% - 80% of infected persons, which is often a subclinical disease and can lead to cirrhosis and hepatocellular carcinoma after decades of recurrent attacks on the liver.<sup>[3]</sup>

The incidence of Hepatitis C is increasing every year, the main reason found by previous similar studies is lack of awareness in public regarding its different modes of transmission.<sup>[5,8-11]</sup>

Antiviral medicines can cure Hepatitis C infection, but access to diagnosis and treatment is low. Antiviral treatment is successful in 50–90% of persons treated, depending on the treatment used. There is currently no vaccine for Hepatitis C, because it can easily mutate and has many genotypes.<sup>[7]</sup>

Prevention is the only safeguard against hidden epidemic of Hepatitis C, in this regard, general public must be aware of the different modes of its transmission.<sup>[10]</sup>

The purpose of present study was to assess knowledge of female students of PNU, about modes of transmission and different signs and symptoms of Hepatitis C.

## MATERIALS AND METHODS

**Study Area/Setting:** This study was done in PNU, which is a female university. A cross sectional survey was done, where target population was Saudi students. Students of health science colleges were excluded as their background knowledge could confound the results.

A non-probability consecutive sampling technique was used with sample size of 402 to ensure high reliability of our estimate with respect to the prevalence of Hepatitis C among Saudi population.

A close-ended questionnaire was prepared in English, consisting of variables for knowledge and attitudes regarding Hepatitis C. The variables for knowledge were: type of causative agent, people at high risk, different modes of spread, different signs and symptoms and different preventive measures against Hepatitis C. For attitude, variables were: isolation of the patient and sharing of personal items such as towels, combs, tooth brushes etc. It was translated in Arabic. Formal approval was obtained from Institutional Review Board of PNU before conducting our study.

A pilot study was done where the questionnaire was pretested on 20 PNU students who were non-medical and selected randomly, in order to validate it. The ambiguity that was found was corrected. Informed verbal consent was taken from the participating students.

Data was analyzed by using SPSS version 20. Descriptive statistics in terms of means, standard deviations, median and interquartile ranges were used to describe criteria of studied sample.

Association of qualitative variables was done by applying chi-square test. P-value less than 0.05 was considered as statistically significant.

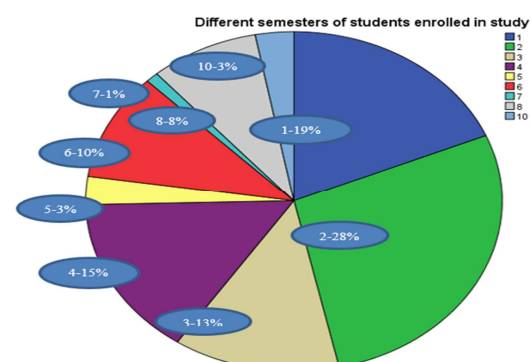
## RESULTS

[Table 1] shows the list of different colleges enrolled in the study randomly. Major contribution was from

the College of Community Services (95/402=24%), followed by the College of Preparatory (63/402=15%). Least contribution was from the College of Physiotherapy (5/402=1%), as they may had examination so students were not freely available.

**Table 1: List of different colleges included in survey.**

Name of the College	N=402	%
College of Education	48	12
College of Computer	36	09
College of Business	46	11
College of Community Services	95	24
College of Language	39	10
College of Science	41	11
College of Preparatory	63	15
College of Designs	10	02
College of Physiotherapy	05	01
College of Art	19	05



**Figure 1: Different semesters of students enrolled in study.**

[Figure 1] shows the participation of students who were studying in different semesters. Highest participation was from 1st semester to 4th semester (19%, 28%, 13% and 15% respectively). By chance, there was not a single participation from the 9th semester. This was good for our study as our objective was to assess the knowledge of general population regarding Hepatitis C.

**Table 2: Knowledge regarding epidemiology of Hepatitis C**

Variables	Response	N=402	%
Causative organism	Virus	214	53
	Bacteria	060	15
	Parasite	010	03
	DNK	118	29
Relationship with age	Yes	069	17
	No	215	54
	DNK	118	29
Treatment	Yes	191	47
	No	074	19
	DNK	137	34
Isolation of the patient	Yes	162	41
	No	235	58
	DNK	005	01
Acute illness	Yes	200	49.5
	No	200	49.5
	DNK	002	01
Chronic illness	Yes	200	49.5
	No	200	49.5
	DNK	002	01

DNK= do not know

Nearly half of the respondents (214/402=53%) knew that it is a viral infection as shown in [Table 2]. Forty Seven percentage (191/402) of the students marked it curable while 34% (137/402) did not have any knowledge regarding its treatment. Isolation of the patient is required as answered by 41% (162/402), while almost equal percentage (200/402=50%) labelled the disease as acute and chronic.

