

Current Status of Knowledge and Preventive Practices among Hepatitis C patients in Twin Cities of Pakistan

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ABSTRACT

Objective: To determine the knowledge and preventive practice adopted by hepatitis C patients and the impact of hepatic C infection on their lifestyle.

Methods: A cross-sectional survey was conducted in hepatic wards of tertiary care hospitals of Islamabad and Rawalpindi. A validated and reliable questionnaire was used comprised of 23 questions was administered to 370 patients admitted in the hepatic ward in tertiary care hospitals. For qualitative variables, frequencies and percentages were calculated. The inferential results were obtained using the Chi-square test. All analyses were performed using SPSS version 25.0 (IBM Corporation, Armonk, New York, USA). Statistical significance was defined as a two-tailed p value < 0.05 .

Results: Among 370 respondents, 350 responded to the questionnaire providing a response rate of 94.6%. The majority of the respondents, 306 (87.4%), were practicing infection control practices while 44 (12.6%) were not practicing the infection control practices. A significant association was seen between patients' age, education, sex, and preventive practice. Among respondents, 162 (46.3%) had poor knowledge of the HCV infection, while 188 (53.7%) had good knowledge about Hepatitis C. Moreover, the study also reveals that knowledge of Hepatitis C has a significant relationship with preventive practices.

Conclusions: In conclusions, most of the respondents showed a high level of hepatitis C knowledge and practiced infection control practices. It is also determined from this study that Hepatitis C negatively impacted the psychological status of patients.

Keywords: Hepatitis C, Infection, Knowledge, Practice, Patients

INTRODUCTION

Hepatitis has become a major public health issue all around the globe. Hepatitis carries high morbidity, stressing medical resources and posing a severe economic burden(1). Worldwide, hepatitis is a serious problem and a significant cause of acute and chronic hepatitis, hepatocellular carcinoma, and cirrhosis(2), which affect almost 2 billion people. Many studies have indicated that over 20-30 years, about 10-20% of hepatitis C patients develop cirrhosis(3). This shows that most people do not develop any symptom for an extended period of time and lives with asymptomatic and progressive liver disease. Knowing about the HCV infection and the factors that contribute to HCV transmission is important for both patients and health care professionals. Hepatitis C virus is a blood-borne infection, and due to its asymptomatic nature, most of its cases remain undetected(4). In most parts of the world, hepatitis C viral infection is endemic, affecting more than 200 million people, which is 3.30% of the world population(5). According to WHO, each year, 308,000 deaths due to liver cancer are alone caused by HCV, and 3-4 million new cases are detected(6).

The factors most commonly associated with HCV infection transmission include unsafe use of therapeutic injections and a blood transfusion from unscreened donors(7). HCV is resilient and capable of surviving in drug preparation equipment such as syringes, needles, filters, and water for few days to a week(8). Pakistan is a developing country and with a low literacy rate and health standards. Unsterilized syringes, medical equipment, and cultural practices such as acupuncture therapy are common risk factors in HCV transmission in Pakistan(9). After Egypt, Pakistan rank as the world's second-highest hub of HCV infections. A survey conducted in 2007 found that 7% of people in the province of Punjab had hepatitis C. In District Mardan, Khyber Pakhtunkhwa (KPK) area of Pakistan, the prevalence of HCV was reported as 3.66% (10).

Pakistan is one the country in Asia with more than 10 million people with HCV [1]. Despite this, only a few studies have been conducted which determined the knowledge and preventive practice of HCV among patients. Studies have been conducted, and they showed that both awareness and preventive practice are significant factors in maintaining care in patients with HCV (11). Patients awareness of symptoms, disease severity, monitoring,

and treatment are important factors needed for appropriate recognition, self-care and adherence to follow-up (12). By understanding the knowledge and lifestyle practice of patients following diagnosis, health professionals can provide patient-centered care. They can help patients and their families to understand the disease better and also helps them to improve their quality of life as possible. Therefore, this study is conducted to determine the knowledge and practice of patients towards HCV infection.

