

## How to Prevent Hepatitis B in Pakistan: Role of Social Marketing

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### Abstract

Hepatitis B is a deadly infectious disease, which is increasing now days in Pakistan. This disease is also rooted in the poverty and illiteracy. There are huge discrepancies in health conditions between rural and urban areas and among different socio-economic strata, played role in increased burden of this deadly disease. Furthermore, multiple social and cultural barriers are prevailing in the country might have played an important role in increasing the burden of this disease in the society. The most important step is to target high risk groups including injection drug users, health workers and recipients of blood transfusion. The first step is to change the behaviour of these high risk groups through education and counselling by adapting the innovative approaches. One of these strategies is social marketing, which might help people to change their behaviour. Thus, the purpose of this review was to use the social marketing approach as the innovative strategy to change the behaviour of people. This change in behaviour might play role in preventing the epidemics of hepatitis B across the world and particularly in developing countries.

**Keywords:** Hepatitis B; Social marketing; Prevention; Pakistan

### Introduction

Communicable diseases have led to various social, health and economic consequences for the society [1]. In 20th century many viral diseases have threatened human population on the globe and Hepatitis B is one of these viral diseases, which is still posing a big threat to human lives.

Despite the availability of vaccine, disease is still spreading due to multiple unavoidable factors. This disease will remain a threat to human life unless societies get sensitized to the importance of preventive medicine [1].

Hepatitis B is a disease which is caused by virus and it causes inflammation of the liver [2]. Hepatitis B virus is a hepadnavirus-hepa from hepatotropic and DNA because it is a DNA virus--and it has a circular genome composed of partially double-stranded DNA [3]. The viruses replicate through an RNA intermediate form by reverse transcription, and in this respect they are similar to retroviruses.

Although replication takes place in the liver, the virus spreads to the blood where virus-specific proteins and their corresponding antibodies are found in infected people. Serological tests for these proteins and antibodies are used to diagnose the infection [4].

Hepatitis B virus causes the inflammation of the liver and human beings are the only reservoir of this virus [5]. It is highly fatal when diagnosed late earlier and not treated on time [6]. Chronic hepatitis B can cause liver damage which can lead to many lethal outcomes like chronic hepatic insufficiency, cirrhosis, hepatocellular carcinoma and even death [7].

Main threat of this disease is due to its multiple modes of transmission [7]. Although the main route of transmission is through

blood but it can be transmitted through sexual contact and vertically from mother to child [7].

The underlying factors in transmitting Hepatitis B through blood is the reuse of syringes, tattooing with unsterilized instruments, practice of shaving at barbers shops, exposure to unsterilized surgical and dental instruments in hospitals and dental clinics, nose/ear piercing, ritual circumcision, acupuncture and unscreened blood transfusion (Figures 1 and 2) [8,9].

Risk also increases among those who have multiple sexual partners [10]. It has been proved that Hepatitis B can also be transmitted by sharing nail cutters and sharp combs [9]. Lack of awareness about these transmitting agents can create much other risky behaviour due to insufficient knowledge among population [9].

Moreover, South Asian countries share certain common risk factors for the transmission of viral hepatitis due to non-implementation of international best practices, for example, therapeutic injections from reused needles and syringes, unscreened blood donations, shaving by barbers, sharing of needles by injecting drug users, reuse of needles for ear and nose piercing, tattooing, and improperly sterilized dental and surgical instruments [11,12].

Moreover, the frequency of therapeutic injections from reused needles is more in Pakistan as compared to other South Asian countries and this also pose a risk to health care providers who deal with the patients.

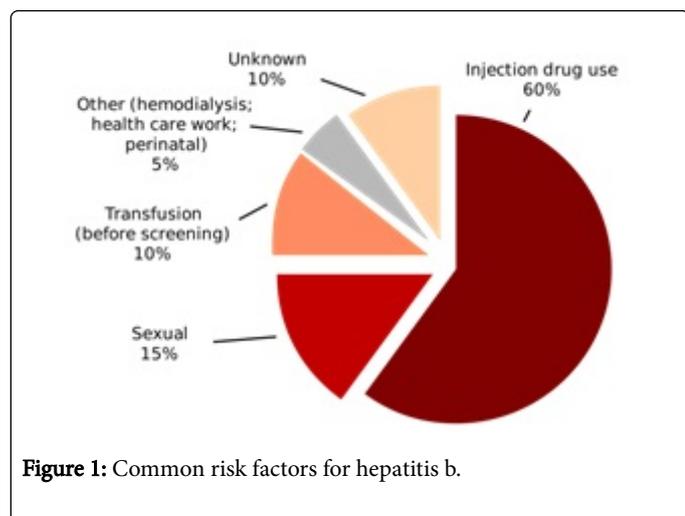


Figure 1: Common risk factors for hepatitis B.

