

The effect of high-quality nursing plus psychological intervention on the compliance and negative moods of patients with HBeAg negative chronic hepatitis B

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Abstract

Objective: This study aimed to explore the effect of high-quality nursing combined with psychological intervention on the compliance and negative emotions of patients with HBeAg negative chronic hepatitis B(CHB).

Methods: Totally 126 patients with HBeAg negative CHB admitted to our hospital between February 2019 and February 2020 were equally assigned to group A and group B according to the order of admission. Patients in group A received high-quality nursing combined with psychological intervention, and patients in group B were given conventional nursing.

Results: No significant difference was found in the clinical data between the two groups ($P>0.05$). A higher negative rate of hepatitis B virus (HBV)-DNA in group A was found in contrast to group B ($P<0.05$), and group A obtained higher quality of life scores after nursing intervention than group B ($P<0.001$). Hamilton Depression Rating Scale (HAM-D) and Hamilton Anxiety Rating Scale (HAM-A) scores in both groups were significantly decreased after nursing intervention, with lower results obtained in group A than group B ($P<0.001$). Group A obtained higher compliance scores than group B after intervention. The Herth hope index (HHI) scores in both groups declined after nursing, with higher results observed in group A ($P<0.05$).

Conclusions: High-quality nursing combined with psychological intervention was worthy of promotion and application due to its marked efficacy.

Keywords: High-quality nursing intervention; Psychological intervention; HBeAg negative chronic hepatitis B; Compliance; Negative emotions.

Literature review

Psychological factors involve thoughts, feelings, and other cognitive characteristics that affect an individual's attitude, behaviors, and functioning (Rath et al., 2018). Therefore, psychosocial factors contribute directly to the occurrence and progression of mental disorders and the outcomes of physical diseases to a certain extent, which exerts a profound impact on individual health, and the application of psychological intervention in diverse diseases has greatly enhanced the clinical efficacy and delivered significant contributions to the improvement of the quality of life and prognosis (Jiang, Yin, Li, Chen, & Gu, 2018; Thomson, Lockyer, Camic, & Chatterjee, 2018). HBeAg negative chronic hepatitis B (CHB) is a type of hepatitis with a poor prognosis, and most have developed to the advanced stage at the time of

diagnosis due to its rather hidden symptoms in the early stage. HBeAg negative CHB may progress to cirrhosis, liver cancer, and terminal-stage liver disease, with poor clinical response to antiviral treatment and frequent recurrence after drug withdrawal. Furthermore, patients are predisposed to negative emotions and poor efficacy is frequently seen in those with advanced age in light of their intolerance to a long course of treatment (Matsuno & Israel, 2018). High-quality nursing is a patient-centered nursing modality that meets the clinical needs of patients and boosts their recovery through the improvement of basic clinical nursing. It has been reported (Angstrom-Brannstrom et al., 2018) that the application of high-quality nursing plus psychological intervention had achieved significant outcomes in early renal failure disease.

Introduction

This study aimed to explore the effects of high-quality nursing plus psychological intervention on

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the compliance and negative emotions of patients with HBeAg negative CHB.

1. Materials and methods

1.1 General materials

126 patients with HBeAg negative CHB in our hospital between February 2019 and February 2020 and were equally assigned to groups A and B according to the hospitalization date. This study used stratified sampling by capturing key population characteristics in the sample, to produce characteristics in the sample that are proportional to the overall population.

1.2 Inclusion criteria

1)Patients with HBeAg negative results. 2)Patients who received antiviral treatment. 3)Patients with communication ability. 5)This study was initiated after approval from the ethics committee of our hospital, and the patients and their families signed the informed consent form after being fully informed of the objective and process of the study.

1.3 Exclusion criteria

1)Patients with abnormal coagulation function throughout the whole body. 2)Patients with hematological malignant tumors or chronic nephritis and diabetes. 3)Patients with cognitive disorders such as mental disorders which prevented cooperation with researchers.

1.4 Methods

Group B received conventional nursing. Patients were given the relevant knowledge, medication regimen, and daily precautions to raise their awareness, and were instructed to receive a regular review.