METHODOLOGY

Study setting and participants: A cross-sectional study was conducted in hepatic wards of Islamabad and Rawalpindi from December 2020 – May 2021 to assess the patient's knowledge and preventive practice towards the Hepatitis C virus. The hospitals included in this study are Holy Family Hospital, Pakistan Institute of Medical Sciences, Kalsoom International Hospital, Benazir Bhutto Shaheed Hospital, and District Head Quarter Hospital.

Sampling Technique and Sample size: An online list of hospitals of Islamabad and Rawalpindi was used from Punjab Medical Faculty, and by simple random sampling, five hospitals were selected. Respondents were selected through convenient sampling. The sample size was determined using the Open Epi version 3 and came out to be 370(13).

Study Instrument: A pretested validated questionnaire was formulated based on a literature review (14, 15). The first version of the questionnaire was drafted in English language and later translated into the Urdu language. The questionnaire comprises three sections. The first sections comprise the patient's demographic information. The second section comprises questions to assess the patient knowledge on HCV infection, and patient preventive practice measures were determined in the last section of the questionnaire. The questionnaire was checked for validity. Internal consistency was checked by Cronbach alpha (0.7) which comes in an acceptable range. Pilot testing was done by distributing the questionnaire to 25 respondents for its acceptability. A slight modification was done after pilot testing. In the final analysis, data from pilot testing was not included.

Ethical Approval: The Ethical approval was obtained from the tertiary care hospitals where the ethical committee was

present. Informed consent was taken from the participants. Respondents who were not willing to participate, who have recovered from the disease, patients with co morbidities and psychiatric patients were not included in this study.

Data Analysis: Information collected from the respondents was entered into the SPSS Version 21, and analysis was carried out in terms of inferential and descriptive statistics. For qualitative variables, frequencies and percentages were calculated. The inferential results were obtained using the Chi-square test. The p-value of less than 0.05 was considered significant.

RESULTS

Demographic information: In this study, questionnaires were distributed among 370 respondents in the hepatic ward of tertiary care hospitals of Rawalpindi and Islamabad. Out of a total of 370 questionnaires, 350 were duly filled, giving a response rate of 94.6%. Among respondents, 205 (58.6%) were males, and 145 (41.4%) were females. 34 (9.7%) of the respondents belongs to the age group of <30, 82 (23.4%), 175 (50.0%) and 59 (16.9%) belongs to age group of 30-39, 40-49 and 50-59 respectively. Among respondents, 108 (30.8%) had a low level of education, 158 (45.1%) of the respondents had medium level education, and only 84(24%) of the respondents had a high level of education (Table 1).

Knowledge of respondents regarding HCV: There were 11 questions regarding patients' knowledge of HCV infection and its control measures, as shown in Table 2. Among Respondents, 214 (61.1%) knew that hepatitis C is caused by a virus, while 80 (22.9%) respondents did not know that it causes it. The majority of respondents, 320 (91.4%), knew that hepatitis C has treatment. Concerning the use of comb of an infected person, 154 (44.0%)

Table 2. Knowledge of respondents towards HCV infection.

		Yes	No	Don't Know
1	A virus causes hepatitis C	214 (61.1)	80 (22.9)	56 (16)
2	Is there a treatment for Hepatitis C	320 (91.4)	30 (8.6)	
3	If you use the comb of a Hepatitis C patient, do you think you will be infected?	154 (44)	176 (50.3)	20 (5.7)
4	Do you think Hepatitis C is transmitted by physical contact such as handshakes?	31(8.9)	319 (91.1)	
5	Hepatitis C is curable	255 (72.9)	54 (15.4)	41 (11.7)
6	A low-grade fever is a symptom of Hepatitis C?	171 (48.9)	179 (51.1)	
7	You should get vaccinated for Hepatitis A and B?	262 (74.8)	51 (14.6)	37 (10.6)
8	Can you share your personal care items with others?	30 (8.6)	318 (90.9)	2(0.5)
9	You should avoid using already used needles and syringes?	322 (92%)	28 (8%)	
10	Avoid contact with blood or blood products of infected person?	342 (97.7%)	8 (2.3%)	
11	Can you share food with an infected person	161 (46.0%)	189 (54.0%)	

Table 3. The preventive practice of respondents towards HCV infection.

