Factors Influencing the Health-Related Quality of Life in People with Chronic Hepatitis B or C

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Introduction

Hepatitis B and C are viral infections which can become chronic and result in liver damage. Causing approximately 80% of the world's primary liver cancers [1], the two blood-borne viruses present a major global health challenge. However, public awareness remains low, particularly about hepatitis B.

In Australia, the current main response to hepatitis B is inclusion in a national vaccination program. The number of chronic hepatitis B (CHB) cases is estimated at 90,000-160,000 [2], but a recent study in Victoria indicates a higher prevalence and lower immunization coverage in the population than previously thought [3]. The impact of infant immunization is minimal in immigrant populations from endemic countries and therefore, CHB diagnoses and associated cases of liver cancer are expected to further increase [4]. Consequently, the first National Hepatitis B Strategy [5] similar to one existing for hepatitis C [6] was released in 2010. A need for more hepatitis B information resources for primary health care providers was also identified [7] and relevant resources are starting to emerge (e.g. [8] or hepBhelp.org.au).

Chronic illness affects people's quality of life depending on the changes that have to be made and a person's adjustment to these changes [9]. Research generally suggests that people with CHC have decreased health-related quality of life (HRQoL), but the few findings that exist regarding CHB are inconclusive.

The purpose of this study was to explore and compare the relationships between HRQoL and 1) received information and care (RIC), 2) illness perceptions (IP), and 3) stigma in people with CHC and CHB. RIC was chosen because adequate information and support services are not yet available for people with CHB [7]. RIC fits well with the chronic care model (CCM) which covers concepts such as self-management and the removal of barriers through education [10]. IP was chosen based on Leventhal's self-regulation model [11] which states that people's mental mechanisms and social/cultural living environment form positive or negative illness perceptions which then impact on quality of life. Past research supports this model with regard to CHC [12]. Stigma was chosen because both CHB and CHC are associated with risky lifestyle choices (although CHB to a lesser extent). Research shows that stigma adversely affects the quality of life of people with CHC [13] but there is little evidence that the same is true for CHB. Apart from an Australian study showing improved hepatitis B immunization rates in young drug users when the possibility of stigmatization was removed [14], many contradicting assumptions have been made. However, the importance of preventing illness-related stigma is recognized in both national hepatitis strategies [5, 6].

Aims and Hypotheses

The aim of this study was to identify starting points for future research into the promotion of health- and information-seeking behaviours in people with chronic hepatitis, particularly CHB. The results add to current knowledge and may assist the national quest to optimize care and support for people with CHB in Australia in order to improve their quality of life and general well-being.

The hypotheses are:

1) Overall HRQoL differs between CHB and CHC participants
2) CHB participants score lower on RIC than CHC participants
3) Scores on RIC and IP predict HRQoL
4) People in the high stigma group score lower on HRQoL than those in the low stigma group; and
5) People with CHC are more likely to be in the high stigma group than those with CHB.

Method

Participants: The demographic characteristics of the sample are shown in Table 1. The CHC participants were >10 years older on average than the CHB participants. Only 3 participants identified as Indigenous Australians, 72.7% were Caucasian and half of the CHB sample identified as being Asian.

Materials and Procedure: A questionnaire was constructed incorporating demographic questions (Table 1) and the following four measurement scales:

1) RIC: Patient Assessment of Chronic Illness Care (PACIC) [15]
2) IP: Brief Illness Perception Questionnaire (Brief IPQ) [16]
3) Stigma: Social Impact Scale [17]
4) HRQoL: Chronic Liver Disease Questionnaire (CLDQ) [18]

The questionnaire was offered and completed mostly online with a detailed information page and instructions provided (human research ethics approval no: H3646). Fifteen hard copies were mailed out on request but only one was returned.

Data Analysis was conducted using SPSS (PASW Statistics 18). An alpha level of .01 was used with all parametric tests and where subgroup analysis was not pre-specified.

