

Original Research Article

Association between Hepatitis B-Related Knowledge and Health-Related Quality of Life

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Abstract

Purpose: To evaluate the association between patient's knowledge of Hepatitis-B and Health Related Quality of Life (HRQoL).

Methods: A cross sectional, descriptive study was undertaken with 390 hepatitis-B patients attending two public hospitals in Quetta City, Pakistan. Knowledge of hepatitis-B was assessed using a pre-validated questionnaire. European Quality of Life scale was used for the assessment of HRQoL. Descriptive analysis was used to elaborate patients' demographic characteristics while inferential statistics were applied to report the association among study variables. Spearman's rho correlation was used to identify the association between variables.

Results: Out of 390, (230, 59.5 %) were males and the mean age of the subjects was 36.2 ± 9.2 years. One hundred and three (26 %) had primary level of education and 109 (27.9 %) were employees in the private sector. Eighty four (21 %) had a monthly income of between 10001-15000 Pakistan rupees (1 PKR = 0.0115527 USD) with 272 (69.7 %) respondents resident in urban areas. Mean HRQoL and Hepatitis-B related knowledge (HBRK) scores were categorized as poor (0.37 ± 0.3) and (8.52 ± 2.7) respectively. The correlation coefficient between HRQoL and HBRK was -0.102 ($p < 0.001$), indicating a weak negative association between the study variables.

Conclusion: The findings indicate a negative association between Hepatitis-B related knowledge and HRQoL. Therefore, providing disease-related knowledge to patients does not necessarily improve HRQoL. More attention should be given to identify individual factors that affect HRQoL among patients with Hepatitis-B.

Keywords: Health related quality of life, HRQoL, Hepatitis-B, Disease-related knowledge, Association

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INTRODUCTION

Health Related Quality of Life (HRQoL) is defined as an individual's perceived quality of life representing satisfaction in those areas of life which are likely to be affected by health status [1]. The concept of HRQoL describes factors

other than illness affecting human health and its status, which enables healthcare professionals to understand patient's perceptions of illness [2]. Health Related Quality of Life is also used to measure health status of healthy individuals to demonstrate the overall health position of the society. This helps in developing and guiding

policies and interventions to improve overall health status [2].

Existing literature reveals that patient with chronic diseases have poor HRQoL [3-5]. Within this context, Hepatitis-B (HB) affects more than 2 billion people worldwide, of these, 350 million have chronic, lifelong infection [6]. Each year an estimated six hundred thousand people die from HB-related liver diseases and 3 – 4 million people are newly infected [7]. In addition, the advance stage development, expensive treatments and fear of death associated with HB sternly affects patients' daily life activities and results in decrease health status [8,9]. Moreover, HB causes loss of self-esteem, inability to function at work, anxiety, depression, and other emotional problems, hence resulting in poor HRQoL [3].

In the past two decades, a growing demand to educate patients with HB infection has been reported in the literature [10]. Although the provision of disease-related information to HB patients is generally considered as a good practice, it is not clear whether disease-related knowledge has any impact on overall HRQoL [5,11]. Furthermore, there is paucity of information from a developing countries like Pakistan. Therefore, the study was aimed to examine the association between disease related knowledge and HRQoL in patients with HB.

EXPERIMENTAL

Study design, setting and sampling

The study was designed as a questionnaire based, cross sectional analysis. Registered HB patients attending two public hospitals (Sandamen Provisional Hospital and Bolan Medical Complex Hospital) of Quetta city, Pakistan were included in the study. A prevalence based sample of 390 HB patients was selected for the study from March 2011 to July 2011 [12]. Patients aged 18 years and above, with confirmed diagnosis of HB, and familiar with Urdu (National language of Pakistan) were included in the study. Patients who had co-morbidities, immigrants from other countries and pregnant women were excluded.

Ethical approval

This study was performed according to the ethical standards for survey procedures in Pakistan [13]. The Joint Clinical Research Committee approved the study protocol

(No.EA/NUH/1205-2009). Written consent was also obtained from the patients prior to data collection. Patients were assured of the confidentiality of their responses and educated on their right to withdraw from the study.