Group A adopted high-quality nursing plus psychological intervention. High-quality nursing intervention: 1) During the treatment, nursing staff actively communicated with patients to learn their psychological state and gain trust to establish a positive nurse-patient relationship. After understanding their condition, patients were encouraged to express their discomfort to eliminate negative emotions. 2) Family members were advised to accompany and care for patients to avoid discontinuation of treatment. 3) Prevention manuals were designed for patients and issues such as symptoms, causes, and treatment methods were addressed through clinical health education and lectures. The importance of clinical treatment was emphasized to patients to correct their misconceptions and improve compliance. 4) Given

the potential adverse reactions such as dizziness, nausea, and malnutrition during medication administration, a scientific diet was formulated for patients based on the principle of daylong stream of mini meals, with carbohydrates and vitamins as the major components. A time table was designed for patients to develop a healthy lifestyle, obtain adequate sleep, and perform proper physical exercise as appropriate. 5) The day before discharge, patients were given a follow-up card and informed of the details of medication and domestic nursing. Patients were followed up by telephone every week to learn about their daily life and medication, and were instructed to receive regular review. Psychological intervention: 1) The nursing staff, trained in psychometric specialization, assessed the psychological status of each patient and performed individual psychological care. 2) The nursing staff communicated with the patients with different methods depending on their mental state to eliminate their negative emotions. Family members were instructed by nursing staff to acquire disease-related knowledge to understand and support the patients. In addition, family members should supervise the patients for regular medication and regular review to relieve the negative emotions. The nursing intervention for both groups spanned 3 months.

1.5 Observational indexes

The negative rate of hepatitis B virus (HBV)-DNA in the two groups after nursing intervention was compared (standard: hepatitis B virus per ml of blood <500).

MOS item short-form health survey (Evangelini, Lut, & Ely, 2019) (SF-36) was used to evaluate the quality of life of patients in the two groups before and after nursing intervention, with a total score of 100 points. A higher score implied a better quality of life.

Hamilton anxiety rating scale (Kang et al., 2019) (HAM-A) and Hamilton depression rating scale (Beevi, Low, & Hassan, 2019) (HAM-D) were used to measure the anxiety and depression of both groups before and after nursing intervention. HAM-A was composed of 14 items, and scores ranged from 0 to 56 points, and less than 7 points represented as normal, 7-13 points as slight anxiety, 14 points or above as definite anxiety, 21 points or above as obvious anxiety, and 29 points or above as serious anxiety. HAM-D was composed of 17 items, and scores ranged from 0 to 68 points, and less than 8 points represented as normal, 8-20 points as slight depression, 21-35 points as definite depression, and more than 35 points as severe

depression.

A *Patient Compliance Questionnaire* designed by our department was to evaluate the treatment compliance of the two groups before and after nursing intervention from three aspects of regular review, medication, and lifestyle. In this scale, the full score for each item was 5 points. A higher score implied a better compliance.

Herth hope index(Thompson, Broadbent, Fullertyszkiwicz, Bertino, & Staiger, 2019)(HHI) was to evaluate the hope of the two groups before and after the nursing intervention(scores range from 0 to 50 points). A higher score implied a better state of mind.

1.6 Statistical methods

SPSS21.0 software was used for data analysis, and GraphPad Prism 7(GraphPad Software, San Diego, USA) was used for image rendering. The enumeration data were analyzed using χ^2 test and described by [n(%)]. ($\bar{x} \pm s$) was used to express the measurement data that were performed by the t-test. The difference was considered statistically significant when $P < 0.05$.

2. Results

2.1 Comparison of clinical data

The two groups showed similar clinical data such as gender, mean age, mean course, mean BMI value, liver function classification, education level, and residence between the two groups($P > 0.05$). See Table 1.

2.2 Comparison of HBV-DNA negative rate

After intervention, group A obtained a higher HBV-DNA negative rate than group B($P < 0.05$), as shown in Figure 1.

2.3 Comparison of the quality of life

Group A obtained a better quality of life score than group B after treatment ($P < 0.05$), as shown in Figure 2.

2.4 Comparison of HAMD and HAMA scores

No significant difference was observed in the HAM-D and HAM-A scores between the two groups before nursing intervention($P > 0.05$), and group A obtained higher HAM-D and HAMA scores after nursing intervention($P < 0.05$). See Table 2.

2.5 Comparison of compliance scores

The compliance scores with regard to regular review, medication, and lifestyle didn't differ significantly between the two groups before nursing intervention($P > 0.05$), and group A obtained

a higher score of regular review, medication, and lifestyle after intervention ($P < 0.05$). See Table 3.

