

REVIEW PAPER

# Exploring the awareness about preventative measures of Hepatitis B & C: A secondary analysis of PDHS 2012-2013

Ume Habiba <sup>1\*</sup>, Anum Awan <sup>2</sup>, Samina Akbar <sup>3</sup><sup>1,2</sup> University of Punjab, Lahore, Pakistan

## Keywords

Married women  
Hepatitis B & C  
Preventative measures  
PDHS

**Received:** 03 February**Accepted:** 15 April 2021**Published:** 28 June 2021

## Abstract

The present study was aimed to explore the awareness regarding preventive measures of Hepatitis B & C among ever-married women in rural & urban areas of Pakistan. This study analyzed the role of socio-demographic characteristics in awareness concerning preventive measures of Hepatitis B & C. The researchers used the health belief model as a theoretical framework. The current study utilized secondary quantitative data of the Pakistan Demographic and Health Survey (PDHS) collected by the National Institute of Population Studies (NIPS) in 2012-13. The current study's sample size was 5661 through random systematic sampling to represent the ever-married women population. The current study revealed that females with secondary and high-level education have more knowledge regarding Hepatitis B and C preventive measures. Moreover, it was found that females living in urban areas are more aware of preventive measures. Further, it has also been found that exposure to mass media, especially watching TV daily, is a significant factor in creating awareness regarding preventive measures among married Pakistani women.

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## INTRODUCTION

### Background of the Research

Hepatitis B and C infection is a significant medical issue around the Globe, explicitly in Africa, Asia, Africa, and other developing countries (Ujjan, Aurangzeb, Memon, Memon, & Memon, 2012). Hepatitis B & C are the hepatotropic viruses leading to important morbidity and mortality throughout the globe (Hafeez-ud din, Lahrasab, & Sharif, 2012). The tenderness of the liver characterizes hepatitis, and both viruses can lead to failure of the liver, cirrhosis of the liver, and can induce the last stage of the liver. Hepatitis C infection can prompt intense hepatitis, ongoing hepatitis or persistent liver sickness, and hepato-cell carcinoma. Previous research shows that the greater part of the HCV infection prompts ongoing liver sickness. A larger part of HCC cases in Pakistan is related to HCV (Al-Noor, Elazomi, Babiker, & Babiker, 2016; Umar & Bilal, 2012). Hepatitis B is a preventable disease, and vaccines are available. Effective vaccines have been available since 1982, but their implementation is still insufficient, while No vaccine is avail-

able for HCV and its treatment cost is very high.

The predominance of Hepatitis B fluctuates in various areas of the globe, especially in Asia, China, Africa, and the Amazon basin (Chen, Wang, & Yu, 2000). 30% of the global population has serological proof of Hepatitis B infection, and 350 million have chronic B form of hepatitis infection, 75% of these infected people are found in Asia, and roughly 1,000,000 die from liver cirrhosis and liver cancer each year (Lee, 1997). Hepatitis C is a transferable viral illness, and it was found in 1989. In 2006 World Health Organization revealed that 130-170 million individuals are chronically infected with HCV; over 350,000 pass on every year Hepatitis C-related sicknesses. The predominance of HCV fluctuates by Western Europe, the Americas, and Australia are viewed as locales of low HCV pervasiveness (< 2%). African and the eastern Mediterranean are regions with the most elevated HCV pervasiveness. In Egypt, the predominance of HCV is more prominent than 14%, the most elevated of any country in the world (Mohamoud, Mumtaz, Riome, Miller, & Abu-Raddad, 2013).

\*corresponding author: Ume Habiba

†email: [habiba\\_malik786@hotmail.com](mailto:habiba_malik786@hotmail.com)

Hepatitis is a genuine medical problem overall, influencing around two billion individuals globally. In Pakistan, many individuals are contaminated with Hepatitis B (10%) and 4-7% hepatitis C (Malik, Kaleem, & Tarique, 1999). Pakistan Medical Research Council led a review in 2007-8 to look at the predominance of Hepatitis in all regions of Pakistan. In this concentrate, around 47000 individuals were screened, and the results that HBsAg and against Hepatitis C infection were observed to be 2.5% and 4.8% separately, with a consolidated contamination pace of HBV and HCV of 7.6%. Results likewise demonstrate that almost 13 million Pakistani are experiencing hepatitis B&C (Farhat, Yasmeen, & Ahmad, 2014).