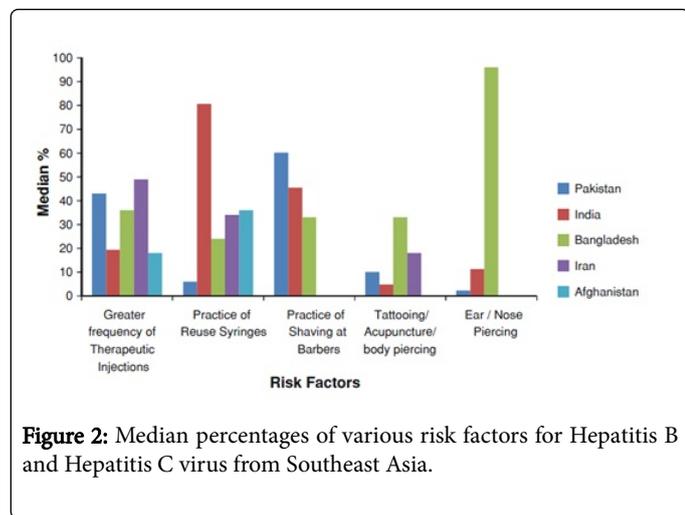


Figure 2: Median percentages of various risk factors for Hepatitis B and Hepatitis C virus from Southeast Asia.

There is no proper treatment for an acute infection of hepatitis B virus and available treatment is very time consuming and expensive (interferon and many antiviral therapies), which is used in treating chronic stage of disease [13]. This disease can only be prevented by vaccine and by taking precautionary measures [14]. Hepatitis B vaccine contains one of the viral envelope proteins, hepatitis B surface antigen (HBsAg). It is produced by yeast cells, into which the genetic code for HBsAg has been inserted. A course of three vaccine injections is given intramuscularly with the second injection at least one month after the first dose and the third injection given six months after the first dose. This is followed by an immune system response with the development of antibody to HBsAg in the bloodstream. The antibody is known as anti-HBsAg, which provides immunity against hepatitis B infection [15].

The first vaccine became available in 1981 and range of vaccines is available in the market. Presently recombinant DNA vaccines are available, produced by inserting the gene for HBV into common baker's yeast where it is grown, harvested, and purified. Unlike polio vaccine, HBV infection cannot occur after receiving hepatitis B vaccine [16].

## History of Out Breaks

Earliest record of an epidemic caused by hepatitis B virus was made by Lurman in 1885. An outbreak of smallpox occurred in Bremen in 1883 and 1,289 shipyard employees were vaccinated with lymph from other people. After several weeks, and up to eight months later, 191 of the vaccinated workers became ill with jaundice and were diagnosed as suffering from serum hepatitis. Other employees who had been inoculated with different batches of lymph remained healthy. Lurman's paper, now regarded as a classical example of an epidemiological study, proved that contaminated lymph was the source of the outbreak. Later, numerous similar outbreaks were reported following the introduction, in 1909, of hypodermic needles that were used, and more importantly reused, for administering Salvarsan for the treatment of syphilis. The virus was not discovered until 1965 followed by sequencing of genome in 1980s and testing of vaccines [17].

