Journal of Biosciences and Medicines, 2026, 14(11), 237-246
https://www.scirp.org/journal/jbm
ISSN Online: 2327-509X
ISSN Print: 2327-5081

Lack of Knowledge and Cognitive Bias of Hepatitis B among Middle School Students in Border Cities and Their Influencing Factors: A Case Study of a Middle School in Guangxi

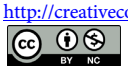
Lizhu Lu[1*], Junxiu Zhou[1], Simei Qin[1], Ruixia Tang[1], Jinming Ma[1], Youyuan Wei[1], Xingtian Wu[2], Qiulan Feng[3], Xiurong Yang[3], Xiaomin Huang[3], Xinhua Huang[3], Xiaoping Pan[4#]

[1]Baise Maternal and Child Hospital, Baise, China
[2]Chongzuo Jiangzhou District Senior High School, Chongzuo, China
[3]Ningming County Ningming Middle School, Chongzuo, China
[4]Department of Clinical Psychology, Baise Traditional Chinese Medicine Hospital, Baise, China
Email: *402399425@qq.com

How to cite this paper: Lu, L.Z., Zhou, J.X., Qin, S.M., Tang, R.X., Ma, J.M., Wei, Y.Y., Wu, X.T., Feng, Q.L., Yang, X.R., Huang, X.M., Huang, X.H. and Pan, X.P. (2026) Lack of Knowledge and Cognitive Bias of Hepatitis B among Middle School Students in Border Cities and Their Influencing Factors: A Case Study of a Middle School in Guangxi. *Journal of Biosciences and Medicines*, **14**, 237-246.
https://doi.org/10.4236/jbm.2026.1411017

Received: January 28, 2026
Accepted: November 9, 2026
Published: November 12, 2026

Copyright © 2026 by author(s) and Scientific Research Publishing Inc.
This work is licensed under the Creative Commons Attribution-NonCommercial International License (CC BY-NC 4.0).
http://creativecommons.org/licenses/by-nc/4.0/



Open Access

Abstract

Objective: Viral hepatitis B (HBV) is a global public health problem, and the risk of infection and disease burden are prominent in rural areas in central and western China due to insufficient health knowledge. Adolescents' cognition and attitude towards hepatitis B are related to self-protection and the construction of a socially inclusive environment, but there is a lack of relevant research on secondary school students in this area. The purpose of this study was to explore the knowledge mastery, attitude characteristics and influencing factors of hepatitis B students in a middle school in Guangxi, and to provide localized reference for regional hepatitis B prevention and control and adolescent health promotion. **Methods:** A total of 1175 high school students from a middle school in Guangxi were selected as the survey subjects, and a self-made questionnaire was used to conduct the survey, covering the basic information of the respondents, the disease/carrying of hepatitis B by themselves and their relatives, the basic knowledge of hepatitis B and their willingness to learn. The database was established by Excel, and the SPSS 23.0 software was used for statistical analysis, and the graph analysis was carried out by GraphPad software, and the difference was statistically significant with $P < 0.05$. The total awareness rate is calculated as the sum of the number of correct answers of all respondents/(total number of items × total number of respondents) × 100%.

*First author.
#Corresponding author.

Results: The effective recovery rate of this survey was 100%, and 92.26% of the samples were rural students, and 77.02% of the parents had junior high school education level or below. The total awareness rate of students' basic knowledge of hepatitis B was only 31.09%, and there was a significant deviation in core cognition: only 44.17% knew that hepatitis B was an infectious disease, and the correct awareness rate of hepatitis B transmission through the respiratory tract and digestive tract was 28.68% and 26.81% respectively, and the awareness rate of hepatitis B was not related to bad living habits was only 6.89%. 58.13% of the students were willing to take the initiative to learn about hepatitis B, which mainly came from school health activities and media (58.38%). There was no statistical significance between gender on the knowledge cognition of hepatitis B ($P > 0.05$), and the place of origin, parental education level, and whether they were hepatitis B patients/carriers had significant effects on the cognition of some core knowledge points ($P < 0.05$ or $P < 0.001$). Family members' hepatitis B health status also had no significant gender-based difference in the impact on students' hepatitis B knowledge cognition ($P > 0.05$). **Conclusion:** The cognitive level of middle school students in Guangxi is closely related to the place of origin, family background and health status. It is necessary to take schools as the core, incorporate hepatitis B knowledge into normalized health courses, link families to carry out targeted education, correct cognitive misunderstandings, reduce hepatitis B discrimination, and then improve the social support environment for hepatitis B patients and enhance the effectiveness of regional hepatitis B prevention and control.

