



The Effects of Cognitive Behavioral Therapy on Quality of Life Among Patients with Hepatitis B

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Received 2018 April 16; Revised 2018 July 19; Accepted 2018 August 01.

Abstract

Background and Objectives: Hepatitis B is associated with different physical and psychological complications. This study sought to evaluate the effects of cognitive behavioral therapy on the quality of life among patients with hepatitis B.

Methods: In this quasi-experimental study, 60 patients with hepatitis B were conveniently recruited from a private infectious disease clinic in Birjand, Iran. The patients were randomly allocated to either a control (n = 30) or an intervention (n = 30) group. Patients in the intervention group received cognitive behavioral therapy in eight 45-minute sessions while their counterparts received no cognitive behavioral therapy. All patients completed the 36-item Short Form Survey both before and after the intervention. The SPSS software (v. 15.0) was used to analyze the data by running the paired-sample t, independent-sample t, Wilcoxon signed-rank, and Mann-Whitney U test at a significance level of less than 0.05.

Results: In the intervention group, the scores of the social functioning and general health domains of quality of life significantly decreased while the score of the emotional well-being domain significantly increased after the intervention ($P < 0.05$). However, the mean scores of the other domains did not change significantly ($P > 0.05$). Moreover, in the control group, the scores of quality of life and its social functioning and general health domains significantly decreased ($P < 0.05$), while the scores of the other dimensions did not change significantly ($P > 0.05$). The groups did not significantly differ from each other respecting the pretest-posttest mean scores of the quality of life and its domains ($P > 0.05$).

Conclusions: This study suggests that cognitive behavioral therapy has no significant effect on the quality of life but significantly improves emotional well-being among patients with hepatitis B.

Keywords: Hepatitis B, Quality of Life, Cognitive Behavioral Therapy

1. Background

Hepatitis, or the inflammation of the liver, is referred to a wide spectrum of liver injuries caused by viruses, poisons, medications, or metabolic or immune factors (1). Currently, infection with hepatitis B virus (HBV) is among the most challenging healthcare problems around the world (2). HBV is a major cause of chronic hepatitis, cirrhosis, and hepatocellular carcinoma. It is estimated that around two billion people worldwide have been infected with hepatitis B and 350 suffer from chronic hepatitis B. Around 75% of chronic HBV carriers live in Asia and the western Pacific area (3). Hepatitis B surface antigen (HBsAg) is found in almost all bodily secretions of the infected individuals, including semen and saliva (4). HBV is easily transmit-

ted through blood, bodily secretions, and sexual relationships. It is one hundred times more infectious than human immunodeficiency virus and can survive in dry blood for more than one week (5).

The diagnosis of hepatitis B can cause depression, anxiety, despair, and disappointment for the afflicted patients. These patients may have problems in finding a good job, working efficiently, and caring for their families and may be dismissed by their societies and even families (6, 7). Moreover, it can drastically affect patients' quality of life (QOL) so that patients with chronic hepatitis B usually have low QOL (8).

QOL is defined as "individuals' perceptions of their position in life in the context of the culture and value system in which they live and in relation to their goals, ex-

pectations, standards, and concerns" (9). It is used as a framework for appropriate care delivery and efficient resource allocation. QOL is so much important that its improvement is sometimes considered as the most important aim of medical interventions (10). QOL has different aspects such as physical health, mental health, social relationships, family life, emotions, and physical, spiritual, and professional functioning (11). Health-related QOL has attracted considerable attention in recent years (12). It is defined as the physical, emotional, and social effects of an illness on the afflicted individual (13).

Psychological interventions, such as cognitive behavioral therapy (CBT), can potentially affect lifestyle and QOL among patients with hepatitis B. In CBT, patients are assisted to identify their distorted thinking patterns and ineffective behaviors and to modify them through purposeful dialogues and well-organized behavioral tasks (14). Accordingly, patients are taught how to diagnose, evaluate, control, and modify their negative thoughts and the related behaviors (15). In the last two decades, different studies used CBT to teach individuals how to adapt to their lives (16). This study sought to evaluate the effects of CBT on QOL among patients with hepatitis B.

2. Methods

In this quasi-experimental study, 60 patients with hepatitis B were conveniently recruited from a private infectious disease clinic in Birjand, Iran. The patients were provided with information about the study aim and were randomly allocated to either a control ($n = 30$) or an intervention ($n = 30$) group.