**Table 3: Different modes of transmission of Hepatitis C.**

Modes	Responses	N=402	%
Human to human			
Droplet route	Yes/No	279/123	69/31
Breast feeding	Yes/No	180/222	45/55
Sexual contact	Yes/No	271/131	68/32
Shaking hands	Yes/No	220/182	55/45
Trans-placental	Yes/No	196/206	49/51
Sharing tooth brushes	Yes/No	266/136	66/34
Needle Prick or certain procedures	Yes/No	169/233	42/58
Piercing body parts	Yes/No	174/228	43/57
Tattooing	Yes/No	172/230	43/57
Mosquito bite	Yes/No	277/125	68/32
Sharing needles & blades	Yes/No	220/182	55/45
Dental procedures	Yes/No	200/202	49.5/50.5
Blood transfusion	Yes/No	200/202	49.5/50.5
Needle pricks	Yes/No	200/202	49.5/50.5
Environmental Factors			
Contaminated water	Yes/No	201/201	50/50
Meat	Yes/No	195/207	48/52
Smoking	Yes/No	187/215	47/53

**Table 4: Different signs and symptoms of Hepatitis C.**

Symptoms	Responses	N=402	%
Abdominal pain	Yes	199	49.5
	No	033	08
	DNK	170	42.5
Fever	Yes	214	53
	No	021	05
	DNK	167	42
Vomiting	Yes	210	52
	No	036	09
	DNK	156	39
Loss of appetite	Yes	159	39
	No	101	25
	DNK	142	36
Change in stool color	Yes	141	35
	No	119	30
	DNK	142	35
Change in urine color	Yes	149	37
	No	115	29
	DNK	138	34
Body aches	Yes	222	55
	No	023	06
	DNK	157	39
Weight loss	Yes	192	48
	No	020	05
	DNK	190	47
Yellowish discoloration of eyes	Yes	214	53
	No	024	06
	DNK	164	41

[Table 3] is an important table as it focuses our main objective. A large percentage answered that Hepatitis C spreads by droplet (69%), and sharing tooth brushes (66%). Fifty-five percentage of respondents thought the it is not transmitted by

breast milk. For trans-placental transmission, there is almost equal percentage for yes (49%) and no (51%) responses. Piercing body parts and tattooing are not sources of Hepatitis C as answered by 58% and 57% respectively. However, by sharing needles and blades at barber's shop (68%), and through sexual contact (68%) were marked as risk factors for Hepatitis C infection transmission. Almost equal percentage of students labelled yes and no for blood transfusion (yes =49.5 and no = 50.5%) and needle pricks (yes =49.5% and no =50.5%) as a source of infection. There was also almost equal percentages of yes and no responses for environmental factors (through contaminated water, meat and smoking), for the transmission of infection.

DNK= do not know

[Table 4] shows responses of the students regarding the different signs and symptoms of Hepatitis C. It shows that most of the respondents knew that there is vomiting (210/402=52%), body aches (222/402=55%) and yellowish discoloration of eyes(214/402=53%) in Hepatitis C infection while most of the students did not know that there is change in stool color (142/402=35%), change in urine color (138/402=34%), abdominal pain (170/402=42.5%) and fever (167/402=42%) as a symptom of Hepatitis C.

**Table 5: Different risk groups.**

Risk Groups	Responses	N=402	%
Health workers	Yes	051	12
	No	261	65
	DNK	090	23
Travelers	Yes	230	57
	No	050	12
	DNK	122	31
Children	Yes	194	48
	No	056	14
	DNK	152	38
Poor	Yes	241	60
	No	043	11
	DNK	118	29

**Table 6: Different methods of prevention**

Strategies	Responses	N=402	%
Refraining from sharing needles & blades	Yes	290	72
	No	080	20
	DNK	032	08
Not sharing personal items (towels, combs, tooth brushes)	Yes	198	49
	No	170	42
	DNK	034	09
Screening of blood before transfusion	Yes	119	30
	No	139	34
	DNK	144	36
Usage of sterile instruments	Yes	195	48
	No	200	50
	DNK	007	02
Practicing protective sex	Yes	290	72
	No	090	22
	DNK	022	06

DNK= do not know

Majority of the respondents did not have any idea (No 261/402=65%, DNK 90/402=23%) that health workers are at risk of contracting Hepatitis C infection because of their profession while a major

percentage of respondents marked it a disease of travelers (230/402=57%), children (194/402=48%) and poor (241/402=60%) , as shown in [Table 5].

DNK= do not know

[Table 6] highlights the responses of the students on different methods of prevention against Hepatitis C. Seventy two percentage (290/402) of the students considered protective sex practices and refraining from sharing needles and blades as preventive methods. By usage of sterilized surgical instruments, screening of blood before transfusion and avoidance to share personal items, the yes and no responses were almost equal.

**Table 7: Association of modes of transmission with the response of students of different semesters (application of Chi-Square Test keeping level of significance  $p \leq 0.05$ ).**

Different modes of transmission	Responses of students (Yes/No)	p-value
Piercing body parts	From 1st -10th semester	0.17
Tattooing		0.29
Sharing needles & blades		0.008
Dental procedures		0.11
Droplet infection		0.05
Shaking hands		0.08
Trans-placental		0.23
Needle Pricks		0.29
Sexual contact		0.05
Sharing tooth brushes		0.46
Breast feeding		0.10
Unscreened Blood Transfusion		0.66
Environmental Factors (water, meat, smoking)		0.08

The above [Table 7], shows that respondents did not have the correct knowledge regarding the different modes of spread of disease with the exception of sharing needles and blades ( $p=0.008$ ) and sexual contact (0.05).