		Yes	No
1	Do you cover your wounds?	340(97.1)	10 (2.9)
2	Do you share your equipment with anyone? (nail cutter, razor, toothpaste)	96 (27.4)	254 (72.6)
3	Do you tell your doctor (other) that you have hepatitis c?	340 (97.1)	10 (2.9)
4	Do you donate blood to family members when required?	110 (31.4)	240 (68.6)
5	Do you use contraceptives for safe sex?	129 (36.8)	221 (63.2)
6	Do you break or cover syringes you use before throwing?	302 (86.3)	48 (13.7)
7	Do you tell the barber/ salon staff that you are a hepatitis C patient?	129 (36.9%)	221 (63.1%)

The preventive practice of HCV patients: The majority of the respondents, 340 (97.1%), reported that they cover their wounds. Among respondents, 254 (72.6%) stated that they didn't share their personal equipment with their families. Almost all the respondents (97.1%) reported their illness before any medical interventions, and 302 (86.3) of the respondents used to cover or break the needle before throwing it away, respectively. Among respondents, 240 (68.8%) do not donate blood to their family members or others, while110 (31.4%) think there is nothing wrong with donating blood. Among respondents who were married, most of them were not using condoms during sexual intercourse 221 (63.1%). Only a small proportion of respondents, 129 (36.9%), use to inform their hairdresser or salon staff that they are HCV patients, while 221 (63.1%) did not mention that they had the disease (Table 3).

stated that hepatitis C could spread through the comb of an infected person.

The majority of the respondents, 319 (91.1%), think that a simple handshake cannot spread HCV. Among respondents, 255 (72.9%) knew that hepatitis C is curable, and 262 (74.9%) respondents knew a vaccination for HCV, respectively. Out of 350 respondents, 318 (90.9%) had the knowledge that they should not use their personal equipment with someone, 322 (92%) respondents knew that they should avoid using already used needles and syringes, and 342 (97.7%) respondents had knowledge that they should avoid contact with blood or blood products of an infected person. Among respondents, 161 (46.0%) respondents stated that infection could not be spread by sharing food with an infected person.

Table 1. Demographic Characteristics of respondents.

Demographic variables	Categories	Response n (%)
Age in years	< 30	34 (9.7)
	30-39	82 (23.4)
	40-49	175 (50.0)
	50-59	59 (16.9)
Gender	Male	205 (58.6)
	Female	145 (41.4)
Type of education	Low (matric or less)	108 (30.8)
	Medium (intermediate /simple graduate)	158 (45.1)
	High(university degree)	84 (24)
Type of occupation	Unskilled	16 (4.6)
	Semi-skilled	66 (18.9)
	skilled	137 (39.1)
	Not working	131(37.4)

Overall knowledge of patients regarding HCV Infection: An effort was made to determine the overall knowledge of patients towards HCV. There were 11 questions related to HCV infection knowledge. A score of 1 was given to each correct answer and a score of '0' to each wrong answer. Mean knowledge score was calculated for each respondent, and knowledge was categorized as good and insufficient knowledge. Overall, 162 (46.3%) had poor knowledge of the disease, while 188 (53.7%) have good knowledge about hepatitis C (Figure 1).

The overall preventive practice of hepatitis patients: There were seven practice-related questions. A score of '0' and '1' was given to poor and good practice. Mean practice score was found, and overall preventive practice of patients was determined as good and poor. Overall majority of respondents 306 (87.4%), had a high

level of preventive practices while 44 (12.6%) had a low level of infection control practices.

