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# Assessment of Knowledge & Practice regarding Hepatitis B/C infection risk and means of prevention among University Students

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Abstract: Egypt has the highest prevalence of hepatitis C worldwide and the incidence of HBV infection is rising steadily. All efforts should be exerted to decrease their incidence especially among youth who are the productive workforce. Aim; assess and raise knowledge and practices regarding hepatitis B/C infection risk and means of prevention among University students. Subjects and method; a quasi-experimental research design was used among 300 Egyptian students from three different non-medical colleges with 100 students representing each college at Minia University. Two tools were used; demographic data & hepatitis history questionnaire and predesigned self-administered questionnaires, then condensed interventional lecture is given to them and therefore reassessment is done for 2nd tool. Results; three hundred students were included & majority of them were females, live in urban area (92.7% & 92% respectively with mean age (20.4 ± 0.93 Yrs.). There is significant increase in students' knowledge about HCV/HBV causes, modes of transmission, complications, prevention & treatment post intervention (p= 0.000). Positive correlation was found between study participants' knowledge and practice. Conclusion; definite increase in participants' knowledge with correction of some misconception and practice about HCV/HBV infection risk and means of prevention are found post intervention. Recommendations; There is an urgent need for beginning nationwide programs to raise the Egyptian knowledge & practice about HBV and HCV infection risk and means of prevention. As young people are the cornerstone of production so, raising their awareness about hepatitis B/C infection risk and means of prevention is helping to achieve a future free from these deadly diseases.

Keywords: hepatitis B/C infection risk, hepatitis C/B means of prevention, university students, non-medical colleges.

#### 1. INTRODUCTION

Hepatitis B (HBV) and C (HCV) are two common, serious causes of chronic liver disease and liver damage [1&2]. Hepatitis C is also one of the most common diseases worldwide [3]. About two billion patients are suffering from hepatitis B, and there are more than 350 million carriers in the world [4]. HCV is usually transmitted through drug use, blood transfusions and unsafe medical procedures. Hepatitis C is not spread through breast milk, food or water or by casual contact such as hugging, kissing and sharing food or drinks with an infected person [5].

WHO stated that a comprehensive approach to the prevention of viral hepatitis includes many strategies beginning with raising awareness about all types of viral hepatitis [6]. Health education about hepatitis B/C infections by running awareness programs was found necessary for all students especially for non-biological sciences students in order to improve awareness of this disease [7].

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Unfortunately, there is no vaccine to prevent HCV infection, so reducing the burden of HCV infection requires implementation of primary prevention activities to reduce the risk for contracting HCV infection and secondary prevention activities to reduce the risk for liver and other chronic diseases in HCV infected persons[1].

From global perspective, the greatest impact on the disease burden associated with HCV infection will most likely be achieved by focusing efforts on primary prevention strategies to reduce or eliminate the risk of transmission. These methods of prevention will be considered in relation to the individual routs or categories of transmission; blood transfusion, percutaneous exposure, organ transplantation, high risk drug or sexual practices and intra-familial (non-sexual) and sporadic/community acquired infection. So, this study is an attempt to assess and raise knowledge and practices regarding hepatitis B/C infection risk and means of prevention among University students.

#### Significance of the study:

Many studies have confirmed that viral hepatitis is epidemic in Egypt, especially HCV. HBV accounts for 10-30% of chronic liver disease. Liver disease is thus the second commonest cause of death in Egypt, after heart disease[8]. Risk factors mostly related to prevailing social and cultural conditions which are responsible for maintaining the high rates of HCV transmission [9].

Youth are the productive force of any country and fall prey to certain diseases. Many University students live in University City for expatriate students; possibly share other peers in personal care tools including shaving tools, toothbrushes, hair brushes, and scissors and do not cares whether they are contagious. Furthermore they are not aware of diseases prevalence and their methods of transmission. This is evident among the students of non-medical colleges.