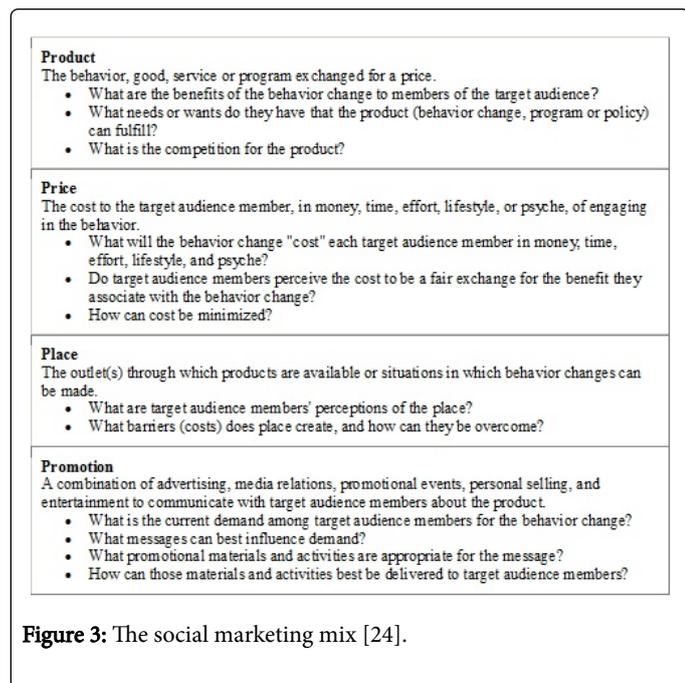
## Epidemiology of Hepatitis B

Originally known as "serum hepatitis", the disease has caused epidemics in parts of Asia and Africa, and it is endemic in China. Hepatitis B virus (HBV) infection is a serious global health problem, with 2 billion people infected worldwide, and 360 million suffering from chronic HBV infection resulting in 500,000 to 1.2 million deaths per year caused by chronic hepatitis, cirrhosis, and hepatocellular carcinoma; the last accounts for 320 000 deaths per year [18]. In 2004, an estimated 350 million individuals were infected worldwide. National and regional prevalence ranges from over 10% in Asia and 0.5% in the United States and northern Europe. South Asia is an endemic region where about 70-90 % of the population become exposed to HBV before the age of 40, and 8-20 % people go on to become HBV carriers [19]. Routes of infection include vertical transmission (such as through childbirth), early life horizontal transmission (bites, lesions, and sanitary habits), and adult horizontal transmission (sexual contact, intravenous drug use) [19]. Primary method of transmission reflects the prevalence of chronic HBV infection in a given area. In low prevalence areas such as the United States and Western Europe, injection drug abuse and unprotected sex are the primary methods, although other factors may also be important [20]. In moderate prevalence areas like Eastern Europe, Russia, and Japan, where around 2-7% of the population is chronically infected, the disease is predominantly spread among children. In high prevalence areas such as China and South East Asia, transmission during childbirth is most common, although in other areas of high endemicity such as Africa, transmission during childhood is a significant factor. Prevalence of chronic HBV infection in areas of high endemicity is at least 8%. As of 2010, China has 120 million infected people, followed by India and Indonesia with 40 million and 12 million respectively.

Likewise other developing countries, Pakistan is facing the prevalence of 50-80 DALYs per 100,000 populations resulting from chronic hepatitis B virus infection. A recent large national survey from Pakistan estimates that the overall prevalence of hepatitis B surface antigen (HBsAg) and anti-HCV antibody is 2.5 and 4.8%, respectively [21]. The survey also confirms the existence common modifiable risk factors that are associated with transmission of infection in Pakistan [22].

## Social Marketing and Behaviour Change

Social marketing is a process by which commercial marketing techniques and principals are used to plan, implement, and evaluate programs designed to bring about change in health or social behaviours of people. In this review, two concepts from social marketing were emphasized: the exchange theory and the Four Ps of marketing, product, price, place, and promotion (4Ps) and the details of 4Ps are given in Figure 3 [23].



## Role of Social Marketing and Behaviour Change in Prevention of Hepatitis- B

The question arises in minds of many health professionals that what role social marketing can play in preventing further spread of Hepatitis B. How the concepts of price, product, place and promotion can be used in controlling the spread of deadly viral disease. Hepatitis B is different from many other viral diseases because of single host i.e. human being and its various routes of transmission. This disease is not preventable without vaccination in the present situation, where every person is on risk even in routine necessities of life like, hospital visits for any purposes, hair cutting and sharing of many necessary invasive instruments in hospital and at homes etc. Although, Pakistan's national hepatitis control program is working on providing a vaccination against HBV to new-borns and high-risk groups, providing treatment for chronic HBV and HCV infection and raising public awareness about these viruses [1]. But the most important step is to change the behaviour of the people through multiple strategies including social marketing. The purpose of social marketing is to change the behaviour of people altogether. The most important step is to educate those first who are on high risk of getting and transmitting virus, like health care workers in hospital setups and general population by raising public awareness about these viruses and their modes of transmission. We have to educate them that how disease can be prevented and how it can be managed after getting exposure to virus, which sometimes becomes serious threat to healthy society.

The core product that social marketing suggest in this case is objective of social marketing campaign in order to achieve the desired results and acceptance for targeted audiences. For effective and influencing marketing message, it is important to know that what change is required to bring, what actions must be taken, who will take actions and how, what will be offered in exchange, what are the competing behaviours, what is the best time to place to perform the action, how to monitor and how to measure the impact. These all issues must be taken in consideration before starting the campaign.

## Social Marketing Theory

Social marketing is the systematic application of marketing, along with other concepts and techniques, to achieve specific behavioural goals for a social good [24]. Social marketing can be applied to promote merit goods, or to make a society avoid demerit goods and thus to promote society's wellbeing as a whole. For example, this may include asking people not to smoke in public areas, asking them to use seat belts, or prompting to make them follow speed limits [24].