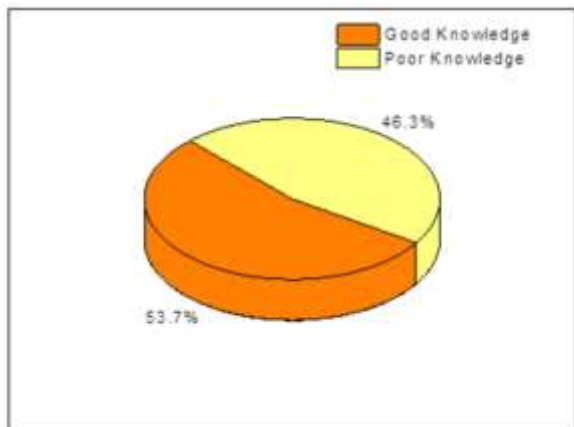


Figure 1. Overall knowledge of respondents towards HCV infection.

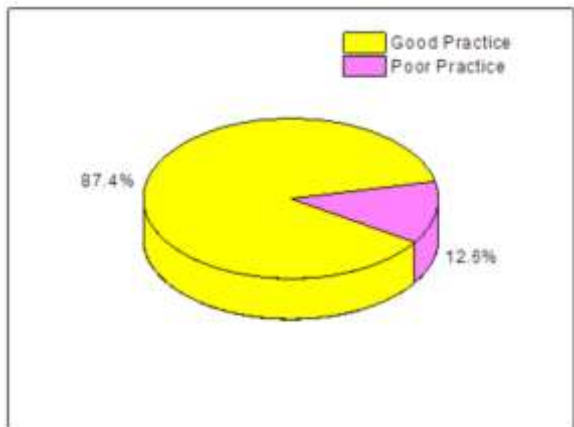


Figure 2. Overall Preventive practice of respondents towards HCV.

Relationship between patient's level of knowledge about hepatitis C and its preventive practices: As shown in Figure 3, a significant association was seen between patients' knowledge regarding HCV and their preventive practices ($p=0.000$). Among respondents who have good knowledge, 98.9% were practicing infection control measures, whereas those with insufficient knowledge, only 74.1% were practicing preventive measures towards infection.

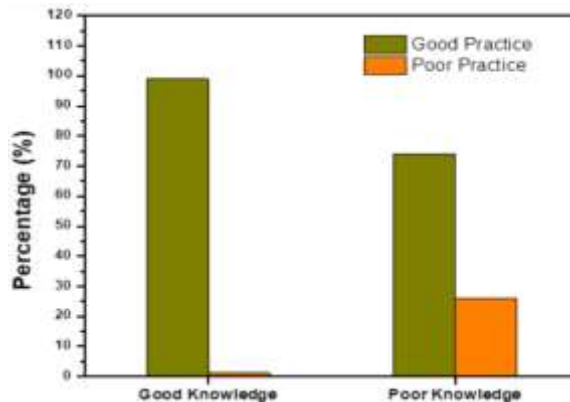


Figure 3. Relationship between patient's knowledge and preventive practice.

Relationship between socio-demographics and preventive practices of Hepatitis C patients: As shown in Table 4, a statistically significant relationship between the patient's age and preventive practices was seen. The highest preventive practices were seen among the age groups of 50-59 and lowest among those under 30 years ($\chi^2=14.661$; $P=0.002$). There is a statistically significant relationship between the level of education and preventive practices. Patients with a high level of education were practicing more than those with middle and low education ($\chi^2=2123.581$ and $P=0.001$). A significant association was also seen between sex and preventive practices. Male patients were practicing more as compared to females ($\chi^2=16.020$ $P=0.001$).

Table 4. Relationship between patient's sociodemographic characteristics and preventive practice.