The number of people suffering from HBV and HCV is increasing rapidly in Pakistan; according to recent data, Pakistan has the world's second-highest hepatitis C propagation. WHO reports 8 million people are recently exposed to hepatitis C virus, PIMS (Institute of Medical Sciences) reported that 2500 patients sought treatment at the hospital every year, and during 2017, 2300 new Hepatitis C patients started treatment from the hospital (Wazir, 2017).

In 2007-8 first national survey was conducted by the government of Pakistan to estimate the propagation of Hepatitis B & C in different areas of Pakistan. The highest rate of HBV was found in Balochistan (4.3%) and 2.5% in Sindh, while the highest prevalence of HCV was found in Punjab(6.7%) and 5.0% in Sindh (Qureshi, Bile, Jooma, Alam, & Afrid, 2010). The percentage of HBV and HCV-infected individuals is high in rural areas due to a lack of education and awareness. Hepatitis virus can be transmitted through blood; those who are receiving injections or dental treatment through unsterilized syringes or instruments or face shaved by street barbers are at increased risk of developing these infections (Khuwaja, Qureshi, & Fatmi, 2002; Salisu,

Muktar, Salisu, Abdulhadi, & Umar, 2017).

Pakistan is a developing country with low education and health standards; the treatment of HBV and HCV is very expensive and can put great pressure on its economy, so it should pay more attention to awareness and preventive measures to avoid the spread of these deadly viruses. We can avoid it by using unused syringes, safe blood transfusion, averting sexual abuse, disinfected shaving and haircutting, and most importantly, vaccination for these viruses.

### Justification of Research

In previous research, awareness regarding preventive measures of hepatitis virus is measured in educational attainment. The current study emphasized the role of mass media in initiating awareness among the masses regarding the hepatitis B and C virus preventive measures. The current study is limited to ever-married women who have to listen to hepatitis B and C, and they believe that it can be avoided by taking several preventive measures.

### Research Objectives

- To analyze the level of exposure with mass media
- To evaluate the awareness related to Hepatitis B & C preventive measures among married women.

### Research Question

What awareness concerning preventive measures among ever-married women vis-à-vis Hepatitis B & C?

### Research Hypothesis

**H1:** Higher the level of exposure to mass media, the higher the knowledge regarding Hepatitis B & C preventive measures.

**H2:** Knowledge regarding preventive measures of hepatitis B and C is significant among urban ever-married women

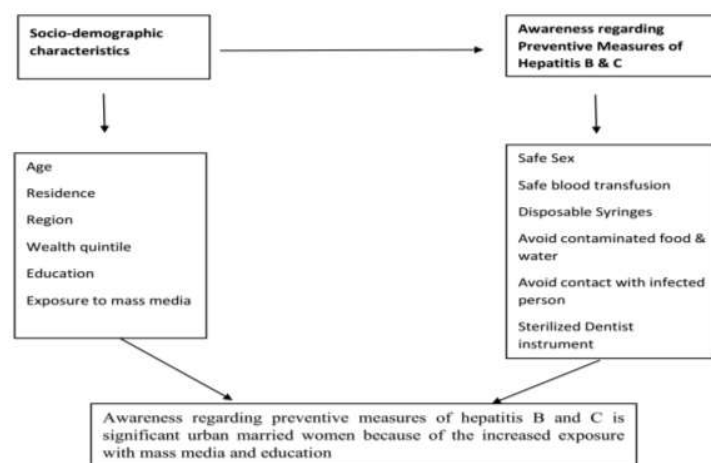
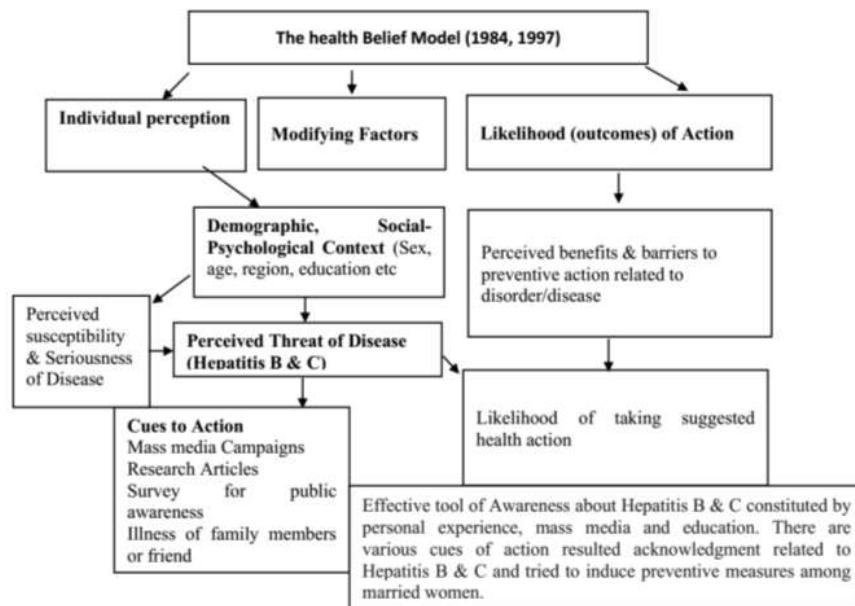