Prevention is the only safeguard against epidemic of viral hepatitis. Knowing facts and having healthy practice & attitudes are critical to prevent the spread of these infections as symposiums by the researchers to fill the gaps in health education.

## 2. SUBJECTS AND METHODS

#### Aim of the Study

Assess and raise knowledge and practices regarding hepatitis B/C infection risk and means of prevention among University students.

#### Research hypothesis;

-knowledge about prevention of hepatitis B and C will increase significantly among university students post study intervention

-Healthy practices about prevention of hepatitis B and C will increase significantly among university students post study intervention

Research design: quasi-experimental design was used to fulfill the aim of the present study.

#### Setting

The study was conducted in three non- medical faculties (Faculty of Tourism and Hotels, Education and Arts) at Minia University.

#### Subjects:

Convenience sampling (about 300 in first and second year) of fomentioned faculties (100 students from each faculty). Students graduated from these colleges work in different settings so they can assist in spread of healthy practice and correct knowledge during their work which can help in decreasing Egypt's incidence of this disease.

#### Tools of data collection:

Two tools was used

I- Demographic data and hepatitis history questionnaire concerning 8 items included; age, sex, faculty's name, residence, if he/ she is drug users / drinking alcohol, have infection with any type of hepatitis, family history of HCV/HBV infection.

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II- Self-administered questionnaire to assess the students' knowledge & practice about HCV/HBV. It includes two parts, the first part is hepatitis knowledge questionnaire include (28) close end statement about HCV/HBV (include causes, methods of transmission, manifestations, complications, presence of vaccine for prevention, availability of treatment and steps of avoidance). The second part is Hepatitis students' practices tool include (8) three Likert scale statement about students' practice and attitude about HCV/HBV infection (include asking the barber to use a new mousse for him alone; sharing shaving tool with friends; sharing tattoo or cupping tools with others; interchangeable toothbrushes, hair clipper, scissors with family members or friends; asking about sterilization when going to do any medical procedure; use unsterile or used syringes; touch medical waste with bare hands. In addition to, their believes about high incidence of HCV/HBV in Egypt and causes of endemicity of HCV; their risk for getting infection and sources of their information).

#### Scoring system;

For knowledge tool, the scores of each item ranged from zero to 1 (correct answer 1, wrong answer and don't know zero). The total knowledge score was calculated by summation of all knowledge items with total score (28) was computed. Therefore the participants who get 75% or more were considered to have good knowledge, the participant get ( $\geq 21/28$ ), and if the participants get from 60% to less than 75% considered to have average knowledge score (14 to less than 20 degree) and less than 60% were considered to have poor knowledge.

For practices tool, every element in reported practices was categorized into three rates; 2 for always, 1 for sometimes and zero for rarely. Practice was considered unsatisfied (less than 60 percent) less than 10/16 and satisfied (if 60 percent and more)  $\geq 10/16$  mark according to the actual practice for each study subject.

<u>A pilot study</u> was carried out before starting data collection on 10% of university students who were excluded from the sample. The tools were administered to 30 students. The aim of pilot study was to test the clarity of the tools and to estimate the time required to fill the sheets which was 20-30 minute according to the needed explanation. Based on the result of pilot study, the necessary modification in the sheets was done.

#### Tools validity:

The content validity of the data collection tools was determined through an extensive review of national and international literature related to hepatitis. The tools were submitted to five experts in medical surgical nursing and community health nursing to test their validity. The tools were examined for content coverage, sequence of items, clarity, relevance, applicability, wording, length, format, and overall appearance. Based on experts comments and recommendations; minor modifications had been made such as rephrasing, adding and rearrangements of some sentences.

**Tools Reliability:** Internal consistency of interview questionnaire was assessed with the Cronbach's alpha coefficient. Cronbach's alpha coefficient of 0.00 indicates no reliability and a coefficient of 1.00 indicates perfect reliability. However, a reliability coefficient of 0.70 is acceptable. Cronbach's alpha for reliability testing was performed for each tool and the results was as represented in table (A).