Keywords

HBV, Cognitive Bias, Middle School Students, Influencing Factors

1. Introduction

Viral hepatitis B (HBV) is a global public health problem, with an estimated nearly 300 million people infected worldwide, only 10% of whom are diagnosed, and even fewer are being treated, causing at least 1.3 million deaths each year [1] [2]. Foreign studies have shown [3] [4]; Patients with depression are more susceptible to HBV infection, and patients with depression with HBV have a lower overall health than normal people and worsen after recovery [5] [6]. In China, although the epidemic situation of hepatitis B has been alleviated after years of prevention and control, it is still one of the key infectious diseases to prevent and control, especially in rural areas and central and western regions, due to insufficient health knowledge, the risk of infection and the burden of disease are still prominent.

Hepatitis B not only brings physiological hazards such as liver damage to patients, but also causes serious social and psychological problems. Studies have shown that most hepatitis B patients suffer negative effects on career development, social interaction, family life, etc., as well as psychological disorders such as

depression, anxiety, and fear, and their overall health and prognosis are significantly worse than those of the general population [7]. One of the core factors contributing to these problems is social stigma—hepatitis B patients are often misunderstood as being infected with diseases due to "debauchery" or "unhygienicity", and suffer discrimination and exclusion, which further exacerbates the psychological burden of patients and forms a vicious cycle of "disease-discrimination-psychological problems" [8]. In addition, depressed patients are more susceptible to HBV infection and have worse health outcomes after hepatitis B, highlighting the importance of psychological factors and social support in hepatitis B prevention and control [9].

As a key stage of cognitive development and value formation, adolescents' knowledge mastery and attitude orientation towards hepatitis B are not only related to their own health protection behavior, but also affect the acceptance of hepatitis B patients in the future. Domestic studies on adolescent hepatitis B cognition have mostly focused on college student groups in recent years, and the research results have shown that college students also have certain deficiencies in hepatitis B knowledge mastery and cognitive biases, with obvious regional and group differences in cognitive level [10], and there is a lack of surveys on middle school students in rural areas in the central and western regions. As a multi-ethnic area in the central and western regions, 92.26% of the respondents in this survey were rural students, and 77.02% of the students' parents had a junior high school education level or below.

In summary, it has become an urgent need to understand the psychology of hepatitis B patients and improve social discrimination and psychological burden. Systematically exploring the current status, attitude characteristics and influencing factors of hepatitis B knowledge and cognition in this group can provide a scientific basis for formulating targeted health education strategies, reducing hepatitis B discrimination, and improving the prevention and control effect. Based on this, this study took a middle school student in Guangxi as the survey object to carry out research on hepatitis B knowledge and attitude, and provided a localized reference for regional hepatitis B prevention and control and adolescent health promotion.

2. Investigation and Methodology

2.1. Questionnaire Design

Check the content of textbooks and related literature, and independently design questionnaires involving the basic information of the respondents, whether they are hepatitis B patients or carriers, basic knowledge of hepatitis B and behavioral attitudes towards hepatitis B patients. The awareness rate and total awareness rate of hepatitis B-related knowledge were calculated, and the total awareness rate [11] = the sum of the correct answers of all respondents/(total number of items × total number of respondents) × 100% [12]. Regarding hepatitis B knowledge, 6 questions are set, 1 point is scored for 1 correct answer, 0 points is scored for incorrect

or not answered, and after the conversion of the score system, the score below 20 points is set as "low", the score of 20 - 40 is "medium", and the score of 40 and above is "high".