FIGURE 1. Conceptual framework



**FIGURE 2.** Theoretical foundation of research

The researcher has applied the health belief model to understand the nature of hepatitis and the risk of propagation in Pakistan. This model is utilized in health education and promotion (Glanz, Rimer, & Lewis, 2002). The Health Belief Model is a model of Psychology, and this model explains and predicts health behavior. This model gives attention to the attitude and beliefs of individuals. According to Hochbaum (1958), the basic idea of this model is that health behavior is determined by a person's belief or perceptions about any disease and methods to avoid that disease. Health behavior is modified through education and media, modifying factors in the health belief model. The mass media create awareness and knowledge about the risk of hepatitis disease. Furthermore, the media serve as an important health communication vehicle to modify individual health behavior engaged in practices that prevent and curb the rising incidences of the disease.

## RESEARCH METHODOLOGY

The current research study is a quantitative inquiry of the PDHS collected by the National Institute of Population Studies in 2012-13. It was a cross-sectional study, and data were collected through a questionnaire from 13558 ever-married women aged 15-50 years. The researchers have taken 5661 individuals through systematic random sampling technique. The population of the current study is limited to ever-married women.

The survey covered the full history of socio-demographic characteristics of respondents and knowledge regarding preventive measures of Hepatitis B and C., Considering the

aims of the study. The variables were obtained from the data available in the various sections of the survey report specifically dealing with socio-demographic characteristics and knowledge about Hepatitis B and C preventive measures and interpreted through several statistical tests. Socio-demographic factors of the respondents were taken as an independent variable defined with the indicators of age, area of residence, education level, and wealth index. The relationship of the independent variable was then interpreted with the dependent variable computing association between socio-demographic characteristics and perception regarding preventive measures of Hepatitis B and C in rural and urban areas of Pakistan.

Preventive measures of hepatitis B and C were measured through different constructs, including Safe sex, safe blood transfer, use of disposable syringes, contact with contaminated food/water, and infected person. The given variables were calculated and transformed into one variable for analyzing the relationship with background variables. The relationship between dependent and independent variables was interpreted by Univariate and bivariate analysis (Crosstab, Binary Logistic regression)

## RESULTS AND INTERPRETATION

### Univariate Analysis

Table 1 shows that the majority (29%) of respondents belonged to Punjab, urban area (55.6%), between the age group of 25-29 (19.6%), are illiterate (43.1%) and rich (34.5%). As far as access to mass media is concerned, (62.5%) respondents do not read newspapers/magazines,

(79.4%) do not listen to the radio, and (55%) women reported that they watch television daily. Among the sample of 5661, women gave mixed responses on statements regarding ways to prevent hepatitis B and C. Majority (94.6%) of women agreed that hepatitis could be avoided by using sterilized dentist instruments. A majority (80.9%) said the

best way is to have safe sex, (80.6%) said contact should be avoided with an infected person, (80.2%) said safe blood transfer could also be the best way to avoid hepatitis B and C, (73%) said disposable syringes are helpful and (55.4%) said hepatitis B and C could be avoided by not using contaminated food/water.

