Cognitive Limits, Herding Effects, and Group Segregation: Stigma Generation and Destigmatization Pathways of Hepatitis B Patients in China

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Abstract. Hepatitis B, once the number one epidemic in China, afflicted nearly 300 million Chinese people. Today, it is still the number one killer of infectious diseases. Due to the strong pathogenicity of hepatitis B, many people in mainland China are scared of the disease. They are afraid to avoid it, leaving many hepatitis B patients and even carriers to suffer much discrimination. They are typically denied the right to work, live and marry because of hepatitis B. As a result, many people with hepatitis B and those who are carriers of the virus suffer from stigma. In this paper, the authors analyze data on hepatitis B patients and pages, as well as data published by the Chinese Ministry of Health on hepatitis B, to connect the dots between the daily lives of hepatitis B patients and the discrimination they face in China. This will help researchers and the general public to understand hepatitis B and to reduce or even eliminate the fear of hepatitis B. Nowadays; the Chinese government has begun to help the general public understand and eradicate the fear of hepatitis B through health legislation, daily publicity, and education, to give these people a fair and just environment to live in.

Keywords: Hepatitis B; Stigmatization; Cognitive limits; Herding effects; Group segregation.

1. Introduction

Survival Dilemma Hepatitis B virus is an infectious disease that can be transmitted through different forms, including vertical transmission (from mother to child) and horizontal transmission (blood transfusion, dental services, sexual contact, substance abuse, etc.). Hepatitis B is a liver infection caused by the hepatitis B virus (HBV) and can place people at risk of death from cirrhosis and liver cancer. Viral hepatitis is a Class B infectious disease with the most significant number of reported cases of notifiable infectious diseases in China. Statistical Data shows that 32.6% of hepatitis B patients among all HBV carriers require appropriate treatment. In 2020, 830000 people worldwide will die of liver cancer, including 391000 in China, accounting for 47%. Scientific research has proved that 80% of liver cancer in China is related to hepatitis B. This situation will last for decades if effective intervention measures are merely taken. A large number of cases of liver cirrhosis and liver cancer will bring a heavy economic burden to patients' families and society.

There is relatively little research on the socialization of hepatitis B patients, especially the research on the stigma of hepatitis B patients, and the response to the stigma of hepatitis B patients is even less systematically discussed. This paper aims to identify the survival dilemma of Hepatitis B patients in China. This involves analysis and comparisons between various data sets that illustrate the current situations of HBV patients, followed by an inevitable expenditure that creates enormous pressure on families. The focus of the discussion is a series of discrimination, inequalities, and unfair treatments that the HBV carriers received. Meanwhile, the main issue extracted from the increasing difficulty of living in a typical social environment is the source of stigma. Three Factors that contribute to Hepatitis B stigma include cognitive limitations, which enhanced by the infectiousness and characterized routes of transmission; the Herding effect that exists in the masses due to information failure and asymmetrical information produced by advertisements or people who are lack education; Group

Segregation caused by HBV patients concealing their identities and people from the rest of the society holding prejudice towards them. Therefore, several constructive suggestions are listed and explained to handle a variety of dilemmas and stigma of Hepatitis B patients and carriers to protect their physical and mental health and preserve their well-being.

2. Survival Dilemma of Hepatitis B Patients in China Survival Dilemma of Hepatitis B Patients in China

From 2010 to 2019, China reported about 800,000 to 1 million new cases of hepatitis B virus each year. According to statistics, by the end of 2019, there were 86 million chronic hepatitis B infection cases in China. Currently, mainland China is still an area with a high incidence of liver cirrhosis and liver cancer. According to the latest survey data from the World Health Organization in 2020, the total number of new cases of liver cancer in China accounted for 45% of the global prevalence, and the number of deaths accounted for 47% of the worldwide total of deaths; The fifth in all cancer incidences, and the second in the end. And these data are from "China's Vaccines and Immunization" and" Achievements and Prospects of Control of Hepatitis B in China."