Data collection

Hepatitis-B Knowledge Questionnaire (HBKQ) and European Quality of Life scale (EQ-5D) were used for data collection. Both instruments were pre-tested to ascertain their reliability and validity. Data from the pre-test evaluation was not considered for the final analysis.

Assessment of HRQoL

EQ-5D is a standardized instrument for measuring HRQoL and provides a simple descriptive profile and a single index value for health status [14]. It is composed of two portions. EQ-5D descriptive EQ-5D comprising of five domains (i.e. mobility, self-care, usual activities, pain/discomfort, and anxiety/depression) each of which can be further categorized into three levels of severity. Second portion of EQ-5D VAS (Visual analogue scale) consists of a 20 cm health meter with two distinct end points (i.e. 100 which is the best imaginable health state and 0 which is the worst imaginable health state). EQ-5D is a self-administered instrument but six pharmacists were recruited and trained by the research team, to help patients with difficulty in understanding the questions. The study was also registered with EuroQoL and the Urdu version of EQ-5D was provided by the developers.

Assessment of knowledge of Hepatitis B

Hepatitis B Knowledge Questionnaire (HBKQ) consisting of 20 items was constructed after an intensive literature review [10,15]. The tool was constructed in English and translated into Urdu by adopting standard translating protocols [16]. The translation was reconfirmed by a professor stationed at the academy of languages. After the originality and constancy of the instruments was stabilized, the final version were reviewed and approved by the researchers. The tool assessed HB patient's knowledge towards causes, symptoms, transmission, treatment and management of HB. Each response was scored as 'yes' or 'no' with a maximum scoring range of 20 and a minimum of 0. A cut off level of < 11 was considered as poor whereas ≥ 11 was considered as adequate knowledge. Knowledge scores for individuals were calculated and

summed up to give the total knowledge score. Mean knowledge of the entire cohort was calculated for the final analysis.

Statistical analysis

SPSS version 16.0 (SPSS Inc., Chicago, IL) was used to compute descriptive analysis of the patients' demographic and disease related information. Categorical variables were measured as percentages while continuous variables were expressed as mean (standard deviation). EQ-5D was scored using values derived from the UK general population survey reported in 1995 [17]. Inferential statistics (Mann-Whitney and Kruskal-Wallis test) were used to identify association among study variables. Spearman's rank correlation was used to report association between HB related knowledge and HRQoL. Correlation was interpreted using the following criteria: 0 – 0.25 = weak correlation; 0.25 – 0.50 = fair correlation; 0.50 – 0.75 = good correlation; and > 0.75 = excellent correlation [18]. $P < 0.05$ was taken as margin of error for the statistical analysis.

RESULTS

The demographic information of the study participants is described in Table 1. There were more males ($n=232$, 59.5 %) the mean age of the respondent was 36.0 ± 9.2 years. One hundred and four (26.7 %) had primary level of education and 237 (70 %) had urban residency. One hundred and sixty two (41.5 %) were unemployed while 151 (38.7 %) had no source of income.

Table 2 reflects the HRQoL scores among the study population. Mean EQ-5D descriptive score was 0.37 ± 0.3 and EQ-Vas score was 57.21 ± 10.8 . A total of 41 different EQ-5D health states were described by the patients. Sixty three (16.1 %) reported some problem in the first, third, fourth and fifth domains, whereas no problem in the second domain. There was not a single patient without a stated problem in all five domains.

Table 3 reflects the knowledge of patients towards HB. The mean knowledge score for the study population was 8.48 ± 2.7 , 298 (76.4 %) were within poor knowledge range while 92 (23.6 %) had adequate knowledge about HB. Poor knowledge was apparent in responses to questions relating to symptoms (question 7-10) and transmission of HB (question 11-16). Correct answers to these questions were 25.1, 37.9, 26.9

and 24.4 % for symptoms while 39.0, 43.6, 35.6, 21.5, 25.4, and 37.4 % for transmission of HB.