2.2. Survey Objects

For all students in the first, second and third years of high school in a middle school, 1175 students were randomly selected by cluster random sampling method.

2.3. Statistical Processing

Use Excel to establish a database, enter the survey status of all questionnaires, and calculate the awareness rate and total awareness rate [total hepatitis B knowledge awareness rate referred to as the total awareness rate, total awareness rate = Σ (number of correct answers × number of correct answers)/(total number of questions × total number of people) × 100%)]; The data were statistically analyzed using SPSS 23.0 software, and the transcript data was expressed as a rate (%), and the difference was statistically significant in $P < 0.05$. GraphPad for chart analysis.

3. Results

3.1. Investigation

A total of 1175 questionnaires were distributed this time, and 1175 valid questionnaires (100%) were collected. Among them, 387 (32.94%) were boys and 788 (67.06%) were girls. 1084 (92.26%) in rural areas and 91 (7.74%) in urban areas. 905 (77.02%) of parents had junior high school or below, and 270 (22.98%) had high school and above.

3.2. Whether You Know That You or Your Loved Ones Have Hepatitis B

The situation of knowing that they or their relatives have hepatitis B is as follows: 1) A total of 9 people (0.77%) know that they are hepatitis B patients, 968 people (82.38%) think they are not hepatitis B patients, and 198 people (16.85%) do not know whether they are hepatitis B patients. 2) 5 people (0.43%) knew they were hepatitis B carriers, 877 people (74.64%) thought they were not hepatitis B carriers, and 293 people (24.94%) did not know whether they were hepatitis B carriers. 3) 10 (0.85%) knew that their family members had hepatitis B, 910 (77.45%) thought that there were no hepatitis B patients in their family members, and 255 (21.7%) said they did not know whether their family members had hepatitis B patients. 4) 10 people (0.85%) knew that their family members were carriers of hepatitis B, 819 people (69.7%) thought that there were no family members who had hepatitis B carriers, and 346 people (29.45%) said they did not know whether their family members had hepatitis B carriers (See Table 1).

3.3. Awareness Rate of Hepatitis B

From Table 2, it can be seen that the awareness rate of hepatitis B patients or

Table 1. Whether middle school students know that they or their relatives have hepatitis B (n = 1175, n/%, unit: person).

Whether you know if you or a loved one has hepatitis B	Yes	Not	Not clear
Are you a hepatitis B patient?	9 (0.77%)	968 (82.38%)	198 (16.85%)
Are you a hepatitis B carrier?	5 (0.43%)	877 (74.64%)	293 (24.94%)
Does anyone in your family have hepatitis B?	10 (0.85%)	910 (77.45%)	255 (21.7%)
Someone in your family is a carrier of hepatitis B	10 (0.85%)	819 (69.7%)	346 (29.45%)

Table 2. Awareness of basic knowledge of hepatitis B among middle school students (n = 1175, n/%).

Basic knowledge of hepatitis B	Awareness rate
Do you think hepatitis B is an infectious disease?	519/44.17%
Do you think hepatitis B can be transmitted through the respiratory tract?	337/28.68%
Do you think hepatitis B can be transmitted through the digestive tract?	315/26.81%
Do you think hepatitis B patients or people with hepatitis B can donate blood?	744/63.32%
Do you think hepatitis B is related to poor hygiene?	196/16.68%
Do you think hepatitis B is related to bad lifestyle habits?	81/6.89%
Always knowing the rate	31.09%

Note: Total awareness rate [11] = sum of the number of correct answers of all respondents/(total number of entries × total number of respondents) × 100%.