2.6 Comparison of HHI scores

Both groups obtained an increase in the HHI score after nursing intervention ($P < 0.05$), with a higher result observed in group A ($P < 0.05$), as shown in Figure 3.

3. Discussion

CHB is a chronic liver infection caused by HBV, and inoculation of the hepatitis B vaccine is the most effective prevention (Bollerup et al., 2020; Diallo et al., 2020). This virus is transmitted mainly through mother-to-child transmission, sexual transmission, and blood transmission. Symptoms in the early stages include weakness of the limbs and loss of appetite, and the deterioration of the disease may result in spider nevi and hepatosplenomegaly. The occurrence of decompensated cirrhosis or hepatocellular carcinoma as the disease progresses results in liver damage, which severely compromises the quality of life of patients. Therefore, timely antiviral therapy, liver protection, and immunomodulatory therapy in CHB patients can significantly enhance the quality of life of patients. (Manolakopoulos et al., 2020; Wang et al., 2020).

HBeAg is a crucial indicator for the evaluation of HBV replication. Previous studies have confirmed that alanine transaminase (ALT) in patients with HBeAg negative CHB fluctuates repeatedly or continuously increases, which may lead to liver fibrosis and chronic liver damage(Sevincer, Wagner, & Oettingen, 2020; Simonton & Garn, 2019). HBeAg negative CHB is characterized by a long course of disease, frequent recurrence, and infection, which prevents normal daily living of patients and gives rise to negative emotions. In addition, some patients fail to maintain positive treatment compliance and a regular review, which compromises the efficacy. Therefore, effective nursing interventions contribute to the elimination of negative emotions and the enhancement of compliance and efficacy(Habersaat et al., 2020; Y. Yang, Song, Doan, & Wang, 2020).

Medical psychology has witnessed significant advances in recent years. High-quality nursing intervention emerges through the continuous optimization of traditional nursing measures, in which comprehensive and detailed nursing is provided based on the clinical needs, to improve the prognosis. Psychological intervention is to accurately assess the mental state of patients and then provide individual nursing with emphasis on

family support (C.-E. Yang, Wang, & Yang, 2020; Zhuang et al., 2020).

In this study, group A received high-quality nursing plus psychological intervention, and group B received conventional nursing. Group A obtained lower HAMD and HAMA scores than group B ($P < 0.001$), which was similar to the findings of Allan Ma et al. (Ma, Motyka, Gutfreund, Shi, & George, 2020). They pointed out that high-quality nursing plus psychological intervention was performed on patients with chronic obstructive pulmonary disease, and their HAMA score after nursing intervention was markedly higher than before nursing intervention [(9.23±2.56) points vs (18.62±4.17) points], suggesting that the joint nursing intervention effectively alleviated their negative moods and facilitated treatment efficacy. The limitation of this study is the absence of a large sample size, which will be expanded in future studies to provide more reliable conclusions.

Study implications

High-quality nursing combined with psychological intervention effectively alleviates negative moods and enhances compliance and quality of life in patients with HBeAg negative CHB, which is worth being promoted and applied.