Table 1: Demographic characteristics of study respondents ($n = 390$)

Description	Frequency (n=390)	%
Age		
18-27	85	21.8
28-37	125	32.1
38-47	136	34.9
48-57	35	9.0
58 < year	9	2.3
Gender		
Male	232	59.5
Female	158	40.5
Education		
Illiterate	19	4.8
Religious Education	67	17.2
Primary	104	26.7
Metric	54	13.8
Intermediate	67	17.2
Graduation	55	14.1
Post-Graduation	24	6.2
Occupation		
Unemployed	162	41.5
Civil servant	33	8.5
Private sector employee	111	28.5
Self Employed	84	21.5
Income*		
No income	151	38.7
< Pak Rs. 5000	51	13.1
5001-10000	36	9.1
10001-15000	81	20.8
>15001	71	18.2
Locality		
Urban	273	70.0
Rural	117	30.0

*1 PKR = 0.0115527 USD

The Spearman Rank order correlation coefficient between total score of knowledge and total HRQoL was -0.102 ($p < 0.001$) indicating an inverse association between knowledge scores and current status of HRQoL.

DISCUSSION

Results from the current study reported a weak negative association between HB-related knowledge and HRQoL of respondents. To the best of our knowledge and from extensive literature review, the relationship between HB related knowledge and HRQoL is yet to be explored. However, there are evidences from other chronic diseases which portray a positive

Table 2: Mean EQ-5D and VAS scores among study respondents

Description	N	EQ-5D Score (Mean ± SD)	P value	EQ-VAS (Mean ± SD)	P value
Age* (39.0 ± 9.2)					
18-30	126	0.38 ± 0.29	0.056	56.9 ± 11.4	0.291
31-40	118	0.37 ± 0.29		57.4 ± 10.4	
41-50	113	0.39 ± 0.29		58.0 ± 10.9	
>51	33	0.25 ± 0.34		54.2 ± 9.9	
Gender**					
Male	232	0.36 ± 0.31	0.584	58.3 ± 10.6	0.014
Female	158	0.38 ± 0.28		55.5 ± 11.0	
Education*					
Illiterate	19		0.613		0.112
Religious	67	0.31 ± 0.28		53.8 ± 8.7	
Primary	104	0.36 ± 0.30		55.4 ± 10.4	
Metric	54	0.37 ± 0.31		56.4 ± 11.5	
Intermediate	67	0.41 ± 0.27		58.3 ± 10.9	
Graduation	55	0.32 ± 0.30		58.6 ± 10.3	
Post-Graduation	24	0.38 ± 0.29		59.3 ± 9.4	
		0.45 ± 0.27	56.2 ± 14.4		
Occupation*					
Unemployed	162	0.38 ± 0.29	0.521	56.5 ± 10.5	0.274
Government Servant	33	0.43 ± 0.32		56.4 ± 9.5	
Private Servant	111	0.34 ± 0.29		59.0 ± 11.1	
Self Employed	84	0.35 ± 0.30		56.4 ± 9.8	
Income*					
No Income	151	0.38 ± 0.29	0.652	56.4 ± 10.9	0.838
< Pak Rs. 5000	51	0.33 ± 0.32		56.4 ± 12.0	
5001-10000	36	0.38 ± 0.29		57.4 ± 11.1	
10001-15000	81	0.35 ± 0.30		58.8 ± 10.7	
>15001	71	0.37 ± 0.29		57.3 ± 9.9	
Locality**					
Urban	273	0.37 ± 0.30	0.79	57.6 ± 10.9	0.227
Rural	117	0.36 ± 0.30		56.2 ± 10.8	

