


BMJ Open Work–health–personal life conflicts in naive patients with chronic hepatitis B receiving initial treatment in China: a qualitative study

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ABSTRACT

Objectives People with chronic hepatitis B (CHB) perform sick roles, work roles and personal roles simultaneously. At times, role conflicts arise because of failure to meet the expectations of different roles. Role conflicts may increase dissatisfaction in work and family and impair their physical and mental health. This study aimed to explore the perceptions of role conflicts of treatment-naive patients with CHB in work, personal and sick roles, together with ameliorating factors in the Chinese cultural context.

Design A qualitative descriptive study. Semistructured interviews were used to collect the experience of work–health–personal life conflicts (WHPLCs), and a brief questionnaire was used to collect demographic and clinical information. SPSS V.21.0 was used for descriptive analysis and Dedoose (V.7.5.9) was used to code and analyse interview transcripts. This study selected six cities with different socioeconomic levels in Zhejiang Province, China. Then, researchers chose one tertiary hospital from each city as the study site, so a total of six tertiary hospitals were involved.

Participants We recruited 32 patients with CHB (59.38% male) who had just started antiviral therapy for no more than three months. Participants were within the age range of 19–57 years, and the average age was 36.03 (SD=9.56) years.

Results Participants noted that having CHB influenced their daily life and intersected with work and personal roles, therefore causing role conflicts. Role conflicts focused on three types: time-based conflicts, strain-based conflicts and behaviour-based conflicts. The contextual factors contributing to role conflicts were identified, including personal characteristics, financial strain, traditional social roles and work environment.

Conclusions These findings enhance our understanding of the WHPLCs experience of treatment-naive patients with CHB in China. Our findings suggest that multidimensional role conflicts should be taken into account in the intervention design and psychological counselling to improve role balance and well-being among patients with CHB.

Strengths and limitations of this study

- This study was designed to investigate the work–health–personal life conflicts experienced by treatment-naive patients with chronic hepatitis B (CHB) and relevant factors in the Chinese context.
- Compared with past studies concentrating on individuals living with chronic noncommunicable diseases, this study focused on treatment-naive patients with CHB. This population just started antiviral therapy and played a sick role and other social roles simultaneously, and thus might be more likely to encounter multiple role conflicts in different life spheres.
- Participants were recruited with the help from doctors, which means that patients with good adherence were more likely to be included than those with poor adherence. Therefore, this is a purposive sample.
- The qualitative methods used in this study can only reveal the conflicts and possible associations but not the magnitude and causality of these associations, for which further studies are needed.

INTRODUCTION

Role conflict was defined by Kahn *et al*¹ as a simultaneous occurrence of two or more sets of pressures such that compliance with one makes it more difficult to comply with another. If a person is unable to adjust his or her behaviour to comply with the expectations of different roles, he or she is likely to experience multiple role conflicts. Since the worksite and family are two central institutions in most people's lives, interactions of work and family roles have commonly been reported in previous studies.^{2–5} For instance, an 'ideal' employee is expected to be at work at set times, focused only on the tasks at hand, responsive only to demands of supervisors and available for long working hours but unhampered by other responsibilities, such as

children and housework as the demands of family roles,⁶ and vice versa. With energy and time being inadequately devoted to family roles,^{7–10} the family relationships are negatively affected. However, insufficient investment in the work roles can result in job loss, which may adversely affect the quality of life of the individual and of his or her whole family.⁴ In addition, a number of studies also found that experiencing role conflicts could cause distress,^{11 12} and sleep problems,¹³ and increase dissatisfaction in work and family,¹⁴ which ultimately led to poor physical and mental health.^{5 12 15–18}

From Parsons' point of view, being sick is also an important role,¹⁹ but little attention has been paid to it in those studies on role conflicts. When perceiving themselves as sick, individuals need to meet additional specific expectations, involving committing to the goal of recovery, seeking medical treatment and complying with doctors' advice.^{20 21} Previous studies indicated that it was hard for patients with chronic diseases to confront competing expectations of an ongoing 'sick role' and the expectations of their usual roles, such as employment, parenting, intimate relationships, leisure and community involvement.^{22 23 24} Difficulties in balancing sick roles and other preillness normative roles may trigger role conflicts and further result in negative outcomes in individuals' health, work and personal life domains.^{22 23 25–27} The maladjustment of sick roles was associated with poor adherence to treatment, which might accelerate disease progression.^{28–30} In addition, Frone *et al.*³¹ found that role conflicts were related to increased levels of depression, poor physical health and heavy alcohol consumption. Gignac *et al.*²⁶ found that people with arthritis have to deal with symptoms such as pain and fatigue during work time. They also had activity limitations with work tasks which implied work–health–personal life conflicts (WHPLCs) and highlighted the necessity of the further exploration of health and work context factors that might improve role balance.³²

Chronic hepatitis B (CHB) is a kind of chronic infectious disease, and approximately 12%–15% of patients with CHB develop liver cirrhosis within 5 years.³³ As a populous nation and a highly endemic area, China has approximately 93 million people living with hepatitis B surface antigen positivity and 20 million patients with active CHB.³⁴ Hepatitis B virus (HBV) infection could be asymptomatic for many years, and only continuous monitoring is recommended for patients with CHB who do not meet the criteria for treatment.^{35 36} However, when significant inflammation and fibrosis exist with persistently abnormal alanine aminotransferase levels and evidence of high-level HBV replication, antiviral therapy is necessary. In addition, counselling based on the 'Hepatitis B Guidelines' provided by the American Association for the Study of Liver Diseases and the WHO is also given by physicians to promote the necessary lifestyle changes.^{37 38} These guidelines include alcohol reduction, smoking cessation, a healthy diet and physical activity. Hence, treatment-naive patients with CHB start to play their sick roles with

rights such as accessibility to treatment and obligations such as following physicians' suggestions.