#### Table (A): Cronbach's alpha for 2nd tool:.

Tool two	Cronbach's Alpha
1st part; Knowledge tool	0.879
2nd part; Students' practices tool	0.895

**Ethical considerations:** A written approval obtained from the ethics and research committee of the Faculty of Nursing, in addition to written approval from deans of the selected faculties, Minia University. Oral consent was obtained from each participant after explaining the nature & objectives of the study to gain their cooperation. Each assessment sheet was coded and subjects' names were not appearing on the sheets for the purpose of anonymity and confidentiality. Subjects were free to withdraw from the study at any time.

#### Procedure

The researchers began current study by preparing tools, in addition to obtaining formal agreement. Collection of study data was done after obtaining permission and taking an appointment from the Vice Dean for Education and Students Affairs at the selected faculties who helped the researchers in selecting the appropriate time in the study schedule for the

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students in each faculty. The researcher begins session with clarifying the aim and helping students to know why they should fill the study tool in the beginning.

After students complete filling the study tools, the researcher begins short session about knowledge and healthy practice about HCV/HBV.

The tools contain different statements some of it is right and others are wrong to assess students' misconception about HCV/HBV. After that open discussion is permitted to know different questions related to this diseases, and for the second time students fill the second tool. The total data collection was done over a period of 4 months starting from April 2018 and stopped because beginning of final exam and its preparation then return in October to December 2018.

#### Statistical Design

The data analysis was carried out using SPSS-21 of statistical software. Descriptive analysis, T- test, Pearson correlation and Chi-square were used. Statistical significance was considered at P. value <0.05.

#### Limitations of study:

Little limitations were found in conducting this study. First, participants in this study may not represent the total number of students in Upper Egypt. Second, all survey data were based on a self-report questionnaire. However, the current study helps to demonstrate a significant lack of knowledge and practice regarding HCV / HBV among an important part of the future society and can be applied to design similar studies among students in other colleges as well as in other universities.

Researchers found some difficulties to have free time during the study schedule in multi-divisional (non-medical) colleges.

#### 3. RESULTS

*Table (1)* shows that, majority of study sample were females, live in urban area, not drugs users / drinking alcohol and not conduct any investigation for hepatitis previously (92.7%, 92%, 92.7% and 77.7% respectively). All participants were young aged with mean age ( $20.4 \pm 0.93$  Yrs.) & not have infection with hepatitis. Seventy eight percent of study sample have no family history of hepatitis.

Table (2) clears that there is high statistical significance difference between participants ' general knowledge about HCV/ HBV before and after intervention ( $P=.000^{**}$ )

Table (3) shows that there is ignorance of some mode of HCV/HBV transmission among study sample as about one fourth of them do not know that touching blood or body fluid from infected person without gloves, needle stick injury, use non-sterile dental or endoscopic instruments, homosexual and heterosexual can transmit HCV/HBV. Significant increase in participants' knowledge about mode of HBV & HCV transmission (P=.000\*\*).

Table (4): shows that there are some hazard practices among majority of study participants including sharing barber tools, sharing personal belongings with family members/ friends, not ask for sterilization when do medical procedure, use of unsterilized or used syringe, touch the medical waste with bare hand (81.6%, 100%, 91.7%, 92%, 100%, 100% respectively). There were significant increase in participants' knowledge about safe & healthy practices for self-prevention of HCV/ HBV post intervention ( $P=.000^{**}$ ).

Table (5) reveals that there is positive correlation between students' knowledge and practices.

Figure (1) clears that 53.3% of participants gain their knowledge from internet, 23.7% from T.V, 15% from relatives and 8% from health team members.

Figure (2) displays that only 6.6% have good knowledge scores in pretest compared with 85% posttest with high statistical significance.

Figure (3) illustrates that, majority of participants (92%) have unsatisfactory practices in pretest compared with 90% post intervention.

