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Review Article

Role of strengthening health education combined with advanced nursing on the quality of life and results of patients with viral hepatitis

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Abstract: Objective: To explore the quality of life (QOL) and results of strengthening health education combined with advanced nursing for patients with viral hepatitis. Methods: Altogether 238 patients with viral hepatitis in our hospital were selected and divided into two groups according to different treatment intervention methods, of which 135 patients were given strengthening health education combined with advanced nursing as the intervention group (IG) and 103 patients were strengthening health education combined with routine nursing as the control group (CG). The liver function indexes were compared between the two groups. The treatment compliance and sleep quality during treatment were compared. The exercise of self-care agency (ESCA) and the general self-efficacy scale (GSES) were used to evaluate the patients' self-improvement degree. The disease specific quality of life (DSQL) was used to evaluate the patients' QOL. The Hamilton anxiety scale (HAMA) and Hamilton depression scale (HAMD) were used to evaluate the bad emotion. Finally, the nursing satisfaction was evaluated. Results: The improvement of liver function in the IG was better than that in the CG. The treatment compliance of patients in the IG was higher than that in the CG. The ESCA and GSES scores in the IG after treatment were higher than those in the CG. The DSQL score, HAMA score and HAMD score in the IG were lower than those in the CG. The total number of sleep disorders after treatment in the IG was lower than that in the CG. Nursing satisfaction of patients in IG was higher than that in CG. Conclusion: Strengthening health education combined with advanced nursing for patients with viral hepatitis can effectively improve the treatment compliance, thus better promoting the therapeutic effect, reducing the adverse emotions during treatment and improving the QOL of patients.

Keywords: Strengthening health education, advanced nursing, viral hepatitis, quality of life

Introduction

Viral hepatitis is a common disease in clinic and is caused by a variety of different hepatitis viruses. It is highly infectious, widespread and has extremely complicated transmission routes. Therefore, the incidence rate is extremely high [1, 2]. The virus invades the liver cells of patients, causing degeneration and necrosis of liver cells. The clinical manifestations are gastrointestinal discomfort, anorexia and other somatic adverse perception symptoms [3]. With further deterioration and progress of the disease, liver cirrhosis and liver cancer often occur [4, 5]. Moreover, due to the repeated occurrences of viral hepatitis and the long treatment time, most patients will not cooperate with the treatment, which will eventually adversely affect the therapeutic effect [6].

Strengthening health education is performed by professional nursing staff to strengthen the education of patients' psychology, adaptability, physiology and other factors, which is a combination of treatment and education [7]. Studies have shown that viral hepatitis has chronic and periodic characteristics [8]. Most patients spend more time out of hospital than in hospital. Therefore, we need to consider the patient's self-management ability [9]. However, the traditional routine education, in correcting

the patients' inherent wrong cognition, is mainly based on passive instillation of health education, so it cannot meet the patients' internal demands [10]. However, strengthening health education can make patients understand the importance of health behavior factors from various points, so that patients can understand and subjectively accept the treatment, thus improving the self-management ability, actively receiving treatment and improving the quality of life [11]. For example, in the study by Park S and Choi JS et al. [12], in order to promote the acceptance of hepatitis A vaccine (HAV) for college students, information and education should be provided to improve their health concepts. As viral hepatitis needs long-term treatment, patients often have psychological barriers and lead to adverse events. Advanced nursing is a nursing mode that intervenes in patients' psychology, diet and emotion, and provides a series of attention and guidance to patients after discharge, which can reduce patients' psychological pressure, improve the treatment compliance, thus improving the therapeutic effect [13]. For example, in the study by Yu J and Yu Y et al. [14], emotional disorders are common in patients with chronic hepatitis B (HB) virus infection, and targeted nursing intervention can relieve the anxiety level and improve the sleep quality of patients, promote the liver index recovery, and improve the quality of life of patients.

At present, there are few researches on strengthening health education combined with advanced nursing intervention for patients with viral hepatitis. We will give strengthening health education and advanced nursing intervention to patients with viral hepatitis from admission to discharge, and explore the influence of the two on the patients' mental health status, treatment compliance and improvement of quality of life. The study aimed to provide a feasible intervention measure for the curative effect of patients with viral hepatitis.