Table 1
Demographic Characteristics of the CHB and CHC Groups

	CHB *(n = 20)*	CHC *(n = 57)*	Total *(N = 77)*
Age (years)			
Median	39	50	48
Range	22-58	25-76	22-76
	n (% within diagnosis)		
Gender			
Female	**11 (55.0)**	**35 (61.4)**	**46 (59.7)**
Male	9 (45.0)	22 (32.6)	31 (40.3)
Ethnicity			
Asian	**10 (50.0)**	1 (1.3)	11 (14.3)
Caucasian	5 (25.0)	**51 (66.2)**	**56 (72.7)**
Indigenous Australian	1 (5.0)	2 (2.6)	3 (3.9)
Other	4 (20.0)	3 (3.9)	7 (9.1)
Location			
Australia	10 (50.0)	**52 (91.2)**	**62 (80.5)**
Overseas	10 (50.0)	5 (8.8)	15 (19.5)
Mode of Acquisition			
From Mother at Birth	2 (2.6)	-	2 (2.6)
Blood or Sexual Contact	5 (6.5)	**45 (79.0)**	**50 (64.9)**
Unknown	**13 (16.9)**	12 (21.0)	25 (32.5)
Time since Diagnosis			
Less Than 6 years	**9 (45.0)**	9 (15.8)	18 (23.4)
6 - 15 years	4 (20.0)	16 (28.1)	20 (26.0)
More Than 15 Years	7 (35.0)	**32 (56.1)**	**39 (50.6)**
Current Treatment			
None	**14 (70.0)**	**48 (84.2)**	**62 (80.5)**
Oral Antiviral	6 (30.0)	-	6 (7.8)
Interferon	-	5 (8.8)	5 (6.5)
Other	-	4 (7.0)	4 (5.2)

Table 2
Hierarchical Regression Summary for the Variables RIC and IP Predicting HRQoL (N = 67)

	Model 1			Model 2		
Variable	*B*	*SE B*	β	*B*	*SE B*	β
Total Scores RIC	.021	.007	.363*	.011	.005	.188
Total Scores IP				.086	.011	.689*
F change		9.881*			67.193*	

Note. R^2 = .13 for Model 1; ΔR^2 = .45 for Model 2
* $p < .01$

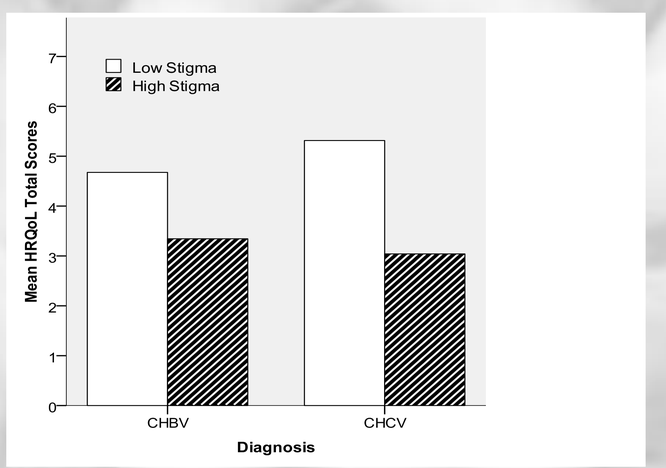

Figure 1. Mean HRQoL total scores for the low and high stigma groups within the CHB and CHC participant groups.

Table 3
Cross-Tabulation of Stigma Groups and Diagnosis Frequencies

	Diagnosis			
Stigma group	CHB	CHC	Total	χ^2
High *n* (%)	7 (35)	**29 (58)**	36 (51)	4.84*
Low *n* (%)	**13 (65)**	21 (42)	34 (49)	
Total *N* (%)	20 (28.6)	50 (71.4)	70 (100)	

* $p < .05$

Results

A significant association was found between diagnosis (CHB or CHC) and age group, $\chi^2(1, N=77) = 16.28$, $p < .0001$) (Table 1). The 5% trimmed means of age and all scales and subscales were close to the means, suggesting that despite small deviations from normality, there were no problems with outliers.

No significant difference was found between CHB and CHC participants in HRQoL scores, indicating similar levels of HRQoL on all subscales.