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#### 4. DISCUSSION

Exposure to blood borne pathogens such as HBV and HCV infection remains a significant hazard, especially in countries where this infection is highly prevalent. Knowledge, attitudes and practices surveys form a useful tool to ascertain the problem, suggest solutions, and form policies **[10]**. The world health organization (WHO) seeks to achieve the goal of viral hepatitis elimination by 2030 and lack of general knowledge about viral hepatitis seems to be a barrier to reaching this goal [11].

The result of the present study pointed to average knowledge about HCV/HBV among study sample as majority of them (77%) reported that it is caused by viral B/C infection and its manifestations not presented in all infected persons, however about half of them can not differentiate between HCV/HBV in there availability of treatment/ vaccine and nearly all of them (92.7%) do not know HCV/HBV complications before intervention. This is consistent with [12] who mentioned that, the levels of knowledge and attitude towards hepatitis B and C were low among respondents.[7] added that it is obvious in non-biological sciences students. [13&14] mentioned that awareness about complications and consequence of hepatitis B was poor in their study population.

Concerning mode of HCV/HBV transmission before application of intervention protocol, the result of this study found some participants do not know that touching blood or body fluid from infected person without gloves can expose them to infection (21.7%), needle stick injury (39.7%), use non-sterile dental or endoscopic instruments (23%), homosexual & heterosexual (39.7%) are mode of transmission. In addition to certain misconception reported by participants include HCV/HBV can be transmitted through saliva, contaminated food or water or through shaking hands and communication (55%, 61.7%, 23% respectively). While after application of intervention protocol there is significant increase in participants' knowledge about mode of HCV/HBV transmission (P=.000\*\*).

This is in congruent with [15] who found that about (40.62%) of students were unaware that contaminated blood, contaminated needles, unprotected sex with an infected person, and birth to an infected mother are all modes of HBV transmission. Also, [16] reported that the knowledge about transmission of Hepatitis B was low among overall medical and health science students. [17] Mentioned that there is a prominent lack of awareness regarding the risk factors for HBV and HCV infection among the student community of nonmedical universities in Karachi. Students had some misconceptions about disease transmission and treatment [14].

Conversely, **[18]** found that majority of the responses indicate adequate knowledge regarding some modes of HBV transmission for example (needle stick injuries 92.4%, blood 87.0%). [7& 19] noted that majority of students in their study reported that shaking hands and communication don't transmit the infection. Misconceptions and confusion regarding HCV/HBV transmission that persists among the participants may hinder with their safety and might lead to harmful events for them and their families because HBV has unique virulent infectious characteristics [20]. This may be related to presence of many types of viral hepatitis with different cause & mode of transmission that make difficult to non-specialist to differentiate between them.

Regarding students' knowledge about HCV/HBV preventive measures, the present study displayed that only one third of participants reported all preventive measures before intervention protocol while in posttest it was found that 100% of study sample know all preventive measures of HCV/HBV. Similarly, 30% of the Chinese health care workers did not have knowledge that vaccination and avoiding needle reuse are two potent means for the prevention of HBV in the study by[21].

Prevention is the only safeguard against epidemic of viral hepatitis. Knowing facts and having proper attitudes and behaviors are critical to prevent the spread of these infections [7]. [22] reported that increase public awareness of viral hepatitis prevention is one step of Egyptian national plan of action for the prevention, care & treatment of viral hepatitis.[19] found that vaccination; use of disposable syringes, use of sterilized instruments and practicing safe sex could prevent Hepatitis B infection according to 34%, 30%, 13% and 6.5% vaccinators respectively. Awareness towards prevention and control of these diseases is necessary among both educated and illiterate people[23].

Concerning practices relevant to HCV/HBV prevention the result of study showed that there are some hazardous practices among majority of study participants including sharing barber tools (81.6%), sharing personal belongings with family members (77.3%), not ask for sterilization when do medical procedure (92%), use of unsterilized or used syringe (54%), this is significantly changed after implementation of the intervention protocol.