Materials and methods

General data

Altogether 238 patients with viral hepatitis in our hospital were selected and divided into two groups according to different treatment intervention methods, of which 135 cases were treated with strengthening health education combined with advanced nursing as the intervention group (IG), including 83 males and 52 females, the patients aged 28-57 years with the average age of (42.83±10.29). Another 103 patients were given strengthening health education combined with routine nursing as the control group (CG), including 58 males and 45 females. The patients aged 24-56 years with the average age of (43.75±10.37) years. Inclusion criteria: both groups of patients were diagnosed as viral hepatitis after examination [15]; the clinical general data were complete; both groups of patients had stable life characteristics; patients could think independently; patients could correctly understand the relevant contents of the scale used in this study and give an answer. This study was approved by the Ethics Committee of our hospital. The subjects and their families have signed a fully informed consent form. Exclusion criteria: patients dropped out midway; patients had a history of mental illness or family mental illness; patients could not actively cooperate with this researcher; patients lost to follow.

Strengthening education and advanced nursing intervention

Patients in the CG were given strengthening health education combined with advanced nursing: (1) Introduction of diseases: an education group was established to introduce the transmission route of viral hepatitis; patients were guided to pay attention to personal hygiene during hospitalization, strengthen the awareness of hepatitis prevention and cut off the transmission route. Health education can be carried out in various forms, such as giving patients a health manual, WeChat video link and other forms to strengthen patients' understanding of the disease, which must be easy to understand. For patients of different ages and different educational levels, the education team should give targeted treatment and patiently listen to and explain the questions to let patients deepen their understanding of the disease. (2) Prevention of disease transmission: the clinical manifestations of viral hepatitis were explained in detail, and the visiting family members were required to be fully isolated and protected. In case of general fatigue, digestive system diseases, dull pain in the right upper abdomen, yellow skin and other condi-

tions, the visiting should be stopped immediately and the patient was treated immediately. The transmission route should be cut off. (3) Nursing intervention: the nursing staff should regularly check the vital signs of patients, give preventive care of complications before and after treatment, and give patients a good ward environment.

Patients in the IG were given strengthening education combined with advanced nursing intervention: a nursing group was set up to carry out targeted nursing for patients. (1) Psychological care: due to the recurrences of the disease, most patients would show excessive worry about their own disease, fear of infection to their families, heavy economic burden, and then have negative psychology such as pessimism, anxiety, and depression. Due to psychological pressure, patients may fear of the disease, easily leading to wrong cognition of the disease. Therefore, nursing staff should actively make psychological counseling for patients, show concern and enthusiasm for patients, understand the needs of patients in time, alleviate the physical and mental discomfort of patients through effective ways, and fundamentally eliminate the concerns of patients, and make a psychological counseling, so that patients could recognize the disease and cooperate with treatment. (2) Environmental nursing: the nursing staff should introduce the environment of the ward and the disinfection and isolation system to the patients and their families, and explain the relevant tests to be done during hospitalization and the significance of the tests, help the patients adapt to the ward environment and isolation system, and inform to help the patients maintain good personal hygiene during hospitalization. (3) Drug guidance: nursing staff should strictly follow the doctor's advice to give the drug to the patient, and inform the patient not to add or subtract the drug amount without authorization, and closely observe the patient's drug reaction. In case of discomfort, they should immediately report to the doctor for treatment. (4) Dietary guidance: the patients were guided to eat light and digestible food, and avoid spicy, stimulating, greasy and bean products. Patients were asked to drink more water to promote elimination of toxins in the body, and avoid smoking and alcohol during treatment. (5) Discharge guidance: 3 days before discharge, the patient was informed to pay attention to rest during the 3 months after discharge. All sports and activities should be based on the standard of not fatigue, strictly abide by the principle of gradual and orderly progress to gradually increase the amount of exercise and achieve the combination of activity and inertia. If the patient returned to work, regular reexamination should be required and the patient should be instructed to undergo digestive tract isolation and family disinfection and isolation. Patients were urged to pay attention to personal hygiene. Personal articles should be separated from family members. For family members who were in close contact with patients, personal protection and isolation observation should be conducted, and immunoglobulin or hepatitis vaccine should be injected in time.

Outcome measures

1. Liver function detection: a total of 5 mL venous blood was obtained from elbow before and after nursing, centrifuged at 1500×g and at 4°C for 10 min, and placed in low temperature refrigerator at -70°C for later use. Albumin (ALB), alanine transaminase (ALT), aspartate transaminase (AST) and total bilirubin (TBIL) were detected by automatic biochemical analyzer. The tests were carried out according to the specifications of human ALB (SciBen Biotech Co., Ltd., Nanjing, China, AT10719S/M), ALT (Xinfan Biotechnology Co., Ltd., Shanghai, China, XFSHB10-1), AST (Yuanye Biotechnology Co., Ltd., Shanghai, China, S86026--) and TBIL (Hengdu Biotechnology Co., Ltd., Shanghai, China, HD39014).