carriers cannot donate blood is high (63.32), combined with other data in Table 2, it may be that students think that they have a disease (and whether it is an infectious disease or not) and cannot donate blood. However, the basic understanding of hepatitis B is only low, and less than half of the total number of people (44.17) believe that hepatitis B is an infectious disease, which will lead to the weakening of students' attention to hepatitis B patients, not paying attention to the protection of hepatitis B virus, and increasing the prevalence of hepatitis B to a certain extent. The awareness rate of whether hepatitis B can pass through the respiratory tract and digestive tract is only 28.68 and 26.81%, and the awareness rate of whether hepatitis B is related to unhygienic living habits is 16.68% and 6.89%, indicating that more than 70% of students think or do not know whether hepatitis B can be transmitted through the respiratory tract, digestive tract and environment. The total awareness rate of basic hepatitis B knowledge is only 31.09%, so it is very necessary to strengthen hepatitis B knowledge education.

3.4. Analysis of Hepatitis B Knowledge Sources

Among the 1175 students, 683 (58.13%) students expressed their willingness to take the initiative to learn hepatitis B-related knowledge, 292 (24.85%) students

said they would not take the initiative to learn hepatitis B-related knowledge, and 200 (17.02%) students showed an indifferent attitude towards learning hepatitis B-related knowledge. It can be seen that most students are willing to take the initiative to learn hepatitis B-related knowledge, which is of positive significance to the prevention and control of hepatitis B, but 41.87% of the students are unwilling or indifferent to taking the initiative to learn hepatitis B-related knowledge, which causes them to not know how to prevent hepatitis B and increase the infection rate of hepatitis B to a certain extent. In this questionnaire, the sources of students' knowledge about hepatitis B were "health activities carried out by school, media (magazines, networks or advertisements)" (686/58.38%), "books, classrooms or books" (204/17.36%), "doctors, networks, family members, etc.", and "do not know" (247/21.02%).

3.5. Analysis of the Level and Influencing Factors of Basic Knowledge of Hepatitis B

Statistical analysis of basic knowledge of hepatitis B showed that there was no statistically significant correct rate of answers to basic knowledge of hepatitis B by gender ($P > 0.05$), as shown in Table 3.

Middle school students from different sources had a statistically significant answer to the basic knowledge of hepatitis B ($P < 0.05$). Secondary school students from different sources had no statistical significance ($P > 0.05$) on the basic knowledge of hepatitis B, "Do you think hepatitis B is an infectious disease", "Do you think hepatitis B can be transmitted through the respiratory tract", "Do you think hepatitis B is related to poor hygiene", "Do you think hepatitis B is related to bad living habits", among which students from rural or urban areas had no statistical significance ($P > 0.05$). "Do you think hepatitis B is an infectious disease", but there is no statistical significance, considering the difference caused by the majority of the number of respondents in rural areas, see Table 4.

The education level of parents had a significant impact on the correct rate of "Do you think a person is infectious" and "Do you think hepatitis B patients or hepatitis B carriers can donate blood" ($P > 0.05$). Parents' education level had no statistical significance on the basic knowledge of hepatitis B ($P > 0.05$), indicating that students' grasp of these basic knowledge was low, as shown in Table 5.

Table 3. Effects of middle school students of different genders on the correct answer rate of basic knowledge of hepatitis B (n = 1175, n/%, unit: person).

Gender	Do you think hepatitis B is an infectious disease?	Do you think hepatitis B can be transmitted through the respiratory tract?	Do you think hepatitis B can be transmitted through the digestive tract?	Do you think hepatitis B patients or hepatitis B carriers can donate blood?	Do you think hepatitis B is related to lack of hygiene?	Do you think hepatitis B is related to bad lifestyle habits?
Male (n = 387)	81/20.9%	115/29.7%	115/29.7%	245/63.3%	57/14.7%	30/7.6%
Female (n = 788)	191/24.2%	222/28.2%	200/25.4%	499/63.3%	139/17.6%	51/6.5%
P-value	0.229	0.111	**0.060**	0.515	0.396	0.395

Table 4. Influence of middle school students' place of origin on the correct answer rate of basic hepatitis B knowledge (n = 1175, n/%, unit: person).