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In this regards, [8] revealed that 11.4% of the participants were not always using sterilized disposable syringes when required. One fifth of the students did not ask barbers to use new blades for shaving or hair cutting and only 18.4% of the sample shared personal belongings (razors, towels, and toothbrushes). [7] Mentioned that biological sciences group was more informed about HCV/HBV prevention than the non-biological-sciences group.

The current study results revealed that, two thirds (66.4%) of students had poor total knowledge scores in pretest compared with (85%) have good knowledge score posttest with high statistical significance.

The findings are in consistent with the finding of [23] who stated that, there was a significant improvement of knowledge following the health education sessions. [7] Added that knowledge; attitude and practice studies are useful steps to assess extent to which an individual is in a position to adopt a disease risk-free behavior for this disease. [24] Cited that there was weakness in general knowledge about viral diseases (AIDS and HBV) among students. Conversely, [8] found that 57.8% of the participants had sufficient knowledge about B and C viral hepatitis. This could be attributed to conduction of present study in non-medical students who did not take any health related topic in their curriculum, the increase of knowledge in posttest can be attributed to the planned teaching session which was effective in improving the knowledge of students.

Our study showed that more than half (53.3%) of students gain their knowledge about HCV/HBV from internet followed by T.V. (23.7%). Dissimilarly, [25] reported that mass media (62%) was the main source of information, followed by knowledge from school (12%). While [7] mentioned that the main source of information was television.

The current study revealed that the majority (92%) of students had unsatisfactory practices level in pretest while in posttest majority (90%) of students has satisfactory practices level. In the same line, [26] stated that 94.3 % of the students reported that they will change their habits to prevent the transmission of HCV/HBV infection including avoid sharing personal belongings as (glass, razor, teeth breach, scissors) with other. Also the majority of students reported that, they will be participating in health education for other and conduct periodic screening (95. 9%; 80.5 % respectively).

However, recent studies showed low level of practice among studied participants regarding being screened or vaccinated [27, 28 &29]. Poor practice with risk behaviors toward HCV/HBV lead to increase students' exposure to such silent deadly chronic infection in young age which can greatly affect them in their early life, decrease their outcomes and increase HCV/HBV incidence in our community. Furthermore this study revealed that there is positive correlation between students' knowledge and practices. Similarly in Fayoum, Egypt [30] noticed increase in the scores of knowledge and practice with significant correlation between knowledge, practice and educational level.

## 5. CONCLUSION

Simple teaching session about HCV/HBV (risk factors, mode of transmission and prevention) significantly improve knowledge and practice among non-biological sciences students with positive correlation between knowledge and practice.

**Recommendations;** Prevention is the only safeguard against spread of viral hepatitis infection, so public health education using all effective mediums to conduct nationwide awareness about HCV/HBV among Egyptian. Establish and support positive attitude towards prevention of HCV /HBV. Awareness campaigns to be launched for various community factions responsible for transmission of such serious diseases. The necessary abbreviated knowledge should be mentioned at all educational levels to avoid such infectious diseases among children and adult till endemic state is finished. Enforce a mandatory immunization policy amongst adults and university students are helpful in HBV prevention. Activate the role of community nurse in educating and spreading health awareness.

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#### APPENDICES-A

#### List of Tables:

 Table (1); Percentage Distribution of demographic characteristic and hepatitis history among study sample

(n=300)

Variables	No	%				
Age (years):						
-19-20	158	52.7				
-21-22	142	47.3				
Mean ± SD	$20.4 \pm 0.93$	$20.4\pm0.93$				
Sex						
-Female	278	92.7				
- Male	22	7.3				

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Residence		
-Urban	276	92.0
-Rural	24	8.0
Drug users / drinking alcohols		
- Yes	22	7.3
- No	278	92.7
Infected with hepatitis		
-yes	0	00.0
-No	300	100.0
Students' family history of hepatitis		
-yes		
-No	66	22.0
If yes note type of hepatitis	234	78.0
-HCV		
- Don't know type of hepatitis	21	31.8
	45	68.2
Investigations done for hepatitis		
-Yes	67	22.3
-No	233	77.7
Type of investigation for hepatitis		
-PCR	45	15.0
-Don't know	255	85.0