From "Analysis of Hepatitis B Virus Infection Status of 1220 Pregnant Women in Chongqing City", CAS 2006, The average treatment cost of each hepatitis B patient consists of three parts: direct cost, indirect cost, and intangible cost. The total cost of these three parts is about 821,371 yuan, and the entire medical expenses account for 151.6% of the patient's family's annual income. In the central and western regions of China, the family economic burden of such patients is even more severe.

In addition to the high cost of treatments, hepatitis B patients will be subject to discrimination and differential treatments daily. The "World Journal of Infection" 2006 on "Entecavir versus lamivudine for patients with HBeAg-negative chronic hepatitis B" By discussed that many ordinary groups are also disgusted with hepatitis B. Virus carriers, or patients are mistreated, lose equal rights to school, employment, social interaction, etc., and even bring differentiation and estrangement between hepatitis B patients and ordinary people. Social stability and solidarity have had a negative impact. Hepatitis B patients and virus carriers have a huge base. Still, their privacy is not well guaranteed, and the compulsory physical examination for everyday work also deprives them of their right to get a regular job. After all, the factor is not the original intention of treatment to learn the disease status through compulsory physical examination. The purpose is to screen out through mandatory physical examination.

As discovered in "Study on nursing practice of self-management model for patients with hepatitis B cirrhosis" presented in "Chinese General Medicine," Issue 1, 2020, more than 50% of the hepatitis B virus carriers were found to be infected in the compulsory physical examination. Among the hepatitis B virus carriers who participated in the survey, 50.5% were found to be infected with the hepatitis B virus through the entrance examination or entrance examination.

"Survey Report on the Status Quo of Employment Discrimination in China, Cai Xingjian."2007. Hepatitis B discrimination refers to discrimination against regular hepatitis B virus carriers (from now on referred to as carriers) currently existing in Chinese society. Among all prejudices, the most serious is employment discrimination against HBV carriers. Surveys show that among the social bias against pages in mainland China, employment discrimination accounts for 78.6%.

Discovered in "China's hepatitis B virus carriers receive the first food work health certificate, in Zhejiang Times"2009. Hepatitis B is rare mass discrimination and a humanitarian disaster in post-modern Chinese society in the 21st century. More than 100 million people have been excluded from the current community. Therefore, hepatitis B is also known as "the first disease in China." Because carriers' despair about life and the future, extreme behaviors often appear in society. Hepatitis B discrimination has become essential to social fairness, justice, harmony, and stability. However, the Chinese government has begun to adopt legislative procedures to ensure the rights and interests of carriers, with little success. Their suffering is due to the exposure of their carrier status and the filtering of mainland speech, and they are abandoned by society in the corner.

3. What are the Causes of Stigma?

3.1 Cognitive Limitations

Before discussing cognitive limitations, it is necessary to acknowledge that hepatitis B disease is inherently infectious. Based on this characteristic, the public has a stigma against hepatitis B. And this part of cognitive limitations refers explicitly to the exploration based on the general public's cognition level. First, the general public believes hepatitis B is a complex disease to cure. Therefore, people fear hepatitis B compared to other conditions that can be cured successfully. According to the survey data of He Xingting, Li Jiayao, and Gao Yan in 2017, when answering whether they would discriminate against hepatitis B virus carriers, 56.89% of people chose not to discriminate against them as long as they are not infectious. But to a certain extent can be inferred backward that 56.89% of people are likely to refuse to take the risk of living with hepatitis B patients. Second, confusing the transmission routes of hepatitis A and hepatitis B. The World Health Organization reported in 2010 that hepatitis A is an acute, transient condition with a low mortality rate. Hepatitis A is transmitted through contact with an infected person or contaminated food or drinking water. Hepatitis A is entirely different from hepatitis B in terms of how it is transmitted. However, the similarity of the names makes it extremely easy to confuse people.