2. Treatment compliance: the self-made compliance medication scale of our hospital was adopted, which included whether the patient reduced medication by himself or herself, stopped medication by himself due to remission of illness, and took medication on time consciously. The score of compliance in the treatment process was fully evaluated. The score < 6 indicated low compliance, the score between 6 and 8 indicated patients were acceptable, and the score > 8 indicated high compliance.

3. Degree of self-improvement: ESCA was adopted [16]. The scale consisted of 4 different fields and 43 items. The total score after

evaluation was 172 points. Patients were given statistical scores after self-evaluation. A high score indicated a higher self-care ability. The general self-efficacy scale (GSES) [17] was applied. There were 10 items in the scale, with each item of 1-4 points and a total score of 40 points. After evaluation and statistics, the high score indicated a higher self-efficacy of the patient.

4. The Hamilton Anxiety Scale (HAMA) and Hamilton depression scale (HAMD) [18] were applied. There were 14 items in the scale, with each item of 0-4 points. The high score after evaluation indicated the more serious anxiety and depression.

5. Sleep disorders of the two groups of patients were observed and recorded. The content included difficulty in falling asleep, easy to wake up and feeling tired when waking up.

6. Quality of life: the disease specific quality of life (DSQL) [19]; There are 4 dimensions in the scale, namely physiological relationship, psychological relationship, social relationship and therapeutic effect. The score adopts a 5-grade scoring method. The higher the score after evaluation, the worse the quality of life of patients.

7. Nursing satisfaction: the self-made satisfaction questionnaire was given, with a score of 100 points. The high score was closely related to the high satisfaction of the patient with the service.

Statistical method

SPSS22.0 (Beijing Easybio Technology Co., Ltd., China) was used for statistical analysis. GraphPad Prism 7 was applied to visualize the data picture. The counting data were expressed by [n (%)] and analyzed by chi-square test. When the theoretical frequency in chi-square test was less than 5, continuity correction chi square test was used. The measurement data were expressed by mean ± SD and analyzed by t test of independent samples, the comparison before and after the group adopted paired t test, and the comparison at multiple time points adopted repeated measurement variance analysis. When $P < 0.05$, the difference had statistical significance.

Result

General data

There was no significant difference between the IG and the CG in general data such as gender, age, body mass index, course of disease, residence, nationality, educational background, smoking history, drinking history, hypertension history, diabetes history, liver cirrhosis and hepatitis B surface antigen (HBsAg) ($P > 0.05$). See **Table 1**.

Comparison of liver function indexes between the two groups before and after intervention

The concentrations of ALB, ALT, AST and TBIL in the two groups of patients before treatment had no significant difference ($P > 0.05$). After treatment, the concentrations of ALB in the IG were significantly higher than those in the CG ($P < 0.05$), while the concentrations of ALT, AST and TBIL were significantly lower than those in the CG ($P < 0.05$). See **Table 2**.

Comparison of treatment compliance between two groups of patients at different times

The total compliance rate of patients in the IG during treatment was 96.30%. The total compliance rate of patients in the CG was 85.44%. The total compliance rate of patients in the IG was 92.59% 3 months after discharge. The total compliance rate of patients in the CG was 79.61%. The results showed that the total compliance rate of patients in the IG was significantly higher than that in the CG at admission and 3 months after discharge ($P < 0.05$). See **Table 3**.

Comparison of self-improvement degree of two groups of patients in different time periods

There was no significant difference in ESCA and GSES score scale between the two groups ($P > 0.05$). After nursing intervention, the ESCA and GSES scores of the patients in the IG were significantly higher than those in the CG ($P < 0.05$) after discharge and 3 months of discharge. See **Figure 1**.