## Table (2); Percentage Distribution of General knowledge about HCV/HBV among Study Sample pre and post intervention (n=300)

Conorol knowledge about UCV/UDV		est	Post test		Chi squara	Dyelue
General knowledge about HC V/HB V	Ν	%	Ν	%	Cm-square	r value
HCV/HBV caused by infection with viral hepatitis C/B					68.75	0.000001**
-Yes						
-No	231	77.0	299	97.3		
-Don't know	45	15.0	0	00.0		
	24	8.0	1	0.3		
Reason of high prevalence of HCV in Egypt					362.1	0.000004**
-Ignorance of mode of transmission						
-Lack of vaccine against disease	208	69.3	29	9.7		
-Use of contaminated tools						
-All previous causes	44	14.7	0	00.0		
	24	8.0	30	10		
	24	8.0	241	80.3		
Manifestations of disease doesn't appear on some infected					258.3	0.000002**
persons						
-Yes						
-No	231	77.0	300	100.0		
-Don't know	21	7.0	0	00.0		
	48	16.0	0	00.0		
There is vaccine for HBV					200.5	0.000002**
-Yes	157	52.3	300	100.0		
-No	0	00,0	0	00.0		
- Don't know	143	47.7	0	00.0		
There is vaccine for HCV					422.8	0.000003**
-Yes	157	52.3	00	0.00		
-No	0	00.0	270	90.0		
-Don't know	143	47.7	30	10.0		
There is treatment for HBV					245.4	0.000002**
-Yes	187	62.3	31	10.3		
-No	28	9.3	255	85.0		
-Don't know	85	28.4	14	4.7		

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There is treatment for HCV					133.6	0.000001**
- Yes	179	59.7	269	89.7		
- No	0	00.0	31	10.3		
- Don't know	121	40.3	0	00.0		
Preventive measures include;					262.3	0.000002**
-Avoid sharing personal items	117	39.0	33	11.0		
-Avoid share drug needles	24	8.0	35	11.7		
-Clean blood spills with detergent	22	7.3	12	4.0		
-Not sharing tattoos/body piercings tool	22	7.3	0	0.0		
-Practice safe sex						
-All previous steps	20	6.7	33	11		
	95	31.7	187	62.3		
HCV / HBV Complications include					578.9	0.000003**
-Cancer liver						
-Liver cirrhosis	22	7.3	31	10.3		
-Don't know	0	0	0	00.0		
-All previous steps	278	92.7	0	00.0		
	0	00.0	269	89.7		

## Table (3); Percentage Distribution of participants' knowledge about mode of HCV/ HBV transmission pre and post intervention (n=300)

Mode of HRV & HCV transmission		test	Post test		Chi-square	P value
whole of fild v & file v transmission	Ν	%	Ν	%		
Transmitted through touching blood or body fluid from						
infected person without gloves.						
-Yes						
- No/ don't know						
	235	78.3	291	97.0	240.8	0.000001**
	65	21.7	9	3.0		
Transmitted through contaminated food or water						
- Yes						
- No/ don't know	165	55.0	0	0		
	135	45.0	300	100.0	202	0.000002**
Transmitted through shaking hands and communication						
- Yes						
- No/ don't know	21	7.0	0	00.0		
	279	93.0	300	100.0	347.9	0.000002**
Transmitted through saliva						
- Yes	185	61.7	30	10.0		
- No/ don't know	115	38.3	270	90	165.9	0.000001**
Transmitted through use non-sterile dental or						
endoscopic instruments						
- Yes						
- No/ don't know	231	77.0	300	100.0	258.3	0.000002**
	69	23.0	0	00.0		
Transmitted through transfusion of infected blood						
- Yes						
- No /don't know	255	85.0	300	100.0		
	45	15.0	0	00.0	289	0.000002**
Transmitted through sharing syringes						
- Yes						
- No /don't know	231	77.0	300	100.0	258.3	0.000002**
	69	23.0	0	00.0		
Transmitted through breast feeding						
- Yes						
- No /don't know	157	52.3	31	10.3	125.25	0.000001**
	143	47.7	269	89.3		