All patients completed a QOL questionnaire and then, patients in the intervention group received CBT in eight 45-minute sessions. The contents of the CBT program included a general introduction to CBT, CBT goals, and patients' expectations, cognitive patterns, thought-feeling relationships, information-processing errors, methods for identifying irrational thoughts, documentation of dysfunctional thoughts, thought evaluation (through verbal challenges and behavioral experiment), the downward arrow technique, transitional beliefs and underlying assumptions, and the analysis of the advantages and disadvantages of the Socratic questioning of the thoughts which causes negative feelings. Patients in the control group did not receive CBT. In the end, all patients in both groups re-completed the QOL questionnaire.

2.1. Instrument

The 36-item Short Form Survey (SF-36) was used to quantify QOL. It has 36 items in eight domains, namely physical functioning, role limitations due to physical health, role limitations due to emotional problems, energy/fatigue, emotional well-being, social functioning, pain, and general health. Each domain contains 2-10 items and its total score is calculated by summing the score of its items. The total score of SF-36 and its domains can range from 0 to 100, with higher scores showing better QOL (17). The reliability of the Persian SF-36 was confirmed in an earlier study with Cronbach's alpha values of 0.65 - 0.90 for its domains and a total test-retest correlation coefficient of 0.75 (18).

Data were analyzed using the SPSS software (v. 15.0). Initially, the normality of the scores of QOL and its domains was tested through the Kolmogorov-Smirnov test. Results showed that the scores of the social functioning and the pain domains had non-normal distributions. Accordingly, within- and between-group comparisons respecting the scores of QOL and all its domains, except for the social functioning and the pain domains, were made through the paired- and the independent-sample t tests. Moreover, within- and between-group comparisons respecting the scores of the social functioning and the pain domains were made by running the Wilcoxon signed-rank and the Mann-Whitney U tests. The significance level was considered less than 0.05.

3. Results

There were no statistically significant differences between the study groups respecting patients' gender, age, marital status, educational status, and the duration of affliction by hepatitis B ($P > 0.05$; Table 1).

In the intervention group, the scores of the social functioning and the general health domains of QOL significantly decreased, while the score of the emotional well-being domain significantly increased after the intervention ($P < 0.05$). However, the scores of the other domains did not change significantly ($P > 0.05$). Moreover, in the control group, the scores of QOL and its social functioning and general health domains significantly decreased ($P < 0.05$), while the scores of the other dimensions did not change significantly ($P > 0.05$). The groups did not significantly differ from each other respecting the pretest-

Table 1. The Comparison of the Study Groups Respecting Participants' Demographic Characteristics

Characteristics	Groups		P Value
	Intervention, No. (%)	Control, No. (%)	
Gender			0.12
Female	13 (43.3)	19 (63.3)	
Male	17 (56.7)	11 (36.7)	
Age (y)			0.79
≤ 30	6 (20)	7 (23.3)	
31 - 40	10 (33.3)	10 (33.3)	
41 - 50	6 (20)	8 (26.7)	
> 50	8 (26.7)	5 (16.7)	
Marital status			1.00
Single	5 (16.7)	5 (16.7)	
Married	25 (83.3)	25 (83.3)	
Educational status			0.97
Illiterate	3 (10)	4 (13.3)	
Below-diploma	10 (33.3)	8 (26.7)	
Diploma	9 (30)	9 (30)	
Higher	8 (26.7)	9 (30)	
Duration of affliction by hepatitis B (y)			1.00
≤ 2	8 (26.7)	8 (26.7)	
3 - 5	10 (33.3)	10 (33.3)	
6 - 10	6 (20)	6 (20)	
> 10	6 (20)	6 (20)	

posttest mean difference of the scores of QOL and its domains ($P > 0.05$; [Table 2](#)).

4. Discussion

This study showed that in the intervention group, the mean scores of the social functioning and general health domains of QOL significantly decreased, while the mean score of the emotional well-being significantly increased after the intervention ($P < 0.05$). Similarly, in the control group, the mean scores of QOL and its social functioning and general health domains decreased significantly ($P < 0.05$). In addition, there were no significant between-group differences respecting the pretest-posttest mean scores of QOL and its domains ($P > 0.05$). There was no similar study in Scopus, PubMed, Medline, Web of Science (ISI), and Google Scholar databases. However, studies on others diseases showed results contrary to our findings, implying the significant effects of CBT on QOL among patients with irritable bowel syndrome ([19, 20](#)), inflammatory bowel disease ([21](#)), limb amputation ([22](#)), alopecia areata ([23](#)), and generalized social anxiety disorder ([24](#)). Another study

also reported the effectiveness of CBT in promoting hope among patients with hepatitis B ([25](#)).