**TABLE 1.** Socio-demographic characteristics of ever-married women with reference to PDHS 2012-13 ( $n = 5661$ )

Variables	Valid %	Variables	Valid %
Region		Reading newspaper/Magazine	
Punjab	29.0	Not at all	62.5
Sindh	18.8	Occasionally	27.8
KPK	20.1	Once a week	3.3
Balochistan	13.7	Daily	6.3
Gilgit	6.7	Watching Television	
Islamabad (ICT)	11.7	Not at all	22.7
Type of Residence		Occasionally	19.6
Urban	55.6	Once in a week	2.0
Rural	44.4	Daily	55.7
Age in 5 years		Avoid getting Hepatitis by Safe Sex	
15-19	2.9	No	80.9
20-24	13.8	Yes	19.1
25-29	19.6	Avoid getting Hepatitis by Safe Blood Transfer	
30-34	18.2	No	80.2
35-39	18.3	Yes	19.8
40-44	14.4	Avoid getting Hepatitis by disposable syringe	
45-49	12.8	No	73.0
Education	Yes	27.0	
No education	43.1	Avoid getting Hepatitis Avoid contaminated Food/Water	
Primary	14.0	No	55.4
Secondary	21.7	Yes	44.6
Higher	21.2	Avoid getting Hepatitis by avoiding contact with the infected person	
Wealth Quintile	No	80.6	
Poorest	10.5	Yes	19.4
Poorer	14.8	Avoid getting Hepatitis by using sterilized dentist instruments	
Middle	18.6	No	94.6
Richer	21.6	Yes	5.4
Richest	34.5	Mass Media: Listening Radio	
Not at all	79.4		
Occasionally	16.3		
Once a week	1.0		
Daily	3.3		

### Bivariate Analysis

Table 2 Bivariate cross-tabulation and binary logistic regression analysis between socio-demographic characteristics of the ever-married women and knowledge regarding preventive measures of Hepatitis B & C.

Table 2 shows that the majority (26.8%) women living in Punjab, from urban areas (57.6%) with no education (40.6%), higher at wealth index (36.3%) and between the

age group of 25-29 (19.5%) have more knowledge regarding preventive measures of hepatitis B and C.

Binary logistic regression analysis between the dependent variable, i.e., awareness about preventive measures and socio-demographic characteristics of the respondents, indicated that odds of awareness about preventive measures are significantly .595 times and .768 times lower among the women living in Punjab and Sindh as compared to the

women living in Islamabad. On the other hand, the odds of awareness are significantly 1.459 times higher among the women living in urban areas than the women living in rural areas.

The odds of awareness about preventive measures are sig-

nificantly 1.217 times higher among women who reported their education primary, significantly 1.383 times greater among women who reported their education secondary, and significantly 2.418 times greater among women who reported their education higher than the illiterate women.

**TABLE 2.** Socio-demographic characteristics of ever-married women with reference to PDHS 2012-13 ( $n = 5661$ )

Variables	Knowledge Regarding Preventive Measures		Binary logistic regression		
	No	Yes	Sig	OR	CI 95%
<b>Region</b>					
Punjab	37.2%	26.8%	.000	.595	474-.746
Sindh	14.1%	20.1%	.214	1.178	.909-1.526
Khyber Pakhtunkhwa	21.3%	19.8%	.034	.768	.602-.980
Balochistan	13.2%	13.9%	.284	.865	.663-1.128
Gilgit Baltistan	4.3%	7.3%	.065	1.398	.979-1.995
Islamabad (ICT)	10%	12.1%	1		
<b>Type of Residence</b>					
Urban	48.2%	57.6%	.000	1.459	1.283-1.659
Rural	51.8%	42.4%	1		
<b>Education</b>					
No education	52.3%	40.6%	1		
Primary	14.6%	13.8%	.045	1.217	1.005-1.474
Secondary	20.5%	22%	.000	1.383	1.170-1.636
Higher	12.5%	23.5%	.000	2.418	1.990-2.938
<b>Age in 5 years</b>					
15-19	3.8%	2.6%	1		
20-24	15.4%	13.4%	.233	.801	.861-1.847
25-29	19.9%	19.5%	.065	.902	.978-2.061
30-34	18.8%	18.1%	.082	.885	.958-2.025
35-39	17.2%	18.5%	.020	.992	1.072-2.274
40-44	13%	14.8%	.011	1.047	1.120-2.423
45-49	11.9%	13%	.022	1.574	1.066-2.334
<b>Wealth Index</b>					
Poorest	13%	9.8%	1		
Poorer	16.9%	14.2%	.343	1.125	.882-1.434
Middle	20.4%	18.1%	.160	1.182	.936-1.492
Richer	21.7%	21.6%	.016	1.325	1.053-1.667

Data also indicated that odds of awareness were reported significantly 1.574 times higher among the women who belong to the age group 45-49 compared to the women who reported their age between 15-19 years of age. Binary logistic regression analysis indicated that the odds of awareness are significantly 1.325 times higher among richer and significantly 1.721 times higher among richest compared to poorer women.