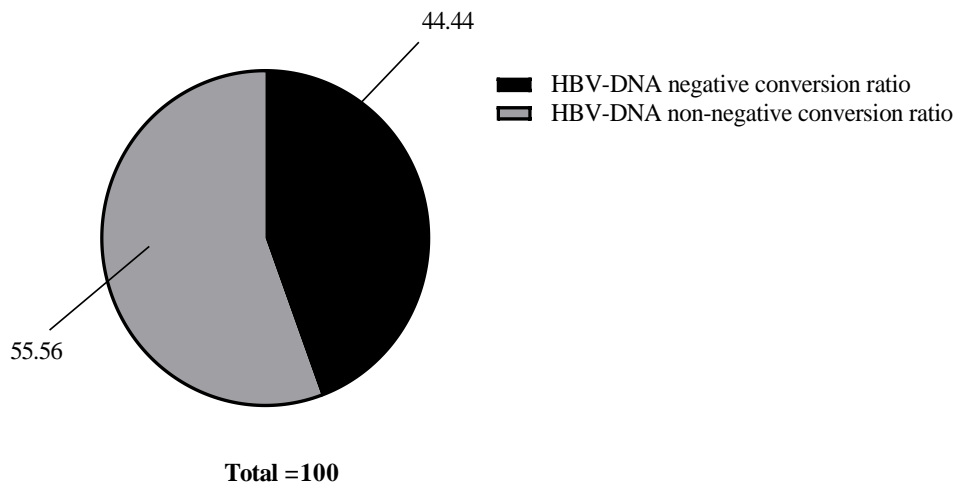
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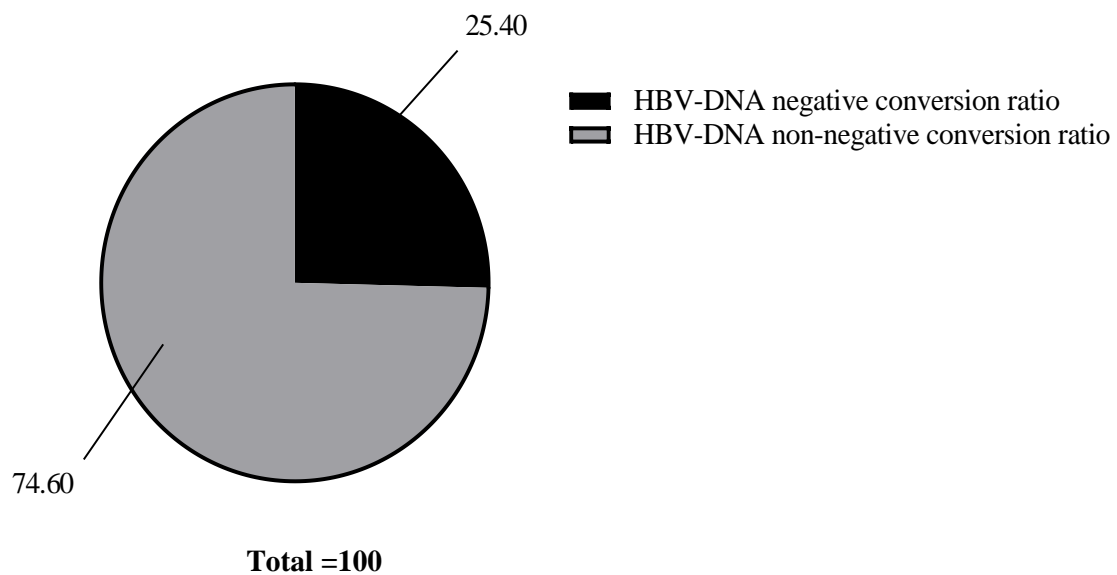
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Table 1. Comparison of clinical data

Group	A(n=63)	B(n=63)	χ^2/t	P
Gender			0.128	0.721
Male	33(52.38%)	35(55.56%)		
Female	30(47.62%)	28(44.44%)		
Mean age(years)	57.43±3.25	57.41±3.28	0.034	0.973
Mean course(years)	3.24±0.43	3.26±0.41	0.267	0.790
Mean BMI value(kg/m ²)	22.41±0.32	22.44±0.35	0.502	0.617
Liver function classification				
A	19(30.16%)	21(33.33%)	0.147	0.702
B	30(47.62%)	29(46.03%)	0.032	0.858
C	14(22.22%)	13(20.63%)	0.047	0.828
Education				
Undergraduate	13(20.63%)	15(23.81%)	0.184	0.668
Secondary school	38(60.32%)	36(57.14%)	0.131	0.717
Primary school	12(19.05%)	12(19.05%)	0.000	1.000
Residence			0.130	0.719
Urban	28(44.44%)	26(41.27%)		
Rural	35(55.56%)	37(58.73%)		



图I



图II

Figure 1. Comparison of HBV-DNA conversion rate into negative after nursing intervention

Note: Figure I illustrates the negative conversion rate of HBV-DNA after nursing intervention in group A, and Figure II illustrates the group B after nursing intervention. Black part describes HBV-DNA negative conversion rate, and gray part describes HBV-DNA non-negative conversion rate.

The negative conversion rate and non-negative conversion rate of HBV-DNA in group A after nursing intervention was 44.44% (28/63) and 55.56% (35/63), respectively.

The negative conversion rate and non-negative conversion rate of HBV-DNA in group B after nursing intervention was 25.40% (16/63) and 74.60% (47/63), respectively.

A significant difference existed in the HBV-DNA negative conversion rate between the two groups after nursing intervention ($\chi^2=5.029$, $P=0.025$).