Comparison of psychological state of two groups of patients in different time periods

There was no significant difference in HAMA and HAMD scores between the two groups ($P >$

Table 1. Comparison of general data between two groups of patients [n (%)] (mean ± SD)

Classification	IG (n=135)	CG (n=103)	t/χ^2 value	*P* value
Gender			0.647	0.421
Male	83 (61.48)	58 (56.31)		
Female	52 (38.52)	45 (43.69)		
Age (years)	42.83±10.29	43.75±10.37	0.681	0.496
BMI (kg/m^2)	21.68±2.31	22.15±2.32	1.552	0.121
Course of disease (a)	3.58±0.47	3.64±0.41	1.030	0.303
Residence			0.395	0.529
Urban	75 (55.56)	53 (51.46)		
Rural	60 (44.44)	50 (48.54)		
Nationality			0.170	0.680
Han	79 (58.52)	63 (61.17)		
Minorities	56 (41.48)	40 (38.83)		
Educational background			0.599	0.275
High school or higher	57 (42.22)	47 (45.63)		
< high school	78 (57.78)	56 (54.37)		
Smoking history			0.101	0.750
Yes	84 (62.22)	62 (60.19)		
No	51 (37.78)	41 (39.81)		
Drinking history			0.521	0.411
Yes	77 (57.04)	63 (61.17)		
No	58 (42.96)	40 (38.83)		
History of hypertension			0.077	0.780
Yes	68 (50.37)	50 (48.54)		
No	67 (49.63)	53 (51.46)		
History of diabetes			1.554	0.212
Yes	73 (54.07)	64 (62.14)		
No	62 (45.93)	39 (37.86)		
Cirrhosis			1.420	0.233
Yes	83 (61.48)	71 (68.93)		
No	52 (38.52)	32 (31.07)		
HBsAg (1gIU/mL)	3.53±0.61	3.41±0.64	1.472	0.142

0.05). After nursing intervention, the HAMA and HAMD scores of the patients in the IG after discharge and 3 months after discharge were significantly lower than those in the CG (P < 0.05). See **Figure 2**.

Comparison of sleep disorders after intervention between two groups of patients

Patients in the IG had difficulty falling asleep, were easy to wake up, and had fatigue feeling when waking up, these symptoms were less than those in the CG (P > 0.05). The total incidence of sleep disorders in the IG (8.15%) was significantly lower than that in the CG (18.45%). See **Table 4**.

Comparison of quality of life in different time periods between two groups of patients

There was no significant difference in DSQL score scale between the two groups (P > 0.05). After nursing intervention, the DSQL scores of the patients in the IG were significantly lower than those in the CG 3 month after discharge (P < 0.05). See **Figure 3**.

Comparison of satisfaction of two groups of patients with intervention methods

The total satisfaction of patients in the IG was significantly higher than that in the CG (P < 0.05). See **Table 5**.

Discussion

Viral hepatitis is a common infectious disease clinically, which is mainly transmitted through body fluid, blood, and sexual contact [20, 21]. Studies have shown that if not treated in time, it will develop into chronic severe hepatitis, which will cause great harm to patients' health and even threaten their lives [22, 23]. In addition, as people have poor awareness of hepatitis prevention and low level of cognition, the incidence of viral hepatitis is extremely high. Therefore, it is particularly important to strengthen people's health education on viral hepatitis [24].

In this study, we used strengthening health education combined with advanced nursing to interfere with the treatment compliance, liver function and quality of life of patients with viral hepatitis, and found that the patient's condition improved significantly after the intervention. For example, in the study by Lopez-Gatell H et al. [25], specific plans for continuous

Table 2. Comparison of liver function indexes between the two groups before and after intervention (mean ± SD)

Group	Number of cases	ALB (g/L)		ALT (U/L)	
		Admission	Discharge	Admission	Discharge
IG	135	32.51±4.08	38.76±3.67	181.35±21.31	104.35±18.32
CG	103	32.86±4.05	35.54±3.15	184.45±21.35	132.38±18.67
t	-	0.657	7.124	1.111	11.600
P	-	0.511	< 0.001	0.267	< 0.001
Group	Number of cases	AST (U/L)		TBIL (μmol/L)	
		Admission	Discharge	Admission	Discharge
IG	135	103.02±17.67	35.92±3.68	42.67±6.23	24.64±4.05
CG	103	101.48±17.37	55.57±4.84	42.89±6.28	27.57±4.17
t	-	0.671	35.590	0.269	5.459
P	-	0.502	< 0.001	0.788	< 0.001