**Table 8: Personal information regarding Hepatitis C.**

Inquiries	Responses	N=402	%
Have you ever been tested for Hepatitis C ?	Yes	074	18
	No	328	82
Result of test	Positive	009	02
	Negative	065	16
	Not applicable	328	82
Any member suffering from HC	Yes	036	09
	No	329	82
	DNK	037	09

DNK= do not know

[Table 8] shows the personal information of the students regarding Hepatitis C. Just 18% (74/402) were tested for Hepatitis C and among them 2% (36/402) were positive. Nine percentage of students declared that there was a member of their family members who has/had Hepatitis C.

## DISCUSSION

Our study showed that highest participation was from 1st semester (level) and second semester (level) (19%, 28% respectively). Similarly Various surveys have been carried out in Pakistan which focused on students at different levels. Majority of the studies depict that they don't have adequate information regarding HCV.<sup>[9,12]</sup>

Globally, the major modes of HCV transmission are use of contaminated needles and instruments in medical practice, unsafe blood and blood product transfusion, intravenous drug use, face and armpit shaving with unsterilized instruments by barbers, ear and nose piercing, poor personal hygiene habits and quackery (poor medical practice by non-qualified people).<sup>[9,10,12]</sup>

In our study performed at PNU (68%) of the students knew that it can be transmitted by sharing needles and unsterilized blades at barber's shop and through sexual contact (68%) whereas 49.5% told that it can be transmitted through contaminated needles and IV drugs. While a similar study conducted in Pakistan showed that almost , 49% believed that it could be transferred by needles and injection.<sup>[13,14]</sup>

In our study conducted at PNU 51% has no idea, that HCV can be transmitted from the mother to her baby. While a similar study in Pakistan showed that 72.2% don't know that HCV can be transmitted from the mother to her baby.<sup>[14]</sup>

In our study that was conducted in PNU, the people showed that Piercing body parts (58%) and tattooing (57%) are not sources of Hepatitis C infection. This is contrary to an international study done in Karachi, Pakistan showed that 5.3% believed that it could be transmitted by ear and nose piercing.<sup>[13]</sup>

About the question of how to prevent yourself from getting HCV, In PNU, 72% (290/402) of the students considered protective sex practices and refraining from sharing needles and blades as a preventive method against Hepatitis C. Similarly in Pakistan 72.1% said using screened blood only, sterilized needles and razors.<sup>[13]</sup>

Students are more vulnerable to infectious diseases as they are not aware of the spread of various diseases. little attention has been directed to exposure among medical students.10Like in our study only 30% of the students told that screening of the blood before transfusion is necessary similarly various surveys have been carried out in Pakistan which focused on students at different levels. Majority of the studies depict that they don't have adequate information regarding HCV/AIDS.<sup>[12]</sup>

Due to lack of acknowledgement of HCV in PNU Students, 82% haven't done a screen test for hepatitis C while only 18% have done it. Similarly,

in Pakistan 68.5% have not done a screen test for hepatitis C while only 6.2% have done the test.<sup>[15]</sup>

In another study conducted in America it was estimated that 50% to 75% of all HCV-infected individuals in the U.S. are unaware of their sero status.<sup>[16]</sup>

A study conducted in Najran district reported poor knowledge of the University students regarding blood borne diseases transmitted by occupation, practices of safe injections and the standard precautions.<sup>[8]</sup>

Another study reported substantial lack of knowledge among health care workers regarding Hepatitis C infection.<sup>[9]</sup>

## CONCLUSION

This study indicates lack of knowledge regarding hepatitis C virus among the students of Princess Nora Bint Abdul Rahman University. There is a lack of awareness regarding Hepatitis C among the students of PNU.

It is necessary to increase the level of community knowledge by arranging lectures on the different modes of spread and preventive strategies of Hepatitis C, and it was the main focus of prevention. In conclusion, screening programs are needed to be implemented to identify patients at an early stage and positive cases should be offered counseling and treatment. There is also a dire need to introduce health interventions to control and reverse the spread of HCV in the area and to impart health education and awareness to the society. With help of funding agency, a health education campaign will be started at different convenient spots near the colleges which will be selected for sampling. Health education materials like, brochures and pamphlets regarding Hepatitis C risk factors and different preventive strategies, will be distributed to the students.

### Limitations of the Study

This study is a self-reported questionnaire based study. Therefore, in the present study, the subjective self-reported information should be carefully evaluated, due to the limitation of the reliability of the questionnaire surveys. The respondent were all females,

(More so, bias may have been introduced due to intentional deception, poor memory, or misunderstanding of a question or set of questions).

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