Original Article

Influence of Education, Wealth Index and Electronic Media on Hepatitis B and C awareness: Pakistan Demographic And Health Survey 2012-13

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Objective: To assess hepatitis B and C awareness in the country, and special focus was to find influence of wealth index, education and electronic media on knowledge and awareness of hepatitis B and C and spread among men and women.

Methods: For this study data was obtained from countrywide Pakistan Demographic and Health Survey (PDHS) 2012-2013. From selected 12,943 households, 3,134 men and 13,558 women of 15 to 49 years of age were interviewed. The information on hepatitis B and C awareness was analysed with health index, education and electronic media exposure. SPSS Multinomial Logistic Regression Model was used for statistical significance and relationship and p-value of 0.05 was regarded statistically significant.

Results: Showed that with increase in education level and wealth, awareness about hepatitis B and C increased among men and women. Electronic media had an impact on hepatitis B and C awareness. Men and women who did not listen to radio and watch TV at all had lower hepatitis B and C awareness than those who watched TV and listened to radio. Men and women who watched TV daily had more awareness about hepatitis B and C than those who watched TV occasionally. There was more statistical significance of frequency of watching TV and education levels than frequency of listening to radio and wealth index.

Conclusions: Education, wealth index and electronic media have influence on hepatitis B and C awareness among men and women. Radio and TV can play an important role in creating awareness, in minimum time, about hepatitis B and C, spread and prevention which will pave the way to eliminate hepatitis by 2030 from the country.

Keywords: hepatitis B, hepatitis C, Pakistan, electronic media, education.

Introduction

Hepatitis B and C are viral liver infections, caused by B and C viruses and main causes of primary liver cancer which is the second most common cancer in the world. World Health Organisation (WHO) estimates that about 788 000 people die worldwide every year from primary liver cancer.[1] Hepatitis B Virus (HBV) can survive outside the body for at least 7 days. It is commonly spread from mother to child at birth, mucosal exposure to infected blood, saliva, menstrual, vaginal and seminal fluids. The incubation period of HBV is 75 days on average but could be from 30 to 180 days. Hepatitis B can be prevented by vaccine which is 95% effective in preventing the infection, chronic disease and liver cancer.[2]

Hepatitis C virus (HCV) is a bloodborne virus and is transmitted through exposure to small quantities of blood. The spread is usually through injection drug use, unsafe/contaminated health care, transfusion of unscreened blood and its products. It is rarely transmitted sexually and from an infected mother to her baby. The incubation period of HCV is from 2 weeks to 6 months. There is currently no vaccine for hepatitis C.[3] It is an estimation that about 257 million people, globally, are living with HBV infection. Hepatitis B prevalence is the highest in the World Health Organisation (WHO) Western Pacific Region and African Region. WHO estimated that 887 000 worldwide deaths in 2015 were due to hepatitis B and its complications.[2] WHO estimated that approximately 399 000 people die each year, globally, from hepatitis C and 71 million people in the world have chronic hepatitis C infection which will develop into cirrhosis or liver cancer. The most affected areas are WHO Eastern Mediterranean and European Regions.[3] Hepatitis B and C have become major public health problems in Pakistan. It has been estimated that every 13th Pakistani has HBV or HCV infection and about 15 million people have hepatitis B and C viruses in their bodies.[4] In Pakistan, all forms of viral hepatitis are present and there is also transmission. It is an estimation that 4-5% of its population is infected with viral hepatitis and the country has one of the highest

rates of hepatitis C virus infection in the world.[5]

A study in Pakistan indicated that HBV infected persons had no information about the HBV infections risk factors, its control and treatment. This clearly warns the spread of the infection so there must be educational campaigns at all levels to create awareness among the communities about risk factors, prevention and management.[6]