health and education improvement for populations vulnerable to hepatitis A virus can significantly improve the possibility of vaccination in vulnerable areas. In the study by Williams S et al. [26], effective nursing interventions such as self-motivation and psychological intervention for hepatitis C patients can significantly improve the compliance of patients with drug therapy and improve the therapeutic effect of patients. This study compared the improvement of liver function between the two patients. The results showed that the improvement of ALB, ALT, AST and TBIL in the IG after intervention was significantly higher than that in the CG, indicating that the treatment compliance rate, the liver function, and the therapeutic effect of the patients were effectively improved after intervention. Moreover, comparing the compliance rate of treatment, it was found that the total compliance rate of patients in the IG was significantly higher than that in the CG, while the compliance rate decreased 3 months after discharge, indicating that strengthening health education combined with advanced nursing could enable the patients to voluntarily take drugs on time 3 months after discharge, so the medication compliance of the patients in the IG was not significantly reduced. ESCA and GSES scores were included in this study to evaluate the self-improvement degree of the two groups of patients after different intervention methods. The results showed that ESCA and GSES scores of patients in the IG were significantly higher than those in the CG at discharge and 3 months after discharge, indicating that strengthening health education combined with advanced nursing could enable patients to follow the advice of the medical drugs and conduct regular reexamination after discharge, improve the cooperation degree of patients' treatment, and improve the ability of patients to think. After forming habits, patients will still actively keep and improve their self-care ability in their daily life after discharge. For example, studies have shown that [27], giving effective intervention to patients with hepatitis B can improve drug treatment compliance, while giving medical knowledge and self-care management can also increase patients' awareness of diseases, screening, nursing and treatment, so that they can improve their health status through their own abilities. This is similar to the results of this study. Effective nursing intervention can improve the treatment compliance of patients, and also improve the self-care and management ability of patients with viral hepatitis, thus improving the therapeutic effect.

Research showed that patients suffering from hepatitis had poor psychological state, and the anxiety, depression and other psychological states were obviously increased, while their mental state and social activity ability were obviously deteriorated [28]. In the study of Kanwal F et al. [29], cooperative nursing intervention for patients with chronic hepatitis C can effectively improve the depressive outcome of patients. HAMA and HAMD scores were included in this study to evaluate the anxiety and depression of the two groups of patients before and after the intervention. The results show that the HAMA and HAMD scores of patients in the IG were significantly lower

Table 3. Comparison of treatment compliance of two groups of patients at different times [n (%)]

Group	Number of cases	Complete compliance		Basic compliance		Basic disobedience		Completely disobey		Compliance rate (%)	
		Discharge	3 months after discharge	Discharge	3 months after discharge	Discharge	3 months after discharge	Discharge	3 months after discharge	Discharge	3 months after discharge
IG	135	73 (54.07)	66 (48.89)	57 (42.22)	59 (43.70)	5 (3.70)	10 (7.41)	0 (0.00)	0 (0.00)	130 (96.30)	125 (92.59)
CG	103	39 (37.86)	32 (31.07)	49 (47.57)	50 (58.54)	14 (10.37)	17 (16.50)	1 (0.97)	4 (3.88)	88 (85.44)	82 (79.61)
t	-	-	-	-	-	-	-	-	-	8.951	8.690
P	-	-	-	-	-	-	-	-	-	0.003	0.003

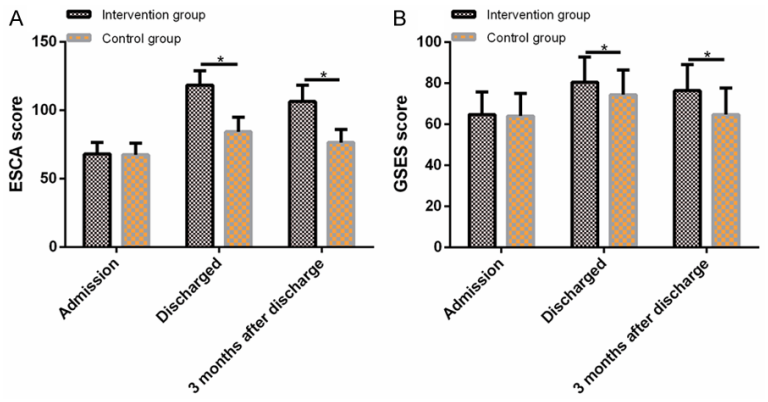

Figure 1. Comparison of self-improvement degree of two groups of patients in different time periods. A: Comparison of ESCA scores between the two groups in different time periods. B: Comparison of GSES scores between the two groups in different time periods. Note: * indicates $P < 0.05$.

