

Perception of disease, well-being and financial burden by patients with chronic hepatitis B: A self-reported assessment

Dear Editor,

Chronic hepatitis B (CHB) infection affects approximately 248 million individuals in the world¹ and 3.6% of the Singapore population.² Given the natural history of CHB, regular surveillance with blood tests is necessary to ensure early detection of complications such as cirrhosis and hepatocellular carcinoma in patients. Our study aimed to evaluate patients' perception of CHB, general and emotional well-being, and financial burden as a result of CHB.

A survey was conducted among 520 patients with CHB who have been followed up at Singapore General Hospital in a hepatitis B virtual monitoring study.³ There were 194 patients who were on treatment (OT) and 326 patients not on treatment (N-OT) for CHB at the time of the survey. All survey participants were stable and chronically infected with hepatitis B virus without evidence of hepatocellular carcinoma or decompensated liver disease. Patient consent was obtained and the study was approved by SingHealth Centralised Institutional Review Board (IRB reference CIRB 2013/474/E and 2014/830/E).

The survey utilised a questionnaire on patient demographics, socioeconomic status, experience with care, health status, health beliefs and non-medical cost of care (in terms of time spent, financial burden, loss in productivity for patient and caregiver) (Appendix in Supplementary Material in the online version of this article). In the section on caregivers, patients answered on behalf of their caregiver. The survey was conducted in both English and Mandarin.

The majority (61.1%) of the 520 patients surveyed were >55 years old. Chinese ethnicity made up the majority (97.3%) of the respondents.

Knowledge and perception of the disease. There were 77.5% of patients who rated regular blood tests as very important, and the proportion did not vary between the OT and N-OT groups (78.8% versus 76.6%, $P=0.57$). However, in the follow-up question regarding respondents' understanding of the purpose of blood tests, a significant number were not sure of its purpose and implications. Although a majority of patients in both groups were aware that the blood tests were done in relation to hepatitis B, 40.2% of patients in the OT group and 31.9% in the N-OT group had the

perception that blood tests were done to "check if I still have hepatitis B", reflecting their false understanding that there is a curative intent with treatment and follow-up for CHB. Only 40.2% in the OT group and 76.9% in the N-OT group selected the correct option for purpose of monitoring for the development of liver complications from CHB.

General health and well-being. When respondents were asked to rate their general health as excellent/very good/good/fair/poor, most rated their general health as good, very good or excellent, although a significant 22.4% of patients rated their general health as fair or poor. This was similar in both the OT and N-OT groups (22.7% versus 22.1%, $P=0.88$).

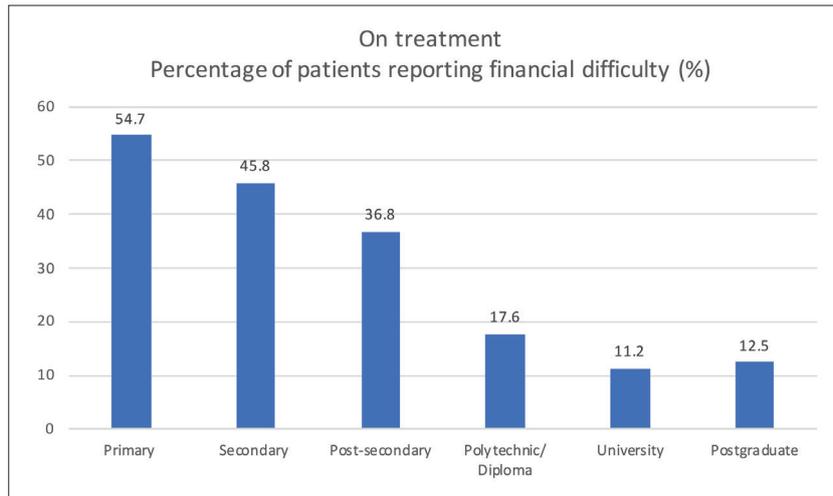
General financial status. Financial status was ranked from A to D as:

- A. After paying the bills, you still have enough money for special things that you want
- B. You have enough money to pay the bills, but little spare money to buy extra or special things
- C. You have money to pay the bills, but only because you have to cut back on things
- D. You are having difficulty paying the bills, no matter what you do

In the present study, we defined financial difficulty as ranks C or D. The percentage of respondents reporting financial difficulty was significantly higher in the OT group than the N-OT group (38.7% vs 19.4%, $P<0.001$). This showed that treatment for CHB had an impact on patients' financial burden (Figs. 1A and 1B).