Birthplace	Do you think hepatitis B is an infectious disease?	Do you think hepatitis B can be transmitted through the respiratory tract?	Do you think hepatitis B can be transmitted through the digestive tract?	Do you think hepatitis B patients or hepatitis B carriers can donate blood?	Do you think hepatitis B is related to lack of hygiene?	Do you think hepatitis B is related to bad lifestyle habits?
Rural (n = 1084)	474/43.7%	312/29.7%	286/26.4%	676/62.3%	179/16.5%	75/6.9%
City (n = 91)	45/49.5%	37/28.2%	29/31.9%	68/74.7%	17/18.7%	6/6.6%
P-value	0.229	0.223	0.307	**0.047**	0.493	0.497

Table 5. Influence of parental education level on the correct answer rate of basic hepatitis B knowledge (n = 1175, unit: person).

Parental education level	Do you think hepatitis B is an infectious disease?	Do you think hepatitis B can be transmitted through the respiratory tract?	Do you think hepatitis B can be transmitted through the digestive tract?	Do you think hepatitis B patients or hepatitis B carriers can donate blood?	Do you think hepatitis B is related to lack of hygiene?	Do you think hepatitis B is related to bad lifestyle habits?
Junior high school and below	380/42.0%	257/28.4%	236/26.1%	563/62.2%	147/16.2%	30/6.9%
High school	118/52.9%	69/30.9%	67/30.0%	155/69.5%	39/17.5%	14/6.3%
College degree or above	21/44.7%	11/23.4%	12/25.5%	26/55.3%	10/21.3%	5/10.6%
P-value	**0.020**	0.086	0.459	**0.023**	0.819	0.603

Hepatitis B patients have a greater correlation with the basic knowledge of hepatitis B, "Do you think hepatitis B is an infectious disease", "Do you think hepatitis B can be transmitted through the digestive tract", "Do you think hepatitis B patients or hepatitis B carriers can donate blood", "Do you think hepatitis B is related to poor hygiene", "Do you think hepatitis B is related to bad living habits" ($P < 0.001$), and is correlated with the cognition of "Do you think hepatitis B can be transmitted through the respiratory tract" ($P < 0.05$). Hepatitis B patients have a higher understanding of the basic knowledge of hepatitis B, but students who are not or are not sure that they are hepatitis B patients have only 17.5% and 7.4% of the correct cognition rates of "Do you think hepatitis B is related to poor hygiene" and "Do you think hepatitis B is related to bad living habits", indicating that students with hepatitis B have a higher understanding of the basic knowledge of hepatitis B than students who are not or are not sure that they are hepatitis B patients, see Table 6.

The factor of having family members with hepatitis B or who are hepatitis B carriers had no statistically significant difference by gender in its impact on middle school students' correct response rates to basic hepatitis B knowledge questions (all $P > 0.05$). No obvious disparities were observed between male and female students in the correct cognition rates of all core knowledge points, and this finding was consistent with the trend of gender's own impact on hepatitis B knowledge cognition, see Table 7.

Table 6. Influence of hepatitis B patients/carriers on the correct answer rate of hepatitis B basic knowledge (n = 1175, n/%, unit: person).

Whether hepatitis B patients	Do you think hepatitis B is an infectious disease?	Do you think hepatitis B can be transmitted through the respiratory tract?	Do you think hepatitis B can be transmitted through the digestive tract?	Do you think hepatitis B patients or hepatitis B carriers can donate blood?	Do you think hepatitis B is related to lack of hygiene?	Do you think hepatitis B is related to bad lifestyle habits?
Yes	6/66.7%	1/11.1%	3/33.3%	5/55.6%	4/44.4%	2/22.2%
Not	451/46.6%	285/29.4%	274/28.3%	647/66.8%	169/17.5%	72/7.4%
Not clear	62/31.3%	51/25.8%	38/19.2%	92/46.5%	23/11.6%	7/3.5%
P-value	<0.001	0.014	0.001	<0.001	<0.001	<0.001

Table 7. Effect of family members being hepatitis B patients/carriers on the correct answer rate of basic hepatitis B knowledge (n = 1175, n/%, unit: person).