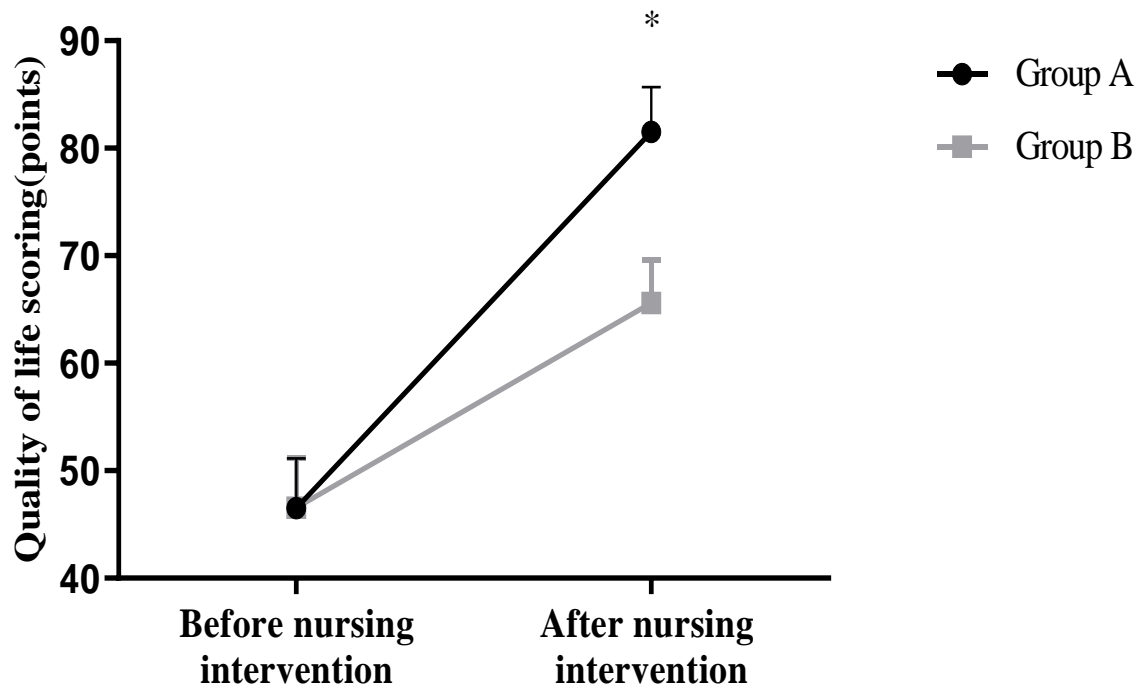


Figure 2. Comparison of the quality of life scores before and after nursing intervention ($\bar{x} \pm s$)

Note: The X-axis illustrates before and after nursing intervention, and the Y-axis illustrates the quality of life score (points).

The quality of life scores of patients in group A before and after nursing intervention were (43.26 ± 6.53) points and (78.59 ± 5.89) points, respectively.

The quality of life scores of patients in group B before and after nursing intervention were (43.29 ± 6.51) points and (62.77 ± 5.64) points, respectively.

* implies that a difference remained significant in the quality of life scores between the two groups after nursing intervention ($t=15.398$, $P=0.000$).

Table 2. Comparison of HAMD and HAMA scores before and after nursing intervention ($\bar{x} \pm s$, points)

Group	n	HAMD		HAMA	
		Before nursing intervention	After nursing intervention	Before nursing intervention	After nursing intervention
A	63	21.34 ± 3.42	9.25 ± 2.44	18.23 ± 3.21	8.72 ± 2.43
B	63	21.37 ± 3.46	14.32 ± 2.48	18.26 ± 3.24	13.52 ± 2.38
t		0.049	11.567	0.052	11.201
P		0.961	0.000	0.958	0.000

Table 3. Comparison of compliance scores after nursing intervention ($\bar{x} \pm s$, points)

Group	n	Regular review		Medication		Lifestyle	
		Before nursing intervention	After nursing intervention	Before nursing intervention	After nursing intervention	Before nursing intervention	After nursing intervention
A	63	2.06 ± 0.32	3.42 ± 0.65	2.14 ± 0.35	3.35 ± 0.29	2.17 ± 0.36	3.93 ± 0.44
B	63	2.08 ± 0.35	2.79 ± 0.58	2.17 ± 0.41	2.85 ± 0.27	2.18 ± 0.39	2.75 ± 0.42
t		0.335	4.100	0.442	10.016	0.150	2.349
P		0.738	0.000	0.660	0.000	0.881	0.020