	Personal and sociodemographic characteristics	Preventive practice score		Chi-square value	Level of significance
		Low	High		
Age	<30	8 (23.6)	26 (76.4)	14.661	$P=0.002^*$
	30-39	8(9.8)	74(90.2)		
	40-49	28(16)	147(84)		
	50-59	0(0)	59(100)		
Sex	Male	38(18.6)	167(81.4)	16.020	$P=0.001^*$
	Female	6(4.1)	139(95.9)		
Education	Low(matric or less)	32 (29.6)	76(70.3)	48.337	$P=0.001^*$
	Medium(intermediate /simple graduate)	45(28.5)	113(71.5)		
	High(university degree)	10(11.9)	74(88.1)		

Impact of HCV infection on the patient's psychological status, diet, and smoking habits: Overall, 58% of respondents report that HCV created a negative impact on their psychological status, and it was significantly more in females than in males (60% vs. 40.3%; $p=0.000$). Among respondents, 55.4% had changed their diet after knowing that they had HCV infection. No significant difference was seen between males and females (59.2% vs. 48.3% $p=0.1$). Overall, 160 patients smoked regularly before being diagnosed with HCV infection. Afterward, 68% said that they had stopped or limited the number of cigarettes they smoked. The mean age of respondents who stopped and limited smoking were significantly younger than those who did not (38.1 vs. 47.2 $p=0.03$) (Figure 4).

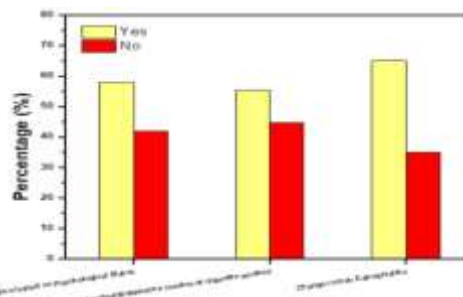


Figure 4. Impact of HCV on patient's psychological status, diet, and smoking.

DISCUSSION

Hepatitis C infection is a major and growing health issue in Pakistan, with the second-largest proportion of HCV cases globally. This high prevalence brings negative economic and clinical consequences on the lives of patients and their families. Several studies have been conducted in Pakistan to identify the Hepatitis C infection knowledge among the general population but not in individuals infected with HCV (14, 16-18). Therefore, in this study, information was collected from HCV-positive patients admitted in hepatic wards in tertiary care hospitals for the first time to determine the knowledge about HCV infection, preventive practice, and how it affected the patient lifestyle.

In this study, 87.4% of the patients had high preventive practices regarding hepatitis C infection, in contrast to a survey conducted in Alexandria where only 22.2% of the patients had high preventive practices towards hepatitis C infection(19). This study also found that patients' knowledge of HCV infection had a significantly significant impact on the preventive approach as knowing about the disease and proper attitude is very important to the spread of the infection, and it is also seen in the previous studies(19, 20). In this study, respondents who have good knowledge, 98.9%, were practicing infection control measures. The findings are inconsistent with the studies conducted in other countries(15). Previously studies have been conducted in which misconception regarding the spread of disease through the use of comb and handshaking was seen but in this study majority of the respondents knew that HCV infection cannot be spread by handshake and use of comb of hepatitis C patients(21-23). Majority of the patients in this study possess good knowledge towards hepatitis C infection. We think that the reason behind this might be that they are admitted in hospitals, and their doctors have already given them information.

Regarding the association of demographic characteristics with the practice towards hepatitis C infection, we found that factors such as education, age, and sex significantly affect the practice of HCV infection. In the present study statistical significant difference was seen between the education of patients and preventive practice. Respondents with a high level of education were practicing more infection control measures; this might be due to their high education, which makes them easily understand the information of disease. In many other studies, also significant association was seen between the level of education and preventive practices(16, 24). In our study, females showed high practice to prevent HCV infection as compare to males.

In contrast, studies conducted in Ethiopia and Italy showed that males have a high level of practice to prevent hepatitis C infection than females(15, 25). Age of the patient is one of the epidemiological factors that had an important effect on a person's behavior to adhere to the practices that prevent infection control. Current study results showed that high preventive practices were among the older patients (50 or above); however, the least score was found among the youngest people (age less than 30). This can be because individual experiences increase with the age, and they had more chances to get aware of the practices that can positively impact their health. The same results were found in other studies. It was concluded that the patient's age is a significant factor contributing to the adherence to practices that prevent hepatitis C infection (19, 26, 27).