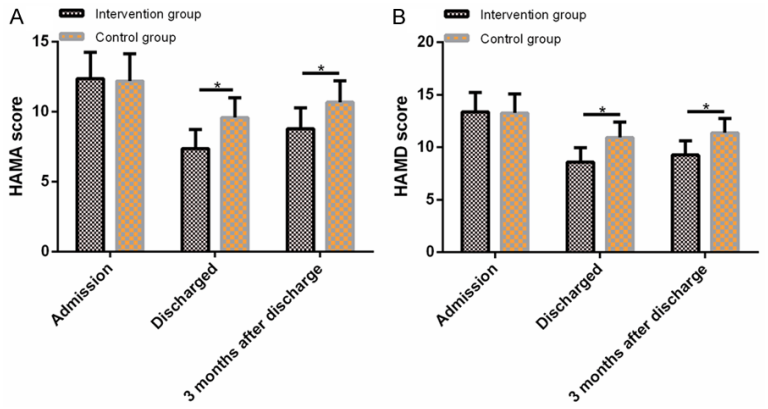

Figure 2. Comparison of psychological state of two groups of patients in different time periods. A: Comparison of HAMA scores between the two groups in different time periods. B: Comparison of HAMD scores between the two groups in different time periods. Note: * indicates $P < 0.05$.

Table 4. Comparison of sleep disorders after intervention between two groups of patients [n (%)]

Group	Number of cases	Difficulty in falling asleep	Easy to wake up	Feeling tired when wake up	Total number of cases
IG	135	4 (2.96)	2 (1.48)	5 (3.70)	11 (8.15)
CG	103	6 (5.83)	5 (4.85)	8 (7.77)	19 (18.45)
t	-				5.625
P	-				0.018

than those in the CG at discharge and 3 months after discharge. This is similar to Kanwal F et al., and the patients in this study can not only effectively enlighten the psychological state, solve the source of the pressure, improve the recognition of treatment, but also reduce the psychological state of anxiety and depression, so that patients can actively receive the treatment. The total incidence of sleep disorders in the IG was lower than that in the CG, indicating that strengthening health education combined with advanced education could reduce the psychological anxiety and depression of the patients while improving the self-confidence of the patients, thus effectively improving the sleep quality of the patients. Some studies have shown that [30] the quality of life of hepatitis patients was significantly reduced, which was related to the anxiety and depression of patients, indicating that it is necessary to focus on optimizing and managing the care of hepatitis patients to improve the quality of life of patients. This study compared the quality of life of the two groups of patients and found that the DSQL scores of the patients in the IG were significantly lower than those in the CG at discharge and 3 months after discharge, indicating that strengthening health education combined with advanced nursing intervention could effectively solve the problems of patients, improve the quality of nursing and the psychological state of patients, improve the patient's condition, and thus improve the quality of life of patients. Finally, we compared the satisfaction of the two groups of patients with this intervention. The results showed that the satisfaction score of the patients in the IG after intervention was significantly higher than that in the CG, which also showed that strengthening health education combined with advanced nursing could bring better treatment experience to the patients.

Although this study has confirmed that strengthening health education combined with ad-

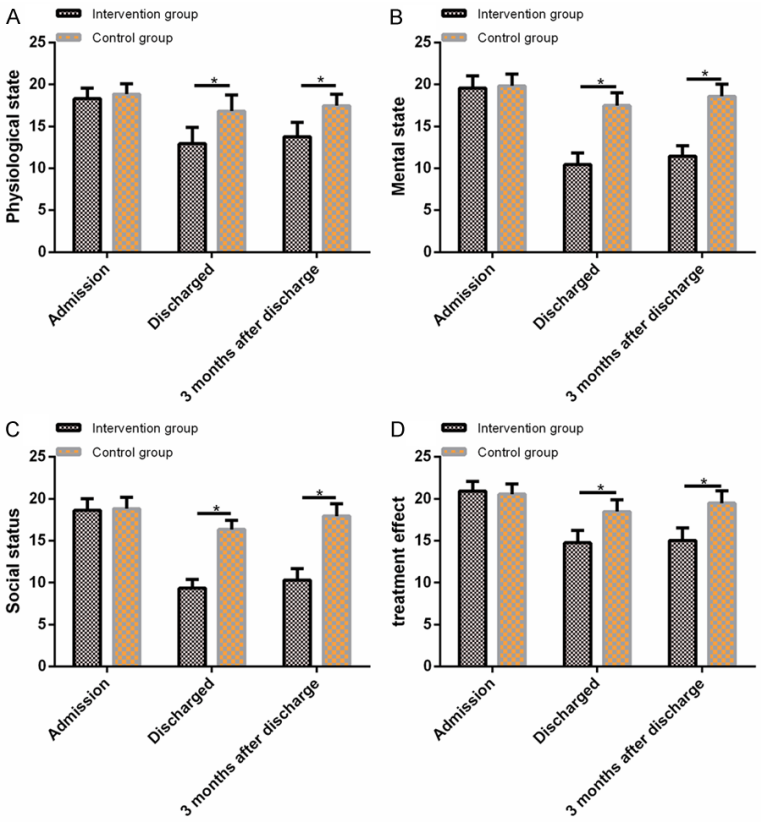

Figure 3. Comparison of quality of life of two groups of patients in different time periods. A-D: Comparison of quality of life between the two groups in different time periods. Note: * indicates $P < 0.05$.