CHB participants scored lower on RIC (M = 57.63, SD = 27.55) than CHC participants (M = 71.76, SD = 28.23), $t(68) = -1.875$, p = .065, but the difference was not statistically significant .

The two predictors RIC and IP together explained 57.7% of variance in HRQoL total scores, $F(2, 64) = 43.57$, $p < .001$. IP alone accounted for 44.5% of the variance and made a significant unique contribution to the model while RIC did not (Table 2). Higher scores on RIC and IP predicted higher scores on HRQoL.

A significant difference in HRQoL scores was found between the low (M = 5.1, SE = .24) and high stigma groups (M = 3.1, SE = .21; $p < .001$). However, analyzed separately, the difference was only significant in CHC participants ($p < .001$) but not in CHB participants (p = .15) (Figure 1). A significant association was found between diagnosis and stigma group, $\chi^2(1, N=68) = 4.84$, p = .028, the CHB participants being much more likely to be in the low stigma group than the CHC participants (Table 3).

No significant differences were found between any of the demographic variables and scores on RIC or IP. However, scores on the Fatigue subscale (HRQoL) differed depending on time since diagnosis, $F(2, 64) = 4.937$, $p < .01$. People diagnosed >15 years ago reported higher levels of fatigue than those diagnosed <6 years ago.

Discussion

The large age gap between CHB and CHC is likely due to the fact that in contrast to CHC, CHB is mostly acquired at birth or in early childhood [19].

No significant difference in HRQoL scores was found between CHB and CHC participants, failing to support hypothesis I. Based on past research showing reduced HRQoL in people with CHC [e.g. 13], it is assumed that this is true for both groups in this study. This result contrasts with an US study reporting decreased HRQoL in people with CHC but not CHB [20], suggesting that HRQoL varies widely between CHB populations.

The CHB group scored lower on RIC than the CHC group, but not enough to support hypothesis II. A larger difference was expected based on previous research [e.g. 7]. It is possible that most CHB participants belong to a minority already engaging in CHB-related self-education as indicated by their use of online resources. Future CHB-related research should apply a more structured, community-based approach in order to recruit a more representative sample.

In line with theory [11] as well as previous research [12], RIC and IP were predictive of HRQoL scores, supporting hypothesis III. The result suggests that improved quality of life may be achievable through illness-specific education and changes toward more positive illness perceptions. The challenge is to ensure optimal dissemination of and improved access to new resources.

In support of hypothesis IV, the low stigma group scored higher on HRQoL than the high stigma group, the difference being larger in the CHC group than the CHB group (Figure 1). Confirming previous research [13, 21], CHC participants were more likely to report high stigma than those with CHB, supporting hypothesis V (Table 3). This is likely due to a stronger association of CHC with risky lifestyle choices. In addition, people with CHB who were infected at a young age may feel less responsible and therefore experience less perceived stigma. It is imperative that future efforts to raise hepatitis B awareness include strategies to keep illness-related stigmatization in the community at a low level.

Recruitment of Australians with CHB proved difficult, resulting in a small and partly non-Australian CHB sample.Therefore, the major limitation of this study is the low generalizability of the results. In addition, future research exploring barriers to accessing hepatitis B resources and services should focus on those most at risk such as Indigenous Australians and migrant populations from high-prevalence countries.

In conclusion, it appears that improved information and care and more positive illness perceptions are related to better quality of life in people with chronic viral hepatitis, and fatigue symptoms in long-term sufferers may need special attention. In addition, the experience of stigma seems to be an important differentiating factor between CHB and CHC. However, in order to draw accurate conclusions that will help prevent stigmatization in the community, further investigation of stigma-related questions is needed.