In Pakistan, currently 88 satellite TV and 143 commercial Frequency Modulation (FM) radio channels are working with permission of Pakistan Electronic Media Regulatory Authority (PEMRA) [7]. Mass media can be productive to enhance awareness and should be used for health education.[8] Electronic media, television and radio, is an important source of knowledge and awareness in Pakistan. Effective electronic media campaigns are needed to be started for awareness about factors of HBV, HCV infections, mode of spread, treatment and prevention to save population.[9] For the last few years, large number of electronic media channels have been established in very short time in Pakistan. People are getting information about fashion, political issues, science research, current affairs, games etc. Now a day's electronic media has become a powerful tool to change thinking and behavior. In terms of audience, both television and radio have significant reach in the country.[10] There is moderate to high prevalence of hepatitis B and hepatitis C patients in different areas of Pakistan.[11] This alarming situation should be addressed by special plans to control hepatitis B and C spread. Nowadays different multilingual programmes, on different topics, are available and are listened by radio and watched through television (TV) in the country. So, by taking an advantage of these electronic media channels and programmes, awareness can be created about hepatitis B and C related protections.[12] Who is combating and making its efforts to eliminate hepatitis B and C by 2030 and Pakistan through its National Hepatitis Strategic Framework (NHSF) with a clear set of targets and objectives is determined to achieve goal of eliminating hepatitis B and C by 2030[13] Pakistan's NHSF will annually increase diagnosis and treatment of Hepatitis B and C cases, treatment regimens and distribution, enhance blood safety, ensure hepatitis B vaccination to infants, children and high-risk groups to reduce the incidence of hepatitis in the country.[14] Main objective of the study was to assess hepatitis B and C awareness in the country, and special focus was to find influence of wealth index, education and electronic media on knowledge and awareness of hepatitis B and C and its spread among men and women.

Methods

Pakistan Demographic and Health Survey (PDHS) 2012-2013, from October 2012 to April 2013, was countrywide survey conducted under the authority of Ministry of National Health Services, Regulations and Coordination with financial support from the United States Agency for International Development (USAID). National Institute of Population Studies (NIPS) implemented it with technical support from ICF International and the Pakistan Bureau of Statistics (PBS). The survey was based on nationally representative sample from four provinces, Islamabad capital territory and Gilgit Baltistan. This was the third in the series of Demographic and Health Surveys conducted in Pakistan. Trained teams visited the selected houses, interviewed men and women in their own languages and filled questionnaire forms. The teams were properly monitored. Total selected 12,943 households were approached for interviews and 3,134 men and 13,558 women of 15 to 49 years of age were interviewed. Statistical Package for the Social Sciences (SPSS) version 21 was used for cross tabulation of independent and dependant variables and statistical analysis was done by Multinomial Logistic Regression Model for statistical significance, association and relationship of hepatitis B and C awareness categories with wealth index, electronic media exposure and education. A p-value of <0.05 was considered statistically significant. Highest education level was categorised into: (1) No Education (2) primary (3) secondary (4) Higher. No education means no formal education in a school. Primary refers to school classes from1-5, Secondary denotes to high school classes from 9-10 and Higher refers to college classes 11-16. Every class means study year in school/ college/university. The creation of wealth index in this survey was based on data collected in the household questionnaire. The wealth index was constructed by using data on household's ownership of selected assets like televisions, car, motorcycles and bicycles; availability of electricity; materials used for housing construction; rooms of house; types of drinking water source and sanitation facilities. All things were combined into a single wealth index. They were then divided into five groups of equal size, based on their relative standing on the household wealth index. Every household asset detail was given a weight or factor score generated through principal

components analysis.[15] The categories for wealth index included:
(1)Poorest (2)Poorer (3) (4) Richer (5) Richest
There were two categories of electronic media exposure (1) Frequency of listening to radio (2) Frequency of watching television. The answers for both categories were: (1) Not at all (2) Occasionally (3) Daily. The categories for hepatitis B and C awareness were: (1) Ever heard about Hepatitis (2) Avoid getting Hepatitis by: safe sex (3) Avoid getting Hepatitis by: safe blood transfer (4) Avoid getting Hepatitis by: disposable syringe (5) Avoid getting Hepatitis by: avoid contact with infected person (6) Avoid getting Hepatitis by: dentist instruments sterilized. There were two options to all questions (1) No (2) Yes