Table 5. Comparison of satisfaction of two groups of patients [n (%)]

Group	Number of cases	Very satisfied	Satisfied	Dissatisfied	Overall satisfaction
IG	135	88 (65.19)	40 (29.63)	7 (5.19)	128 (94.81)
CG	103	36 (34.95)	45 (43.69)	22 (21.36)	81 (78.64)
t	-				14.280
P	-				0.001

vanced nursing can bring better therapeutic effects and improve the quality of life of patients with viral hepatitis during treatment, there is still room for improvement in this study. For example, we can analyze the risk factors that affect the poor prognosis of patients with viral hepatitis, which will help nurses to identify which risk factors require additional attention. In the future, supplementary research will be carried out gradually from the above perspective.

To sum up, strengthening health education combined with advanced nursing for patients with viral hepatitis can effectively improve the treatment compliance of patients, thus better promoting the therapeutic effect, reducing the adverse emotions during treatment and improving the quality of life of patients.

Disclosure of conflict of interest

None.

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References

[1] Yoon EL, Sinn DH, Lee HW and Kim JH. Current status and strategies for the control of viral hepatitis A in Korea. Clin Mol Hepatol 2017; 23: 196-204.

[2] Van Effelterre T, Guignard A, Marano C, Rojas R and Jacobsen KH. Modeling the hepatitis A epidemiological transition in Brazil and Mexico. Hum Vaccin Immunother 2017; 13: 1942-1951.

[3] Nishibayashi H, Kanayama S, Shinomura Y, Kawata S and Matsuzawa Y. Delayed gastric emptying during interferon-alpha therapy in patients with chronic hepatitis C: relief by cisapride. Scand J Gastroenterol 1997; 32: 547-551.

[4] Kim MN, Hwang SG, Kim BK, Park JY, Kim DY, Han KH, Kim SU and Ahn SH. Liver cirrhosis, not antiviral therapy, predicts clinical outcome in cohorts with heterogeneous hepatitis B viral status. Gut Liver 2019; 13: 197-205.

[5] Zhou Y, Wan Y, Ye ZW, He Z, Liu Q and Shi Y. How hepatitis B virus causes cirrhosis and liver cancer. Med Hypotheses 2017; 108: 52-53.

[6] Chronister KJ, Lothian R, Gilliver R, Kearley J and Read P. Feasibility and acceptability of adherence support for direct acting antiviral therapy for hepatitis C in a low-threshold primary