References

1. World Health Organization (WHO) (2010). Sixty-third World Health Assembly closes after passing multiple resolutions. http://www.who. int/media centre/news/releases/2010/wha_closes_20100521/en/ index.html
2.O'Sullivan, B.G., Gidding, H.F., Law, M., Kaldor, J.M., Gilbert, G.L., & Dore, G.J. (2004). Estimates of chronic hepatitis B virus infection in Australia, 2000. Australian and NZ Journal of Public Health, 28(3), 212-216.
3. Cowie, B., Karapanagiotidis, T., Enriquez, A., & Kelly, H. (2010). Markers of hepatitis B virus infection and immunity in Victoria, Australia, 1995 to 2005. Australian and New Zealand Journal of Public Health, 34(1), 72-78.
4. Dore, G., Wallace, J., Locarnini, S, Desmond, P., Gane, E., & Crawford, D. (2007), Hepatitis B in Australia: Responding to a diverse epidemic, Australasian Society for HIV Medicine.
5. Australian Government Department of Health and Ageing. (2010). Third National Hepatitis C Strategy 2010-2013. Canberra: Author.
6. Australian Government Department of Health and Ageing. (2010). National Hepatitis B Strategy 2010 - 2013. Canberra: Author.
7. Wallace, J., McNally, S, & Richmond, J. (2007). National Hepatitis B Needs Assessment 2007. Melbourne: Australian Research Centre in Sex, Health, and Society, La Trobe University.
8.Matthews, G., & Robotin, M. (Eds). (2008). B positive – all you wanted to know about hepatitis B: A guide for primary care providers. Darlinghurst, NSW: Australasian Society for HIV Medicine (ASHM).
9.Caltabiano, M., Byrne, D., & Sarafino, E. (2008). Health psychology. Milton QLD: John Wiley & Sons.
10. Battersby, M. W. (2005). Health reform through coordinated care: SA Healthplus. British Medical Journal, 330(7492), 662-665.
11. Leventhal, H., Leventhal, E. A., & Contrada, R. J. (1998). Self-regulation, health, and behavior: A perceptual-cognitive approach, Psychology and Health, 13(4), 717-733.
12. Fowler, C. L. (2007). Illness representations, coping, and quality of life in patients with hepatitis C undergoing antiviral therapy (University of Cincinnati). Dissertation Abstracts International, 68(6), 192.
13. Strauss, E., & Teixeira, M. C. D. (2006). Quality of life in hepatitis C. Liver International, 26(7), 755-765.
14. Rogers, N., & Lubman, D. I. (2005). An accelerated hepatitis B vaccination schedule for young drug users. Australian and New Zealand Journal of Public Health, 29(4), 305-307. doi:10.1111/j.1467-842X.2005.tb00197.x
15. Gugiu, P. C., Coryn, C., Clark, R., & Kuehn, A. (2009). Development and evaluation of the short version of the Patient Assessment of Chronic Illness Care instrument. Chronic Illness, 5, 268-276.
16. Broadbent, E., Petrie, K., Main, J., & Weinman, J. (2006). The brief illness perception questionnaire. Journal of Psychosomatic Research, 60(6), 631-637.
17. Fife, B. L., & Wright, E. R. (2000). The dimensionality of stigma: A comparison of its impact on the self of persons with HIV/AIDS and cancer, Journal of Health and Social Behavior, 41(1), 50-67. doi:10.2307/ 2676360
18. Younossi, Z. M., Guyatt, G., Kiwi, M., Boparai, N., & King, D. (1999). Development of a disease specific questionnaire to measure health related quality of life in patients with chronic liver disease. Gut ,45, 295-300.
19. Cowie, B.C. (2008). Managing hepatitis B virus infection in complex situations. In G. Matthews & M. Robotin (Eds). B positive – all you wanted to know about hepatitis B: A guide for primary care providers (pp. 75-81). Darlinghurst, NSW: Australasian Society for HIV Medicine (ASHM).
20. Bondini, S., Kallman, J., Dan, A., Younoszai, Z., Ramsey, L., Nader, F., & Younossi, Z. M. (2007). Health-related quality of life in patients with chronic hepatitis B. Liver International, 27(8), 1119-1125.
21. Lesmana, L. A., Leung, N. W.-Y., Mahachai, V., Phiet, P. H., Suh, D. J., Yao, G., et al. (2006). Hepatitis B: Overview of the burden of disease in the Asia-Pacific region. Liver International, 26(S2), 3-10.