One of the aspects determined in this study was the impact of HCV infection on the patient diet. About 55.4% of the patients stated that they changed their diet after being diagnosed with the HCV infection, which is inconsistent with the study conducted in Italy, where 50% of the patients change their diet after being diagnosed with HCV infection (28). It is also worth emphasizing our findings on the impact of HCV on the psychological status of patients. A profound negative impact was reported on the psychological status of 58% of the patients. Similar results were obtained in other studies conducted previously(28, 29). Regarding the protective measure in sexual behavior, 33.7% of the patients reported using contraceptives for safe sex. Similar results

regarding the basic precaution in sex among HCV patients were seen in a study conducted in Italy(28).

CONCLUSIONS

This study reveals the hepatitis C patient's knowledge and practices towards the disease. Overall, patients in this study showed a high level of knowledge and were practicing preventive measures. A significant association was seen between patient age, sex and education, and preventive practices. It is also concluded from this study that Hepatitis C negatively impacted the psychological status of patients. Although this study provided a strong some strong points, it has some limitations. The present study is hospital-based and gives only a general picture of patients' knowledge and preventive practice; hence, its results cannot be generalized to the whole population. Further studies should be conducted on a national level to evaluate the patient knowledge and preventive practices towards hepatitis C infection.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Competing interests: The authors declare that they have no competing interests.

Ethics Approval: Ethics for this study was granted by the Institutional Review Board at Quaid-i-Azam University (36028-PIO-MSPH).

Author's contribution: All authors contribute equally.

REFERENCES

1. Mitra S, De A, Chowdhury A. Epidemiology of non-alcoholic and alcoholic fatty liver diseases. *Translational gastroenterology and hepatology*. 2020;5.
2. Maasoumy B, Wedemeyer H. Natural history of acute and chronic hepatitis C. *Best practice & research Clinical gastroenterology*. 2012;26(4):401-12.
3. Amarapurkar D. Natural history of hepatitis C virus infection. *Journal of Gastroenterology and Hepatology*. 2000;15:E105-E110.
4. Raja NS, Janjua KA. Epidemiology of hepatitis C virus infection in Pakistan. *Journal of Microbiology Immunology and Infection*. 2008;41(1):4.
5. Bostan N, Mahmood T. An overview about hepatitis C: a devastating virus. *Critical reviews in microbiology*. 2010;36(2):91-133.
6. Waheed Y, Shafi T, Safi SZ, Qadri I. Hepatitis C virus in Pakistan: a systematic review of prevalence, genotypes and risk factors. *World journal of gastroenterology: WJG*. 2009;15(45):5647.
7. Hajarizadeh B, Grebely J, Dore GJ. Epidemiology and natural history of HCV infection. *Nature reviews Gastroenterology & hepatology*. 2013;10(9):553.
8. Pouget ER, Hagan H, Des Jarlais DC. Meta-analysis of hepatitis C seroconversion in relation to shared syringes and drug preparation equipment. *Addiction*. 2012;107(6):1057-65.
9. Chowdhury A, Santra A, Chaudhuri S, Dhali GK, Chaudhuri S, Maity SG, et al. Hepatitis C virus infection in the general population: a community-based study in West Bengal, India. *Hepatology*. 2003;37(4):802-9.
10. Ali SA, Donahue RM, Qureshi H, Vermund SH. Hepatitis B and hepatitis C in Pakistan: prevalence and risk factors. *International journal of infectious diseases*. 2009;13(1):9-19.
11. Fisher JD, Amico KR, Fisher WA, Harman JJ. The information-motivation-behavioral skills model of antiretroviral adherence and its applications. *Current HIV/AIDS Reports*. 2008;5(4):193.
12. Zevin B. Managing chronic hepatitis C in primary-care settings: more than antiviral therapy. *Public Health Reports*. 2007;122(2_suppl):78-82.
13. Dean A, Sullivan K, Soe M. *OpenEpi: open source epidemiologic statistics for public health*, version. 2014.
14. ul Haq N, Hassali MA, Shafie AA, Saleem F, Farooqui M, Aljadhey H. A cross sectional assessment of knowledge, attitude and practice towards Hepatitis B among healthy population of Quetta, Pakistan. *BMC Public Health*. 2012;12(1):692.
15. Ibrahem A, Mohiadeen F, Babakir-Mina M. Prevalence, Knowledge and Practices of Hepatitis B and C Viruses among Patients Undergoing Surgery in Sulaimani City. *J Rare Disord Diagn Ther*. 2016;2:6.
16. Shalaby S, Kabbash I, El Saleet G, Mansour N, Omar A, El Nawawy A. Hepatitis B and C viral infection: prevalence, knowledge, attitude