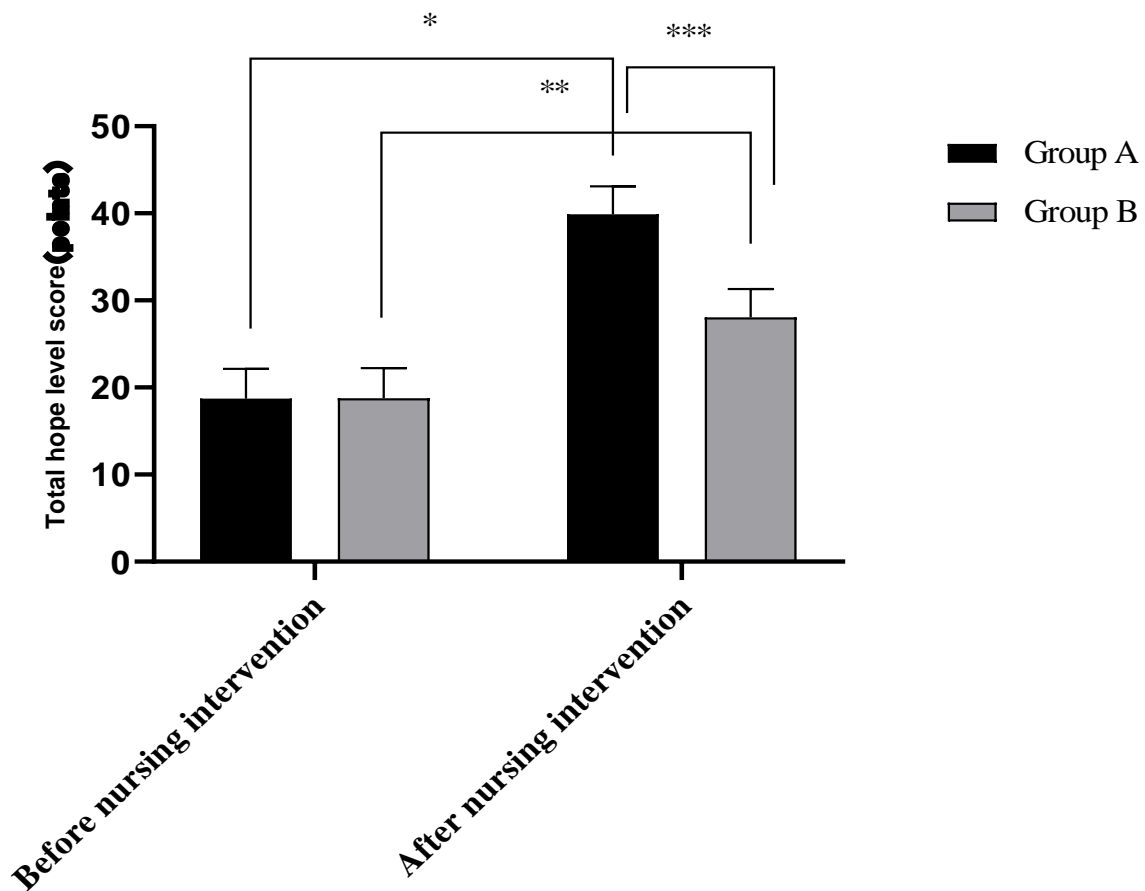


Figure 3. Comparison of HHI scores before and after nursing intervention($\bar{x}\pm s$)

Note: The X-axis illustrates before and after nursing intervention, and the Y-axis illustrates HHI score(points).

The HHI scores of patients in group A before and after nursing intervention were (16.32±4.83) points and (37.63±4.53) points, respectively.

The HHI scores of patients in group B before and after nursing intervention were (16.35±4.86) points and (25.79±4.58) points, respectively.

* implies that a difference does exist significantly in HHI scores before and after nursing intervention in group A ($t=25.543$, $P=0.000$).

** implies that a difference does exist significantly in HHI scores before and after nursing intervention in group B ($t=11.220$, $P=0.000$).

*** implies that a difference does exist significantly in HHI scores between the two groups after nursing intervention ($t=14.589$, $P=0.000$).