Results

Education influence on hepatitis Band C awareness:
Table-1 shows overall marked high hepatitis B and C awareness among men and women of higher education level than uneducated men and women. Hepatitis B and C awareness increased with increase in education level among men and women.
Wealth Index effect on hepatitis B and C awareness:
Table-2 shows that the richest men and women had the highest awareness about hepatitis B and C, and the poorest men and women had the lowest awareness about hepatitis. Among men and women, with increase in wealth hepatitis B and C awareness increased. Men of all economic groups had more hepatitis awareness than women.
Hepatitis B and C awareness by electronic media exposure:
Table-3 reveals that overall men and women who listened radio and watched TV had more hepatitis B & C awareness than men and women who did not listen radio and watched TV at all. Daily and occasionally men and women radio listeners had almost same hepatitis awareness. Both men and women who watched TV daily had more awareness about hepatitis and its prevention than men and women who occasionally watched TV. Electronic media exposed men had more hepatitis awareness than electronic media exposed women.
Statistical significance and relationship:
Table-4 shows statistical significance and relationship of hepatitis B and C awareness with wealth index, education levels and electronic media, radio and TV, exposure. Results of likelihood ratio tests, in the table, illustrate that education levels and frequency of watching TV are more statistical significant than frequency of listening radio and wealth index.
Frequency of listening to radio had no association and statistical significance with ever heard about Hepatitis. Wealth index was not statistical significant and related with awareness about hepatitis avoidance by safe sex.
(SPSS Multinomial Logistic Regression Analysis, likelihood ratio tests results)

Table-1: Awareness of hepatitis B and C among men and women related to education levels.

Hepatitis awareness among men (N=3132)	Yes responses related to education levels in %			
	No Education	Primary	Secondary	Higher
Ever heard about Hepatitis	83.4	97.7	93.3	98.7
Avoid getting Hepatitis by: safe sex	6.8	12.1	16.4	25.7
Avoid getting Hepatitis by: safe blood transfer	7.9	13.0	19.3	30.6
Avoid getting Hepatitis by: disposable syringe	10.0	13.0	0.617	39.3
Avoid getting Hepatitis by: avoid contact with infected person	6.5	7.2	6.8	10.6
Avoid getting Hepatitis by: dentist instruments sterilized	0.4	0.2	0.4	2.2
Hepatitis awareness among women (N=13542)				
Ever heard about Hepatitis	81.2	90.1	92.4	97.1
Avoid getting Hepatitis by: safe sex	6.6	10.0	10.8	16.7
Avoid getting Hepatitis by: safe blood transfer	4.9	8.6	12.2	25.0
Avoid getting Hepatitis by: disposable syringe	7.7	10.4	16.7	31.1
Avoid getting Hepatitis by: avoid contact with infected person	8.7	8.9	10.2	11.6
Avoid getting Hepatitis by: dentist instruments sterilized	1.1	1.9	3.6	7.5

Table-2: Hepatitis B and C awareness among men and women related to economic status.

Hepatitis awareness among men (N=3132)	Yes responses related to wealth index in %				
	Poorest	Poorer	Middle	Richer	Richest
Ever heard about Hepatitis	83.9	87.3	92.5	95.0	96.5
Avoid getting Hepatitis by: safe sex	8.2	10.5	15.2	17.5	23.0
Avoid getting Hepatitis by: safe blood transfer	7.6	15.0	17.0	21.3	26.1
Avoid getting Hepatitis by: disposable syringe	9.2	17.4	22.5	25.9	32.2
Avoid getting Hepatitis by: avoid contact with infected person	6.1	9.1	8.7	8.0	7.1
Avoid getting Hepatitis by: dentist instruments sterilized	0.2	0.4	0.8	1.1	1.3
Hepatitis awareness among women (N=13542)					
Ever heard about Hepatitis	73.1	81.4	88.1	91.0	95.4
Avoid getting Hepatitis by: safe sex	5.0	7.5	8.5	10.1	13.0
Avoid getting Hepatitis by: safe blood transfer	3.2	5.2	7.3	9.3	18.4
Avoid getting Hepatitis by: disposable syringe	5.7	7.8	10.5	13.1	22.9
Avoid getting Hepatitis by: avoid contact with infected person	6.4	9.6	11.4	11.0	8.3
Avoid getting Hepatitis by: dentist instruments sterilized	0.4	1.0	1.8	2.6	5.6

Table-3: Hepatitis B and C awareness by electronic media, radio and TV exposure.