- and practice among barbers and clients in Gharbia governorate, Egypt. *EMHJ-Eastern Mediterranean Health Journal*, 16 (1), 10-17, 2010. 2010.
17. Janjua N, Nizamy M. Knowledge and practices of barbers about hepatitis B and C transmission in Rawalpindi and Islamabad. *Journal-Pakistan Medical Association*. 2004;54(3):116-8.
 18. Jamil MS, Ali H, Shaheen R, Basit A. Prevalence, knowledge and awareness of hepatitis C among residents of three union councils in Mansehra. *Journal of Ayub Medical College Abbottabad*. 2010;22(3):192-6.
 19. Fikry FEE-D, Ahmed M, El-Sherbini HH, Saad AM. Preventive practices adopted by hepatitis "C" patients in Alexandria-Egypt. *Life Science Journal*. 2015;12(6).
 20. Khuwaja A, Qureshi R, Fatmi Z. Knowledge about hepatitis B and C among patients attending family medicine clinics in Karachi. 2002.
 21. Kpanake L, Mullet E, Sastre MTM, Sorum PC. Misconceptions about hepatitis C in the Togolese public. *Preventive medicine*. 2009;49(2-3):269-71.
 22. O'Brien S, Day C, Black E, Dolan K. Injecting drug users' understanding of hepatitis C. *Addictive behaviors*. 2008;33(12):1602-5.
 23. Jiwani NS, Gul RB, Ali A, Salih M, Hanzala M. Experiences and perceptions of patients living with hepatitis C in Karachi, Pakistan. *Journal of Transcultural Nursing*. 2013;24(3):297-304.
 24. Asadpour M, Arabbaniassad F, Moazzeni V, Shabani Z, Sayadi A. Assessment of knowledge, attitude, and practice about hepatitis b among patient porters of the training and treatment hospitals of Rafsanjan, 2011. *Galen Medical Journal*. 2013;1(2):60-5.
 25. Ashri NY. Hepatitis B and C knowledge among Saudi dental patients. *Saudi med j*. 2008;29(12):1785-90.
 26. Mohsen M, Fareed ME, El-Sheikh AA, Abbas S. Effect of nursing management protocol on selected side effects of interferon and ribavirin among hepatitis C patients. *Journal of American science*. 2011;7(6):54-63.
 27. Davis KL, Mitra D, Medjedovic J, Beam C, Rustgi V. Direct economic burden of chronic hepatitis C virus in a United States managed care population. *Journal of clinical gastroenterology*. 2011;45(2):e17-e24.
 28. Fabris P, Tositti G, Giordani M, Baldo V, Grasso A, Pignattari E, et al. Assessing patients' understanding of hepatitis C virus infection and its impact on their lifestyle. *Alimentary pharmacology & therapeutics*. 2006;23(8):1161-70.
 29. Grundy G, Beeching N. Understanding social stigma in women with hepatitis C. *Nursing Standard (through 2013)*. 2004;19(4):35.