Parents	Do you think hepatitis B is an infectious disease?	Do you think hepatitis B can be transmitted through the respiratory tract?	Do you think hepatitis B can be transmitted through the digestive tract?	Do you think hepatitis B patients or hepatitis B carriers can donate blood?	Do you think hepatitis B is related to lack of hygiene?	Do you think hepatitis B is related to bad lifestyle habits?
Male (n = 387)	81/20.9%	115/29.7%	115/29.7%	245/63.3%	57/14.7%	30/7.6%
Female (n = 788)	191/24.2%	222/28.2%	200/25.4%	499/63.3%	139/17.6%	51/6.5%
P-value	0.229	0.111	0.060	0.515	0.396	0.395

4. Discussion

This survey of 1175 students in a middle school in Guangxi systematically revealed the current situation and influencing factors of adolescents' hepatitis B knowledge and cognition, and provided a localized empirical basis for regional hepatitis B prevention and control and anti-discrimination education.

The survey shows that the total awareness rate of hepatitis B among middle school students is only 31.09%, which is at a very low level, which is in stark contrast to the seriousness of hepatitis B as a global public health problem. The core cognitive deficits focused on key knowledge points: only 44.17% of students knew that hepatitis B was an infectious disease, less than 30% of students could correctly judge that the respiratory tract (28.68%) and digestive tract (26.81%) did not transmit hepatitis B, and only 6.89% of the students knew that it was not related to bad living habits. This cognitive bias may not only lead students to ignore scientific protection, indirectly increase the risk of infection, but also easily cause campus panic due to misunderstanding of the transmission route, laying hidden dangers for the stigma of hepatitis B patients, which is highly consistent with the conclusion of depression and anxiety in domestic studies of hepatitis B patients due to social discrimination.

In the analysis of influencing factors, there was no statistically significant rate

of gender in the correct knowledge of hepatitis B ($P > 0.05$), indicating that there was no difference in the cognitive acquisition path of male and female students, and there was no need for gender-specific educational intervention. The perception of "whether hepatitis B patients/carriers can donate blood" was statistically significant ($P = 0.047$), and the accuracy rate of urban students was higher, but the rural sample accounted for 92.26%, which may dilute the overall difference, and it is still necessary to balance urban and rural educational resources. The educational level of parents had a significant impact on the cognition of "whether hepatitis B is an infectious disease" and "whether they can donate blood" ($P < 0.05$), and the children of parents with high school education and above had a higher cognitive accuracy rate, reflecting the key role of family health knowledge transmission in adolescents' cognition. It is particularly noteworthy that the correct rate of hepatitis B knowledge cognition among students who are hepatitis B patients/carriers is significantly higher than that of non-patients and uncertain groups ($P < 0.05$ or $P < 0.001$), such as the awareness rate of "hepatitis B has nothing to do with poor hygiene" reached 44.4%, far exceeding the 17.5% of non-patients.

In terms of knowledge sources and learning willingness, 58.13% of students were willing to take the initiative to learn hepatitis B knowledge, and the core sources were school health activities and media (58.38%), indicating that schools are still the main front of health education. However, 41.87% of the students lack the willingness to take the initiative to learn, 21.02% have no clear source of knowledge, and classroom education accounts for only 17.36%, reflecting that the current education channel is single and the form is unattractive, making it difficult to meet students' cognitive needs.

In summary, the lack of knowledge and cognitive bias of hepatitis B among middle school students is closely related to family background and their own health status, and is directly related to the stigma risk of hepatitis B patients due to insufficient protective behavior. It is recommended to take schools as the core and incorporate hepatitis B knowledge into the normalized health curriculum, focusing on correcting misunderstandings about transmission routes and causes. linkage families to carry out parent-child health education to improve parents' ability to transmit health knowledge; Through theme activities, case sharing, etc., the cognition of non-patient groups is strengthened, the stigma is reduced, and the social support environment for hepatitis B patients is ultimately improved, reducing the risk of psychological problems such as depression and anxiety.