health-care opioid agonist treatment program. Drug Alcohol Rev 2019; 38: 185-189.
[7] Oshio T and Kan M. Educational level as a predictor of the incidences of non-communicable diseases among middle-aged Japanese: a hazards-model analysis. BMC Public Health 2019; 19: 852.
[8] Ozden HT. Hepatitis A seroprevalence in patients with chronic viral hepatitis in Konya, Turkey. Eur J Gastroenterol Hepatol 2016; 28: 333-337.
[9] Avanzi VM, Vicente BA, Beloto NCP, Gomes-da-Silva MM, Ribeiro CEL, Tuon FF, Vidal LRR, Nogueira MB and Raboni SM. Profile of HIV subtypes in HIV/HBV- and HIV/HCV-coinfected patients in Southern Brazil. Rev Soc Bras Med Trop 2017; 50: 470-477.
[10] Ayati MH, Pourabbasi A, Namazi N, Zargaran A, Kheiry Z, Kazemi AH and Larijani B. The necessity for integrating traditional, complementary, and alternative medicine into medical education curricula in Iran. J Integr Med 2019; 17: 296-301.
[11] Sentell T, Vamos S and Okan O. Interdisciplinary perspectives on health literacy research around the world: more important than ever in a time of COVID-19. Int J Environ Res Public Health 2020; 17: 3010.
[12] Park S and Choi JS. Predictors of hepatitis A vaccine coverage among university students in Korea. Jpn J Nurs Sci 2016; 13: 75-82.
[13] Xu L, Lin J, Zhou J and Liu R. Continuing nursing care of patients with senile and diabetic cataract. Eye Sci 2015; 30: 116-118.
[14] Yu J and Yu Y. Therapeutic effects of targeted nursing interventions combined with auricular-plaster therapy on anxiety level and life quality of Hepatitis B patients. Pak J Pharm Sci 2018; 31: 1375-1378.
[15] Sanchez G, Elizaquivel P and Aznar R. Discrimination of infectious hepatitis A viruses by propidium monoazide real-time RT-PCR. Food Environ Virol 2012; 4: 21-25.
[16] Bag E and Mollaoglu M. The evaluation of self-care and self-efficacy in patients undergoing hemodialysis. J Eval Clin Pract 2010; 16: 605-610.
[17] Zhao WH, Zhang LX, Liu CX, Niedermann K, Yang HZ and Luo W. Validation of the Chinese version of joint protection self-efficacy scale in patients with rheumatoid arthritis. Clin Rheumatol 2019; 38: 2119-2127.
[18] Zimmerman M, Thompson JS, Diehl JM, Balling C and Kiefer R. Is the DSM-5 anxious distress specifier interview a valid measure of anxiety in patients with generalized anxiety disorder: a comparison to the hamilton anxiety scale. Psychiatry Res 2020; 286: 112859.
[19] Zhang P, Lou P, Chang G, Chen P, Zhang L, Li T and Qiao C. Combined effects of sleep quality and depression on quality of life in patients with type 2 diabetes. BMC Fam Pract 2016; 17: 40.
[20] Braccio S, Irwin A, Riordan A, Shingadia D, Kelly DA, Bansal S, Ramsay M and Ladhani SN. Acute infectious hepatitis in hospitalised children: a British paediatric surveillance unit study. Arch Dis Child 2017; 102: 624-628.
[21] Dubach UC, Rosner B and Sturmer T. Epidemiologic study of analgesic abuse: mortality study in 7275 working women (1968-1987). Kidney Int 1991; 40: 728-733.
[22] Popping S, Hullegie SJ, Boerekamps A, Rijnders BJA, de Knegt RJ, Rockstroh JK, Verbon A, Boucher CAB, Nichols BE and van de Vijver DAMC. Early treatment of acute hepatitis C infection is cost-effective in HIV-infected men-who-have-sex-with-men. PLoS One 2019; 14: e0210179.
[23] Li C, Su H, Hu J, Duan H and Ji J. Case of severe acute hepatitis A virus infection in United Nations peacekeepers in South Sudan. J R Army Med Corps 2019; 165: 198-200.
[24] Pathoumthong K, Khampanisong P, Quet F, Latthaphasavang V, Souvong V and Buisson Y. Vaccination status, knowledge and awareness towards hepatitis B among students of health professions in Vientiane, Lao PDR. Vaccine 2014; 32: 4993-4999.
[25] Lopez-Gatell H, Garcia-Garcia L, Echaniz-Aviles G, Cruz-Hervert P, Olamendi-Portugal M, Castaneda-Desales D, Sanchez-Aleman MA, Romero-Martinez M, DeAntonio R, Cervantes-Apolinar MY, Cortes-Alcala R and Alpuche-Aranda C. Hepatitis A seroprevalence in adolescents and young adults in Mexico: a 2012 national health and nutrition survey analysis. Vaccine 2018; 36: 8094-8099.
[26] Williams S. Impact of nursing interventions on medication adherence during hepatitis C treatment: state of the science. Gastroenterol Nurs 2018; 41: 436-445.
[27] Cheng CW, Feng CM and Chua CS. Help-seeking experiences of hepatitis B patients in transnational medical care: the solution to health inequality is social mobility. Healthcare (Basel) 2019; 7: 125.
[28] Deng X, Liang J, Wu FS, Li YB, Zhang YP and Tang YF. Influence of Fuzheng Huayu Tablet on mental state and social function of patients with post-hepatitis B liver cirrhosis. Chin J Integr Med 2012; 18: 466-472.
[29] Kanwal F, Pyne JM, Tavakoli-Tabasi S, Nicholson S, Dieckgraefe B, Storay E, Bidwell Goetz M, Smith DL, Sansgiry S, Gifford A and Asch SM. Collaborative care for depression in chronic hepatitis C clinics. Psychiatr Serv 2016; 67: 1076-1082.
[30] Hughey BJ, Gentile TR, Kleppner D and Ducas TW. Experimental study of small ensembles of atoms in a microwave cavity. Phys Rev A 1990; 41: 6245-6254.