3.2 Herding Effect

Lack of proper knowledge about hepatitis B disease, if accompanied by misinformation, is likely to lead to a large number of people developing a degree of stigma when dealing with hepatitis B. Initially, the public's understanding of hepatitis B is not always based on official reports or expert answers, depending on education, occupation or social experience. Based on this, people may not be able to discriminate when faced with the choice of hepatitis B information. People may believe only part of what they choose, which means they may accept incorrect details or prefer to believe that hepatitis B disease is threatening and hope that this will make them more alert to the disease to ensure that they are not attacked by it. Also, with the development of the Internet, some individuals are spreading false rumors about hepatitis B, either intentionally or unintentionally. The general public is likely to believe this unsourced information out of defensiveness, increasing social discrimination against hepatitis B. Furthermore, the media and capitalists may choose to partially cover the topic of hepatitis B to gain public attention to creating a new explosion. The media blindly exaggerates the dangers of hepatitis B disease and the risks of contagion. This selective media coverage is misleading and may further stigmatize hepatitis B. In their article, Yan Ying and Wang Hongzhang mention that some advertisers exaggerate the dangers of the disease for better sales of the drug.

3.3 Group Segregation

Firstly, hepatitis B patients may choose to conceal their disease when interacting with others due to their shame about the hepatitis B virus. And this long-term concealment of their condition is likely to exacerbate their internal stress, which means they perceive a 'stigma' on themselves when interacting with others, leading them to avoid social interaction. Moreover, the general public lacks inclusiveness in dealing with hepatitis B patients in China due to the herding effect that fuels it. Therefore, hepatitis B patients who perceive a socially sensitive atmosphere will be more inclined to respond negatively when faced with socialization. What is more, from the perspective of the general public, they are likely to prefer people who are not at risk of contagion when faced with socialization choices to protect their health. At the same time, because of the irrational nature of China's past policies toward hepatitis B patients, the general public will likely have difficulty changing their minds about their misconceptions about hepatitis B in the face of the current era of confusing information and past state policies which can be interpreted as the general public taking a long time and a professional perspective to re-examine hepatitis B patients. In addition, social security is somewhat inadequate. In the early days, the policy restrictions for hepatitis B patients did not distinguish between hepatitis B patients and hepatitis B carriers. Pages of the hepatitis B virus are not infectious.

And the policy restriction has caused an impact on both hepatitis B patients and the general public. On the one hand, since the general public's cognitive level is limited, when confronted with regulations issued by the official, the general public is likely to default to the fact that there is no difference between the two. On the other hand, this has to a certain extent, creating a more significant stigma and dilemma for hepatitis B carriers, which side reflects the inadequacy of the social security system. Simultaneously, the lack of policy implementation has also caused problems for hepatitis B patients. In 2010, the Ministry of Health of the People's Republic of China proposed to exempt hepatitis B carriers from medical examinations for entry into the workforce. However, local governments and enterprises still have a biased attitude toward hepatitis B carriers. Zhang Danfeng pointed out in 2011 that many hepatitis B patients had to undergo 'voluntary medical examinations' when they were employed, which means that hepatitis B patients must submit their medical reports to the employer

4. How to Eliminate HBV-Related Stigma

4.1 Creating a Social Atmosphere Through Publicity and Education.

A study conducted by Li et al. 2007 (China) investigated Whether HBV patients should be quarantined or causing danger to others in the opinions of non-HBV patients and non-carriers concluded that patient prejudicial attitudes and willingness to interact socially were significantly linked to (medical-related) education level they have received. However, it is worthwhile to consider which aspects of education and publicity and education. According to research, apparent correlations cannot be found between test scores of HBV knowledge; most stigma exists due to Fear of the disease. This indicates that the routes of transmission are the emphasis of education. The data from research [17, 18] showing that 40% of subjects did not understand that HBV can be spread by sexual intercourse and that 50% did not know that the disease can be applied by someone who looks healthy were particularly concerning. These all indicate that removing fear and enhancing the correct transmission routes are emphasized in eliminating HBV stigma.