We further analysed the financial impact of CHB in the OT and N-OT groups based on the educational background of patients. In the OT group, financial difficulty was significantly higher in the group with secondary school or below education compared to the group with above secondary school education (49.6% vs 20.0%, $P<0.001$). Whereas in the N-OT group, there was no significant difference in financial difficulty between the 2 education groups, (14.9% vs 22.5%, $P=0.089$). In Singapore, the average number of years of education by adults >25 years old are 10.9 years and 11.7 years for female and male sex, respectively, corresponding to the completion of secondary school.⁴

To the best of our knowledge, the present study is one of the few to assess the perception of CHB and disease



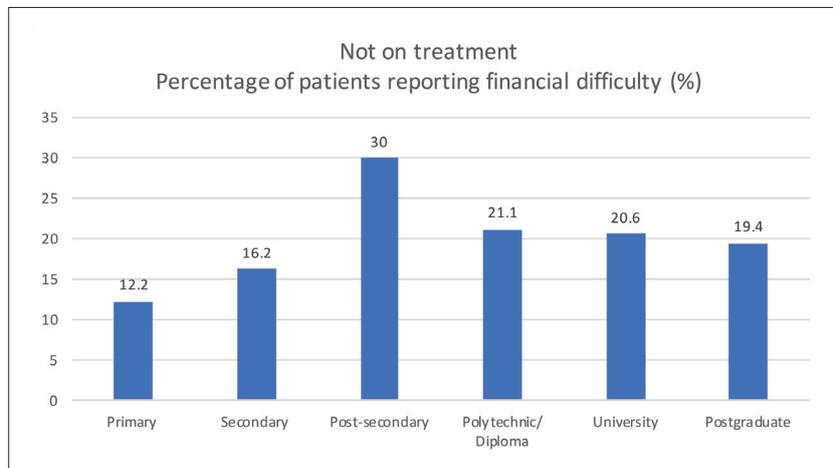
On treatment group	Total	Secondary school and below ^a	Post-secondary school and above ^b	<i>P</i> value
	n=193 ^c	n=123	n=70	
Financial difficulty, no. (%)	75 (38.9)	61 (49.6)	14 (20.0)	<0.001

Fig. 1A. Self-reported financial difficulty (rank C and rank D) by education level in group on treatment for chronic hepatitis B.

^a Includes secondary school, primary school and below

^b Includes post-secondary (non-tertiary, general or vocational), polytechnic, university and postgraduate

^c Only 193 patients of the OT group completed this section of the questionnaire



Not on treatment group	Total	Secondary school and below ^a	Post-secondary school and above ^b	<i>P</i> value
	n=325 ^c	n=134	n=191	
Financial difficulty, no. (%)	63 (19.4)	20 (14.9)	43 (22.5)	0.089

Fig. 1B. Self-reported financial difficulty (rank C and rank D) by education level in group not on treatment for chronic hepatitis B.

^a Includes secondary school, primary school and below

^b Includes post-secondary (non-tertiary, general or vocational), polytechnic, university and postgraduate

^c Only 325 patients of the N-OT group completed this section of the questionnaire

burden from a patient's point of view. A recent study on the knowledge of chronic liver diseases in Singapore showed that the public's overall knowledge about CHB, although better compared to hepatitis C, is still suboptimal.⁵ Despite 77.5% of patients rating the need for regular follow-up and blood tests as very important, a proportion of them did not fully understand the rationale of regular follow-up, blood tests and scans. In this aspect, patient education could focus on the natural history of CHB and reasons for regular blood tests and follow-up clinic visits. Such education, if constrained by time in the clinic, may be augmented by nurse-led initiatives or via virtual education platforms.³

Treatment for CHB posed a financial burden for patients, and for patients with lower educational levels. A lower education level is in turn often associated with lower income. Currently, government or private insurance does not cover outpatient expenses for CHB. For this group of patients, the use of generic medications has reduced treatment costs.

In conclusion, there is room for improvement of patients' understanding of CHB and the need for follow-up clinic visits. CHB was significantly more of a financial burden in patients with lower educational levels as compared to patients from higher educational levels.

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