Thus, social marketing is a change in behaviour and what we compete is the current behaviour of segmented audience. Social marketing programs exist in a free choice society, where the target audience always possesses the power to decide according their own will to maintain the competition and continuous struggle [24]. Furthermore, major behavioural change requires change in community norms for which not only time but patience and even great power of tolerance is required [23]. For example, we need to spend time and money to address Hepatitis B by adopting a behaviour change of practicing safety measures in health care delivery. Social marketing initiatives ensure that spending money and time will bring value to the society by avoiding major losses which might be faced in future time, if the current behaviour persist. If the social marketing approaches fail to bring any behaviour changes then it is unlikely that any exchange of behaviours will take place, which is hallmark of the social marketing theory. Existing dangerous behaviour will remain a threat to population, which can worsen the condition of healthy society if exchange of behaviour does not take place.

## Audience Segmentation

Social marketing spotlights the focused audience which is also known as targeting audience and the perception of benefits that audience wants to obtain from adopting new behaviour's. Social marketing promotes behaviour of people, the audience and marketing audience. This audience is a homogenous group of individuals sharing perceptions, conditions and desires related to the marketing program. Now question arises that who is the appropriate audience in case of hepatitis B prevention. Is it general population (consumers), health workers (care provider or producers) or policy makers and Managers (Observers and implementers)? It is not possible for a single social marketing campaign to address all of them at the same time with limited cost and time. So it is necessary to manage a single campaign, which is cost effective and covers the most important part of population like injection drug users, health care workers and recipients of blood transfusion.

According to WHO, person who comes in close contact of hepatitis B patients are on high risk of getting virus in their body, hence health care workers and patients going to hospital for any treatment and barbers are at high risk. So more important is to educate and tell realities of hepatitis B in comprehensive way to the population which is

on high risk. Also implementation of safety management laws in health care setups will ensure the prevention of transmission of this deadly virus and many other communicable diseases with single effort.

## Marketing Mix

Social marketing provides us information about different dimensions of influences on behaviour change that are well known as marketing mix. Marketing mix focuses on 4 P's in order to address some issues required to change existing behaviour. These 4 P's include product, price, place and promotion.

### Product

In social marketing, product means ideas such as behaviour change. In order to have a viable product, people must first perceive that they have a genuine problem, and that the product offering is a good solution for that problem. To discover the consumers' perceptions of the problem and the product and to determine how important they feel it is to take action against that problem.

**Core product:** In our country the core product will be reducing morbidity and mortality attributable to hepatitis B by health education and promotion and health care workers sensitization for importance of safety measures in hospital setups and community awareness in Pakistan.

**Actual product:** Actual product in this situation would be the vaccine and preventive measures like sterilization and infection control related behaviour change among health care workers and the communities to prevent the spread and transmission of hepatitis B to the healthy people.

**Augmented product:** As hepatitis is the disease of poverty so we should have a range of choices for our clients to augment product. For instance vaccine should be free and accessible at the facility level.

### Price

Price in social marketing means the actions that the consumer of your social marketing idea must do in order to attain the product of that social marketing campaign. This cost may be monetary or non-monetary. A non-monetary cost requires the consumer to give up intangibles like consumer's time, efforts, embarrassment or disapproval. If the costs outweigh the benefits for an individual, the perceived value of the offering will be low and it will be unlikely to be implemented. However, if the benefits are perceived as greater than their costs, chances of trial and adoption of the product is much greater. Thus, community can access to the facility to seek care and adopting preventive measures and change their existing Behaviour.

### Place

Place in social marketing is a concept of a system to ensure the flow of product (commodities, messages and services) to users and the quality of services offered where these products are made available. In such condition a place will refer to an outlet where access is made easily. Place should addresses issues related to access i.e. where and how target audience members can acquire the product.

Two strategies for reducing place-related barriers could be:

1. Availability of vaccine in every hospital of Pakistan with same quality of delivery.

2. Implementation of laws related to safety management in hospitals to control hospital acquired infections.

## Promotion

Fourth P of marketing mix is promotion, which means to determine the best way to reach the target audience. For promotion, it is necessary to obtain information about the level of interest of audience including communication preferences, tone of messages and delivery channels and methods. Activities like demonstration of safety practices and importance of vaccination of hepatitis B and sterilization of invasive instruments in hospitals for health care workers and on media for general population is needed as part of promotion.

## Conclusion

Behaviour change cannot be expected to take place overnight and it takes decades to change the Behaviour of an individual. Therefore, the efforts taken to reach expected outcomes must continue until the changes occur and it requires continuous and sustainable efforts including sustained financing. Government has to play main role with other non-governmental organizations to ensure proper social marketing programs to bring about Behaviour change through dissemination and impart health education, mobilization and supporting of poor communities by providing free Hepatitis B vaccination to them. Government has to implement laws for safe practices in health care facilities. Moreover, it is our own responsibility that we should realize the fact of growing threat due to this viral disease, and also take required actions to prevent this disease. Thus, evidence based social marketing can be adapted by Government and other non-governmental organizations to improve the health of population.

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