What could be concluded from the background information of 4.1 is that the Chinese general public is required to reduce their stereotypes towards HBV due to fear of the disease and unfamiliar with transmission routes. Fundamental education is closely related to the future developments of a country. Publicity and education might not be able to fix the deep-rooted prejudice against HBV for older people. In contrast, the other way to convey the perfect, complete information which could help to reduce HBV stigma is to introduce this concept to more younger generations. It is a long-run method to see the effect.

4.2 Social Support to Hepatitis B Patients

The WHO estimates that over 60% of people infected with HBV live in Southeast Asia and the Western Pacific Region. This stigma around HBV is best characterized in the Chinese setting. HBV-related stigma is particularly pronounced and deeply entrenched within Chinese society, especially amongst those in rural areas and with lower socioeconomic status, which means the inequalities between urban and rural have limited the information available to rural people due to their undeveloped education conditions. This has also become a contributory factor of HBV-related stigma. Measures could be taken by society to ease the stigma. For example, building up HBV patient communities --- Even though many of these communities do not open access to their information to the public, they still exist as different self-organizations. The communities established for HBV patients also represent a type of “subculture” that safeguards their confidence and self-esteem while they cannot gain these good feelings from normal society.

Stigma also holds a close relationship with well-being. Protective measures are created for both HBV carriers and patients. Hepatitis B patients receive stigma from all perspectives in their lives, such as employment, marriage, and entrance to the school. Their well-being is extremely hard to be satisfied in an everyday social context. A community that gathers the same kinds of people gives

HBV patients a sense of belonging. It serves free-health checks, distributes pensions and subsidy funds, and provides legal aid to community residents. Another constructive suggestion to help HBV patients to gain more social support is to diversify these communities' old people's homes. This would have a commonweal connotation which would appeal to people from the public to pay more attention and become volunteers to visit Hepatitis B patients to get a deeper understanding of this stigmatized group of people through close contact with them.

4.3 Establish New Legislation and Enlarge the Scope of Law Enforcement

HBV-related stigma is still highly characterized in China, even though most people know well about Hepatitis B. Therefore, a complete set of laws is required to give HBV carriers and patients better protection. Existing regulations such as "Law of the People's Republic of China on the Prevention and Control of Infectious Diseases," "Measures for the Implementation of the Law of the People's Republic of China on the Prevention and Control of Infectious Diseases," "Food Hygiene Law" "Regulations on Employment Service and Employment Management" eliminated hepatitis B discrimination, and acted respect for the fundamental human rights of citizens, safeguarding the interests of some hepatitis B carriers, enabling them to have equal rights and get more employment and education opportunities. Non-infectious hepatitis B carriers can work, study and receive an education like ordinary people. The encouragement of similar legislation plays a vital role in ensuring the fundamental survival rights of HBV-related stigma targets.

5. Conclusion

In conclusion, this paper analyzes in detail the causes of the stigmatization of hepatitis B patients based on the amount of data on the hepatitis B patient population in China and the economic and social stigmatization dilemma they now face. This paper discusses the reasons for the stigmatization of hepatitis B patients in terms of cognitive limitations, derives the herd effect, and analyzes the concept of group compartmentalization based on these two discussions. Regarding social contribution, this paper first reveals the current dilemma of hepatitis B. This paper explains and analyzes the causes and measures of stigmatization of hepatitis B patients from a social perspective. The authors hope that this article will, to some extent, improve the stereotypical perception of hepatitis B patients among the general public.

Moreover, the Authors hope to provide the government and society with a sociological perspective on the analysis of hepatitis B. The fundamental goal of this article is to eliminate the discrimination suffered by hepatitis B patients and to help bring more benefits to the hepatitis B community. However, there are still shortcomings in this study. Even though this paper analyzes in detail the causes of and solutions to stigma against hepatitis B patients based on previous studies and the current situation, there is still room for improvement in our investigation of the current status of hepatitis B patients due to the lack of fieldwork.

References

[1] Alavian, S. M., Fallahian, F, & BagheriLankarani, K. The changing epidemiology of viral hepatitis B in Iran. Journal of Gastrointestinal Liver Diseases, 2007, (16): 403-440.