Hepatitis awareness among men (N=3134)	Yes responses in %					
	Frequency of listening to radio			Frequency of watching TV		
	Not at all	Occasionally	Daily	Not at al	Occasionally	Daily
Ever heard about Hepatitis	91.8	91.0	88.0	85.1	90.3	94.3
Avoid getting Hepatitis by: safe sex	16.6	14.3	11.6	10.6	12.3	20.0
Avoid getting Hepatitis by: safe blood transfer	17.6	19.1	23.1	13.8	13.5	22.9
Avoid getting Hepatitis by: disposable syringe	21.3	24.7	28.6	17.5	18.1	27.8
Avoid getting Hepatitis by: avoid contact with infected person	6.4	10.4	9.5	4.5	7.3	9.3
Avoid getting Hepatitis by: dentist instruments sterilized	0.4	1.9	0.7	0.4	0.4	1.3
Hepatitis awareness among women (N=13537)						
Ever heard about Hepatitis	85.8	89.5	90.5	78.8	87.5	91.0
Avoid getting Hepatitis by: safe sex	8.7	11.8	13.4	7.3	10.3	10.0
Avoid getting Hepatitis by: safe blood transfer	8..3	16.3	14.4	4.5	8.7	13.1
Avoid getting Hepatitis by: disposable syringe	12.1	18.2	15.4	6.1	12.81	17.5
Avoid getting Hepatitis by: avoid contact with infected person	9.5	8.8	10.8	9.8	8.7	9.6
Avoid getting Hepatitis by: dentist instruments sterilized	2.4	3.1	6.9	1.1	1.9	3.8

Table-4: Statistical significance and association of IVs with DVs.

Hepatitis B and C awareness (Dvs)	Electronic media exposure, wealth index and education levels (IVs)							
	Frequency of Listening to radio		Frequency of watching TV		Education levels		Wealth	
Men and women responses	Chi-square	P-value	Chi-square	P-value	Chi-square	P-value	Chi-square	P-value
Ever heard about Hepatitis	10.300	0.113	309.266	<0.001	98.754	<0.001	236.897	<0.001
Avoid getting Hepatitis by: safe sex	47.412	<0.001	89.313	<0.001	190.937	<0.001	19.446	0.113
Avoid getting Hepatitis by: safe blood transfer	89.471	<0.001	2.5.936	<0.001	280.976	<0.001	38.656	<0.001
Avoid getting Hepatitis by: disposable syringe	52.711	<0.001	266.973	<0.001	301.918	<0.001	32.549	<0.001
Avoid getting Hepatitis by: avoid contact with infected person	42.485	<0.001	1093.489	<0.001	168.659	<0.001	70.829	<0.001
Avoid getting Hepatitis by: dentist instruments sterilized	48.105	<0.001	132.623	<0.001	198.552	<0.001	30.334	<0.001