1 PKR = 0.0115527 USD; *Mann-Whitney test; **Kruskal-Wallis test

Table 3: Responses to Hepatitis B knowledge items

Hepatitis B knowledge item	Yes N (%)	No N (%)
Have you ever heard of a disease termed as hepatitis?	383 (98.2)	7 (1.8)
Have you ever heard of a disease termed as hepatitis B?	310 (79.5)	80 (20.6)
Is hepatitis B a viral diseases?*	144 (36.9)	246 (63.1)
Can hepatitis B affect liver function?	168 (43.1)	222 (56.9)
Can hepatitis B cause liver Cancer?*	105 (26.9)	285 (73.1)
Can hepatitis B affect any age group?*	103 (26.4)	287 (73.6)
The early symptoms of hepatitis B are same like cold and flu (fever, running nose, cough)*	98 (25.1)	292 (74.9)
Jaundice is one of the common symptoms of hepatitis B?*	148 (37.9)	242 (62.1)
Are nausea, vomiting and loss of appetite common symptom of hepatitis B?*	105 (26.9)	285 (73.1)
Are there no symptoms of the hepatitis B in some of the patients?*	95 (24.4)	295 (75.6)
Can hepatitis B be transmitted by un-sterilized syringes, needles and surgical instruments?*	152 (39.0)	238 (61.0)
Can hepatitis B be transmitted by contaminated blood and blood products?	170 (43.6)	220 (56.4)
Can hepatitis B be transmitted by using blades of the barber/ear and nose piercing?*	139 (35.6)	251 (64.4)
Can hepatitis B be transmitted by unsafe sex?*	84 (21.5)	306 (78.5)
Can hepatitis B be transmitted from mother to child?*	99 (25.4)	291 (74.7)
Can hepatitis B be transmitted by contaminated water/food prepared by person suffering with these infections?*	146 (37.4)	244 (62.5)
Is hepatitis B curable / treatable?	186 (47.7)	322 (41.3)
Can hepatitis B be self-cured by body?*	128 (32.8)	204 (52.3)
Is vaccination available for hepatitis B?	240 (61.5)	150 (38.5)
Is specific diet is required for the treatment of hepatitis B?	291 (74.6)	99 (35.3)

*Poor knowledge; **Note:** Knowledge was assessed by giving 1 to correct answer and 0 to the wrong answer. The scale measured knowledge from maximum 20 to minimum 0. Scores < 11 were taken as poor, > 11 as adequate knowledge of Hepatitis B. Mean knowledge score was 8.74±2.7

relationship between disease-related knowledge and HRQoL. Verma *et al* reported a significant positive correlation between Inflammatory Bowel Disease (IBD) related knowledge and HRQoL (0.3, $p < 0.001$) [11]. Similarly significant and positive association (0.208, $p < 0.001$) was reported between hypertension related knowledge and HRQoL by Saleem *et al* [5].

A number of other studies have reported significant reduction in HRQoL with HB [9,19,20], however none of them measured the association between HB knowledge and HRQoL. The present study suggests that HB related knowledge has a negative impact on HRQoL in patients suffering from HB. The reasons for this declaration are likely multi factorial. Health Related Quality of Life measures a wide range of physical, communal, and emotional behaviours which are vital in the management of diseases [2]. HRQOL is extremely difficult to measure impartially, as it depends on many pre-existing and irreversible factors such as economic status, intelligence, personality, socio-political conditions, and nature and duration of diseases [21].

Moreover, it is believed that an increase in disease related knowledge can decrease HRQoL [5]. It is a logical observation that an increase in disease-related knowledge can add to patient's awareness of their disease condition with the apprehension of developing further abnormalities [5]. The fear of developing liver cirrhosis and hepato-cellular carcinoma and death associated with HB affects patient's daily life activities and results in decrease health status [8,9]. Unfortunately, after an extensive literature review, again there is no data available from HB patients which support our hypothesis. However, Borgaonkar *et al* reported that after the completion of an educational intervention provided to IBD patients resulted in a decrease of HRQoL [22]. Similar to what is reported earlier, a study on IBD patients concluded that there was no benefit of an educational program in terms of reduced anxiety or improved HRQoL [23].

CONCLUSION

The current study reported a negative association between HB related knowledge and HRQoL. This association between knowledge and HRQoL is likely to be influenced by multiple factors. Therefore, the study recommends an in-depth psychological investigation either using qualitative exploration or multivariate analysis to

get a clearer view of individualized factors affecting HRQoL.

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