[2] World Health Organization. HIV/AIDS fact sheet. Accessed May 14, 2018, Available from: http://www.who.int/news-room/fact-sheets/detail/hiv-aids.

[3] Wang Fuzhen, Zhen Hui&Sun Xiaojin. .Achievements and Prospects of Control of Hepatitis B in China.China's Vaccines and Immunization, 2019, (5): 487-492.

[4] Ye Junying, Xie Jianyu&Tan Yixiang..Analysis of Hepatitis B Virus Infection Status of 1220 Pregnant Women in Chongqing City.International Journal of Laboratory Medicine.2006, (7): 666-668.

[5] Zhang Zhongqin&Gu Tingting.Entecavir versus lamivudine for patients with HBeAg-negative chronic hepatitis B. World Journal of Infection, 2006, (4): 396-396.

[6] Zhao Xiaohui, Wang Lihua&Suo Lina.Study on nursing practice of self-management model for patients with hepatitis B cirrhosis. Chinese General Medicine, 2020, (03):146-149.

[7] Cai Dingjian.Survey Report on the Status Quo of Employment Discrimination in China, 2007. Available from: https://www.docin.com/p-2226940113.html.

[8] China's hepatitis B virus carriers receive the first food work health certificate, in Zhejiang Times",2009, Available from: https://news.sina.com.cn/c/sd/2009-09-07/095218596894.shtml

[9] Yu L, Wang J, Zhu D, Leng A, Wangen KR. Hepatitis B-related knowledge and vaccination in association with discrimination against Hepatitis B in rural China. Hum Vaccin Immunother. 2016, (12):70–76.

[10] Zhang Danfeng. Reflecting on the causes of hepatitis B discrimination from the perspective of "voluntary physical examination.“ Medicine and Philosophy (Humanities and Social Medicine Edition), 2011, (08): 30-31, 34.

[11] He Xingting, Li Jiayao & Gao Yan. An Analysis of the Reasons for Discrimination of Hepatitis B Carriers. Education and Teaching Forum, 2017, (03): 62-63.

[12] World Health Organization. WHO brief: prevention and anti-discrimination in response to viral hepatitis., November 9th, 2010. Available from: https://news.un.org/zh/story/2010/11/140602

[13] Yan Ying & Wang Hongzhang. An Invisible News Discrimination--Analysis of Hepatitis B Discrimination in Media Advertising. Journal of Jinggangshan University, 2006, (06): 59-61.

[14] Du Yanhua. Analysis of the current situation and influencing factors of stigma among young chronic hepatitis B patients (Master's thesis, Zhengzhou University), 2020. Available from: https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD202101&filename= 1020045866. nh

[15] Li L, Wu Z, Zhao Y, Lin C, Detels R, Wu S. Using case vignettes to measure HIV-related stigma among health professionals in China. Int J Epidemiol. 2007, (36):178–184. doi:10.1093/ije/dyl256

[16] World Health Organization. April 24, 2017. Available from: http://www.who. int/hepatitis/en/.

[17] Hislop TG, Teh C, Low A, et al. Hepatitis B knowledge, testing and vaccination levels in Chinese immigrants to British Columbia, Canada. Can J Public Health 2007, (98): 125– 129.

[18] Smith-Palmer, J., Cerri, K., Sbarigia, U., Chan, E. K., Pollock, R. F., Valentine, W. J., & Bonroy, K. Impact of stigma on people living with chronic hepatitis B. Patient Related Outcome Measures, 2020, (11), 95.

[19] Cotler, S. J., Cotler, S., Xie, H., Luc, B. J., Layden, T. J., & Wong, S. S. Characterizing hepatitis B stigma in Chinese immigrants. Journal of viral hepatitis, 2012, 19(2):147-152.

[20] Leng A, Li Y, Wangen KR, Nicholas S, Maitland E, Wang J. Hepatitis B discrimination in everyday life by rural migrant workers in Beijing. Hum Vaccin Immunother. 2016, (12):1164–1171.