Binary logistics regression analysis between access to newspaper, radio, and TV indicated that the odds of awareness about preventive measures are significantly 1.676

times higher among the women who read newspapers occasionally and significantly 2.250 times higher among the women who read newspaper daily as compared to the women who don't read the newspaper.

In addition, the odds of awareness are also significantly 1.301 times higher among the women who listen to the radio occasionally compared to the women who don't listen to the radio. Researchers also found that the odds of awareness about preventative measures are also significantly higher among the women who watch TV daily than the women who don't watch TV daily.

**TABLE 3.** Bivariate cross-tabulation and binary logistic regression analysis between exposure to mass media and knowledge regarding preventive measures of hepatitis B and C among ever-married women aged 15-49.

Variables	Preventive Measures			Binary Logistic Regression	
	No	Yes	Sig	OR	CI 95%
<b>Newspaper/magazines</b>					
Not at all	72%	60%		1	
Occasionally	21.2%	29.5%	.000	1.676	(1.434-1.958)
Once a week	3.1%	3.4%	.127	1.335	(.921-1.936)
Daily	3.7%	7%	.000	2.250	(1.626-3.114)
<b>Radio</b>					
Not at all	82.3%	78.7%		1	
Occasionally	13.6%	16.9%	.005	1.301	(1.082-1.564)
Once a week	1.1%	1.0%	.774	.913	(.489-1.704)
Daily	3.0%	3.4%	.309	1.214	(.835-1.764)
<b>Television</b>					
Not at all	27.9%	21.3%		1	
Occasionally	21.1%	19.2%	.070	1.191	(.986-1.438)
Once a week	3.2%	1.7%	.098	.709	(.472-1.066)
Daily	47.8%	57.8%	.000	1.585	(1.358-1.850)

**TABLE 4.** Multiple binary logistic regression analysis between socio-demographic characteristics of the ever-married women and knowledge regarding Hepatitis B & C preventive measures

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
	OR 95%	aOR 95%	aOR 95%	aOR 95%	aOR 95%
<b>Education</b>					
No education	1	1	1	1	1
Primary	1.223	1.194	1.118	1.257*	1.150
Secondary	1.564**	1.467**	1.349**	1.583**	1.332**
Higher	3.278**	2.965**	2.682**	3.279**	2.570**
<b>Access to mass media</b>					
No	1		1		1
Yes	1.393**	1.304**	1.225*	1.491**	1.284**
<b>Type of residence</b>					
Urban		1.314**			1.156
Rural		1			1
<b>Wealth Index</b>					
Poorest			1		1
Poorer			1.225		1.175
Middle			1.369**		1.281
Richer			1.521**		1.442**
Richest			1.721**		1.645**
<b>Region</b>					
Punjab				.782	.829
Sindh				.762	.820
KPK				1.101	1.164
Balochistan				1.015	1.093
Gilgit Baltistan				1.172	1.378
Islamabad (ICT)				1	1

### Multivariate Analysis

Table 4 shows that in multivariate binary logistic regression analysis, education, mass media, and wealth remained

a significant determinant of knowledge regarding preventive measures, but region and type of place lost significance in the last model.



Mass media and wealth are significant determinants in the combined multivariate education model. However, education is the strongest determinant (aOR 2.570\*\*), the second strongest is wealth (aOR 1.645\*\*) and mass media (aOR 1.284) is the third strongest determinant.

## DISCUSSION AND CONCLUSION

The findings of the current study justify the theoretical foundation of the research. The current study revealed that education and mass media are significant factors in creating awareness regarding preventive measures among married Pakistani women. Binary logistic analysis showed that awareness about preventative measures is significantly higher among the women who watch TV daily. The odds

of awareness about preventive measures are significantly 1.217 times higher among women who reported their education primary, significantly 1.383 times higher among women who reported their education secondary, and significantly 2.418 times higher among women who reported their education higher compared to the illiterate women. Education, mass media, and wealth are significant determinants in the combined multivariate model. However, education is the strongest determinant (aOR 2.570\*\*), the second strongest is wealth (aOR 1.645\*\*) and mass media (aOR 1.284) is the third strongest determinant. This study suggests that the cues of action, i.e., level of education and facilities of mass media, should be increased.

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