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Transmitted through homosexual and heterosexual						
- Yes						
- No / don't know	136	45.3	240	80.0		
	164	54.7	60	20.0	73.8	0.000001**
Transmitted through immune deficiency diseases and						
infant born with infected mother						
- Yes						
- No / don't know	255	85.0	300	100.0		
	45	15.0	0	0	187.6	0.000002**
HCV transmitted through sexual contact with infected						
persons						
-Yes	234	78.0	31	10.3		
-No / don't know	66	23.0	269	89.7	260.5	0.000002**
HBV transmitted Through sexual contact with infected						
persons						
- Yes	234	78.0	300	100.0		
- No / don't know	66	23.0	0	00.0	260.5	0.000002**

## Table (4); Percentage Distribution of participants' practices regarding HCV/HBV transmission before and after the intervention (n=300)

Self-reported practices	Pre test		est Post test		Chi-	P value
	Ν	%	Ν	%	square	
Asking barber to use new blades for shaving or hair						
cutting?						
-Always	96	32.0	150	50.0		
-Sometimes	204	68.0	150	50.0		
-Never	0	00.0	0	00.0	179.2	0.000002**
Sharing barber tools						
-Always	0	00.0	0	00.0		
-Sometimes	245	81.6	0	00.0	464.9	0.00003**
-Never	55	18.4	300	100.0		
Sharing cupping &tattoo drawing tools						
-Always	0	0.0	0	0.0		
-Sometimes	45	15.0	66	22.0		
-Never	255	85.0	234	78.0	330.8	0.000003**
Sharing personal belongings (razors, towels, tooth brush)						
with family members						
-Always	232	77.3	0	00.0		
-Sometimes	68	22.7	0	00.0		
-Never	0	00.0	300	100.0	442.1	0.000003**
Sharing personal belongings (razors, towels, tooth brush)						
with friends						
-Always	25	8.3	0	00.0		
-Sometimes	250	83.4	0	00.0		
-Never	25	8.3	300	100.0	469.2	0.000002**
Ask for sterilization when do medical procedure						
-Always	0	00.0	150	50.0		
-Sometimes	24	8.0	90	30.0		
-Never	276	92.0	60	20.0	254.8	0.000002**
Use of unsterilized or used syringe						
-Always	162	54.0	0	00.0		
-sometimes	138	46.0	0	00.0		
-Never	0	00.0	300	100.0	376.4	0.000003**
Touch the medical waste with bare hand						
-Always	24	8.0	0	0		
-Sometimes	276	92.0	0	0		
-Never	0	00.0	300	100.0	533.8	0.000003**

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Table (5) Correlation between overall scores of students' knowledge and practices in pre/ post-test (n=300)

	Practice							
Knowledge	Pre – test		Post – test					
	r	Р	R	Р				
Pre – test	.144	0.001**						
Post-test			0.234	0.000**				

#### List of Figures:

Figure (1); Percentage Distribution of Participants' Source of knowledge about HBV and HCV (n=300). It clears that 53.3% of participants gain their knowledge from internet, 23.7% from T.V, 15% from relatives and 8% from health team members.



Figure (2) Percentage Distribution of Participants' total knowledge about HBV/HCV pre and post intervention (n=300), displays that only 6.6% have good knowledge scores in pretest compared with 85% posttest with high statistical significance.



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Figure (3) Percentage Distribution of Participants' Total practices about HBV and HCV pre and post intervention (n=300). It illustrates that, majority of participants (92%) have unsatisfactory practices in pretest compared with 90% post intervention.