The insignificant effect of CBT on QOL in the present study (except for its emotional well-being domain) is attributable to the high prevalence of severe mental problems such as depression and anxiety among patients with hepatitis B due to the intake of medications such as Interferon, Tenofovir, and lamivudine. These problems are known to affect QOL. On the other hand, the positive effects of CBT on emotional well-being in the present study can be due to that CBT helps patients identify their dysfunctional thoughts and replace them with positive thoughts. Such replacement can improve their emotional well-being.

4.1. Conclusion

This study suggests that CBT has no significant effect on QOL but significantly improves emotional well-being among patients with hepatitis B.

Acknowledgments

We are thankful to the faculty members of Birjand Islamic Azad University and the Hepatitis Research Center

Table 2. Within- and Between-Group Comparisons Respecting the Scores of QOL and Its Domains

QOL Domains	Groups	Time		P Value ^a	Mean Difference, Mean \pm SD
		Before, Mean \pm SD	After, Mean \pm SD		
Physical functioning	Intervention	74.17 \pm 21.89	77.00 \pm 24.30	0.63	2.83 \pm 32.15
	Control	74.33 \pm 24.73	73.00 \pm 23.84	0.44	-1.33 \pm 9.37
	P value ^b	0.98	0.52	-	0.50
Role limitations due to physical health	Intervention	62.71 \pm 26.39	64.58 \pm 26.18	0.78	1.88 \pm 36.45
	Control	72.92 \pm 25.87	71.46 \pm 25.78	0.50	-1.46 \pm 11.67
	P value ^b	0.14	0.31	-	0.64
Role limitations due to emotional problems	Intervention	61.39 \pm 25.75	62.78 \pm 24.05	0.79	1.39 \pm 28.70
	Control	78.06 \pm 21.50	74.72 \pm 25.09	0.26	-3.33 \pm 15.72
	P value ^b	0.009	0.07	-	0.43
Energy/fatigue	Intervention	55.50 \pm 21.75	59.67 \pm 21.81	0.26	4.17 \pm 19.96
	Control	64.83 \pm 22.80	65.17 \pm 21.03	0.86	0.33 \pm 10.17
	P value ^b	0.11	0.32	-	0.35
Emotional well-being	Intervention	60.93 \pm 18.09	67.87 \pm 16.63	0.04	6.93 \pm 17.64
	Control	68.53 \pm 21.50	68.67 \pm 20.15	0.94	0.13 \pm 9.01
	P value ^b	0.14	0.87	-	0.07
Social functioning	Intervention	71.35 \pm 20.96	41.35 \pm 15.48	< 0.001	-30.00 \pm 23.93
	Control	80.10 \pm 19.16	44.47 \pm 12.62	< 0.001	-35.63 \pm 16.84
	P value ^b	0.10	0.26	-	0.34
Pain	Intervention	78.50 \pm 23.78	82.33 \pm 22.32	0.51	3.83 \pm 27.14
	Control	82.00 \pm 24.69	83.17 \pm 24.26	0.64	8.90 \pm 11.7
	P value ^b	0.47	0.79	-	0.99
General health	Intervention	57.00 \pm 16.28	41.53 \pm 11.13	< 0.001	-15.47 \pm 17.06
	Control	64.67 \pm 16.40	42.59 \pm 11.47	< 0.001	-22.08 \pm 9.89
	P value ^b	0.07	0.72	-	0.07
Total QOL	Intervention	65.19 \pm 15.71	62.14 \pm 11.92	0.32	-3.05 \pm 16.54
	Control	73.18 \pm 15.25	65.40 \pm 13.89	< 0.001	-7.78 \pm 6.31
	P value ^b	0.05	0.33	-	0.15

^aThe results of the paired-sample t or the Wilcoxon test.

^bThe results of the independent-sample t or the Mann-Whitney U tests.

of Birjand University of Medical Sciences, Birjand, Iran. It is worthy of note that this manuscript came from a Master's thesis in clinical psychology in Birjand Islamic Azad University, Birjand, Iran (with an ethical approval code of IR.BUMS.1395.105).

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