Discussion

The results of this study reveal that with increase in education level and economic status, awareness about hepatitis B and C and its prevention increased among men and women. Uneducated and the poorest men and women had the least hepatitis awareness. The richest and higher education level women and men had the highest hepatitis B and C awareness. More awareness about hepatitis and its prevention was seen among men and women who daily watched TV than those who watched TV occasionally. Men and women who watched TV and listened radio were more aware of hepatitis B and C and prevention than men and women who did not watched TV and listened radio at all. Frequency of watching TV and education levels had more statistical significance than frequency of listening to radio and wealth index. Wealth has a large effect on health. It is particularly valuable in countries that lack reliable data on income and expenditures, which are the traditional indicators to measure household's economic status. The wealth index has an impact on health related issues of the poor. Wealth index also helps governments to evaluate whether public health services, vaccination campaigns, health education, and other essential interventions are reaching the poorest. Education levels and exposure to electronic media have also impact on awareness about diseases and protection from them. This study shows that economic status was also an important factor in hepatitis B and C awareness. The awareness of hepatitis increased with increase in socio-economic status. A study in Pakistan also endorsed our study that with increase in income in households, there was increase in hepatitis awareness and would decrease chance of HCV infection.[16] This study shows that educated persons had more knowledge of the HBV and HCV infections, mode of spread and prevention. A study in Pakistan showed the same results and found that education is very important factor to increase the level of awareness among men and women about hepatitis B and C. Although vaccination information and knowledge were less among respondents.[17] Electronic media can create awareness about the disease and vaccination of HBV in very less time. This study found that increase in education level and economic status, increase hepatitis B and C awareness. A study in Pakistan endorsed this study and showed that frequency of Hepatitis B and C in urban population was 31. 58% while it was 68.15% in rural population.[18] According to Pakistan's census 2017, predominant majority population 132.189 million or 63.6% lives in rural areas. People living in rural areas in Pakistan are deprived, have lesser education institutions than urban areas, and economic status is lower than urban areas people. This indicates that there is great need to create hepatitis awareness among rural areas residents. A study in Pakistan to evaluate the treatment given for hepatitis B and C through national programme revealed that there was no proper follow-up of the treatments. Only 45.4% HVC infected persons completed 6 months of treatment while 10.58% HBV infected patients completed the treatment. This shows lack of awareness and knowledge, among patients, about HBV and HCV infection, treatment and complications risks.[19] Studies in Pakistan established that household contact, dental procedures, surgical procedures, sexual contact, blood and its components transfusion [20], injections from practices run by quacks, tattoos, nose and ear piercing, unhygienic health delivery practices, lack of awareness about hepatitis B and C spread [21], use of unsterilized injections for medical treatments and visit to community barbers were the main risk factors for the increased prevalence of hepatitis B and C. Education and awareness among communities about hepatitis B and C, spread and protection would be helpful in minimising the infections prevalence.[22] A study examined different information sources related to Health Belief Model for hepatitis B virus (HBV) knowledge and screening among Asians and found that 31.7 per cent respondents got information about HBV from TV and 33.8 % from friends. This shows that by using electronic media, awareness can be increased as direct information from TV and sharing knowledge from friends contributed in increase in HBV awareness.[23] A study in Pakistan about hepatitis B showed that major sources of knowledge were parents (57%) and television (56%), doctors (30%) teachers and peers (29%). So electronic media directly and indirectly created awareness. Television and parents, who also watched TV, were the most influential sources of communicating health education.[24] This study reveals that men and women who had no radio and TV sources had lesser hepatitis B and C awareness. A study also showed the similar results and found out that the most common source for knowledge and awareness of HBV was television or radio.[25] The results from another study showed that the radio was the most accessed source of information for HBV, and the churches/mosques were the least sources for information/awareness.[26]

In this study radio was also the most accessed source of information for hepatitis B and C awareness.This study shows that radio and TV were very important in creating awareness about hepatitis B and C. An evaluation study showed that the mass media campaign successfully increased public information about hepatitis C and improved knowledge about the mode of its transmission. Mass media campaigns have valuable role in awareness about hepatitis.[27]

The incidence of Hepatitis B and C viral infections in Pakistan are increasing dramatically due to multiple factors. There is a great need to educate people about risk factors and preventive measures to control these infections [28]. This study found that increase in education level and socioeconomic status have role in hepatitis awareness. It is nearly impossible to educate uneducated persons and increase in education levels and economic status of a family will need lot of time. While hepatitis B and C awareness in very short time is possible through electronic media usage. Plenty of radio and TV channels in the country can play crucial role in hepatitis B and C awareness and control.

Male and female representation in PDHS 2012-13 was very disproportionate. So, it was not possible to make any comparison between these two groups.

Conclusion

Education, wealth index and electronic media have influence on hepatitis B and C awareness among men and women. Radio and TV can play an important role in creating awareness, in minimum time, about hepatitis B and C, spread and prevention which will pave the way to eliminate hepatitis by 2030 from the country.

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