Explain

Middle school students in the border areas of Guangxi have a low awareness rate of hepatitis B knowledge and prominent core cognitive biases; their cognitive level is affected by their place of origin, parental educational background, and their own and family members' hepatitis B health status, with no significant gender effect. It is necessary to take schools as the core and link with families to carry out regular education on hepatitis B knowledge, correct cognitive misunderstand-

ings, reduce hepatitis B discrimination, and thus improve the effectiveness of regional hepatitis B prevention and control.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Mohd-Ismail, N.K., Lim, Z., Gunaratne, J. and Tan, Y. (2019) Mapping the Interactions of HBV cccDNA with Host Factors. *International Journal of Molecular Sciences*, **20**, Article 4276. https://doi.org/10.3390/ijms20174276

[2] (2018) Polaris Observatory Collaborators Global Prevalence, Treatment, and Prevention of Hepatitis B Virus Infection in 2016: A Modelling Study. *The Lancet Gastroenterology & Hepatology*, **3**, 383-403.

[3] Buganza-Torio, E., Mitchell, N., Abraldes, J.G., Thomas, L., Ma, M., Bailey, R.J., *et al.* (2018) Depression in Cirrhosis—A Prospective Evaluation of the Prevalence, Predictors and Development of a Screening Nomogram. *Alimentary Pharmacology & Therapeutics*, **49**, 194-201. https://doi.org/10.1111/apt.15068

[4] Vu, T.T.M., Le, T.V., Dang, A.K., Nguyen, L.H., Nguyen, B.C., Tran, B.X., *et al.* (2019) Socioeconomic Vulnerability to Depressive Symptoms in Patients with Chronic Hepatitis B. *International Journal of Environmental Research and Public Health*, **16**, Article 255. https://doi.org/10.3390/ijerph16020255

[5] Jiang, N. (2015) Investigation on the Knowledge, Attitude and Behavior of College Students in Nanning, Guangxi Province. Master's Thesis, Guangxi Medical University. (In Chinese)

[6] Gu, H.L. and Pan, Y.Q. (2024) Analysis of the Current Situation of Social Alienation in Patients with Chronic Viral Hepatitis B and Its Influencing Factors. *Journal of Aerospace Medicine*, **35**, 1002-1004. (In Chinese)

[7] Zhang, N., Bi, C.J. and Feng, C. (2024) Analysis of Anxiety and Depression in Patients with Chronic Hepatitis B, Its Influencing Factors, and Psychological Nursing Counter-Measures. *Psychological Monthly*, **19**, 203-205. (In Chinese)

[8] Shen, L. (2022) The Effect of Health Education on Knowledge Mastery and Rehabilitation of Patients with Viral Hepatitis B. *China Endemic Disease Prevention and Control*, **37**, 291-292 (In Chinese)

[9] Zhang, L.X., Zhao, J.N., Sun, M., *et al.* (2014) The Effect of Cognitive Behavioral Intervention on Anxiety and Depression in Patients with Chronic Hepatitis B. *Guangdong Medicine*, **35**, 1895-1897. (In Chinese)

[10] Liang, T.T. and Yu, W.X. (2017) Investigation and Research on the Current Status of College Students' Knowledge, Cognition, Attitude and Behavior of Hepatitis B. *Science and Technology Information*, **15**, 250-251, 253. (In Chinese)

[11] Zhou, Y.H., Zhang, Y. and Sun, Z.H. (2018) An Investigation and Analysis of University Students' Knowledge and Attitudes Regarding Hepatitis B. *Journal of Yan'an University* (*Medical Science Edition*), **16**, 5-8, 15. (In Chinese)

[12] Yang, D.M., Chen, Z., Chen, M., *et al.* (2015) Investigation and Analysis of Hepatitis B Knowledge Attitude and Behavior of College Students in a University Business School. *Chongqing Medicine*, **44**, 366-367. (In Chinese)