Although multiple role conflicts have been well reported in chronic noncommunicable disease conditions, for example, arthritis,^{22 23 26 27 32 39–41} studies focusing on individuals living with chronic infectious diseases are limited. This population, with lower social function and mental health,^{38 42–44} and more disease-related stigma/discrimination,⁴⁵ also face challenges in fulfilling multiple role demands. Chinese patients with CHB reported worse quality of life than those in other countries demonstrated by stigma/discrimination in employment (eg, career development), marriage (eg, building intimate relationships) and education (eg, continuing impact of past legislation on educational choices).^{25 46 47} Patients with CHB in China may not easily follow suggestions from clinicians due to limited time, energy and financial and psychological resources and may thus experience role conflicts among work, health and personal life.^{48 49} The potential gaps among an 'ideal' employee, an involved family/friend and a patient following doctors' advice can serve as a significant conflict source.

The purpose of this qualitative study was to explore the unique multiple role conflicts experienced by naive patients with CHB receiving initial antiviral therapy in the Chinese context. The related contextual factors contributing to role conflicts were further analysed, which may inspire future interventions to help patients manage and improve role balance.

METHODS

Study design

In this qualitative descriptive study, semistructured interviews were conducted with treatment-naive patients with CHB to gain their experience of how the disease affects their daily life and to determine the WHPLCs they may face and related factors. Semistructured interviews were chosen considering the advantage of achieving rich, in-depth accounts of participants' feelings, experiences and perspectives. In addition, previous studies have found that patients with CHB usually suffer stigma/discrimination and are reluctant to disclose that they have the disease.^{47 50} Therefore, one-on-one interviews are particularly appropriate in this study to collect disease-related sensitive issues.⁵¹ Demographic and clinical information was collected via a brief questionnaire.

Settings

The settings were selected via stratified sampling. We first selected six cities with different socioeconomic levels in Zhejiang Province, China (cities: high level: Hangzhou, Ningbo; medium level: Yiwu, Huzhou; low level: Taizhou, Quzhou). Then we chose one tertiary hospital from each city as the study site, and a total of six tertiary hospitals were involved. All interviews were conducted in a private room at the hospital's hepatitis clinic.

Participants

Treatment-naïve patients with CHB who started antiviral therapy with oral nucleoside drugs for no more than 3 months prior to recruitment. Individuals who had a history of any serious and end-stage diseases or drug and alcohol abuse were excluded. Eligible patients with CHB were recruited considering maximum variation (age, gender and education level) to capture a socioculturally diverse sample. Participants were recruited until three consecutive interviews provided no more new information, which meant theoretical saturation was achieved. Ultimately, 32 participants were included in this study.

Data collection

The semistructured interview guide (see online supplemental appendix 1) was developed based on the literature regarding role conflicts in chronic disease conditions and the illness experience of patients with CHB. This interview guide was modified based on feedback from an experienced doctor for infectious diseases and pilot interviews. Questions mainly focused on the patient's life, goals, perceptions and worries that were associated with CHB in the work, health and personal life domains after diagnosis when on treatment.

The interviews were carried out from July to November 2016. Four well-trained and experienced researchers recruited the participants and explained the study objectives and methods briefly with the assistance of clinical professionals. Before the interviews started, the patients were told that their participation was completely voluntary and that all information obtained would be kept strictly confidential. Written informed consent was also obtained from each participant. Only the interviewer and participant were present during the interview. We started the interviews with an open question (eg, 'How does your CHB disease affect your daily life?') and collected data following the semistructured interview guide. Each interview was audio-taped and lasted for approximately 40 minutes.

Data analysis

EpiData V.3.1 (The EpiData Association, Denmark, Europe) was used to input, verify and organise the demographic information and disease characteristics. SPSS V.21.0 was used for descriptive analysis. Audio-taped interviews were transcribed verbatim into written medium in Word documents. The participants' tone (eg, sighing), expressions (eg, crying), motions (eg, thinking and being silent) and other visual information (eg, facial expression) were recorded as well. Unclear voices and incoherent narratives in the recordings were double-checked for accuracy. The final transcripts were imported into Dedoose V.7.5.9 (SocioCultural Research Consultants, Los Angeles, California, USA) for extraction of themes and were coded by two researchers independently. All data were analysed anonymously to protect participants' identities. An inductive thematic analysis method was used to analyse the data. The emerging themes were

identified based on meticulous and systematic reading and coding of the transcripts (see in online supplemental appendix 2). Fragments that elicited different opinions among researchers were discussed by the research team to reach a consensus.

Patient and public involvement

The participants were not involved in the design, recruitment and conduct of this study. A 100 CNY (US\$1≈6.7 CNY) reimbursement was given to each participant for their time and travel cost after the interviews.

RESULTS

Characteristics of participants

Participants were within the age range of 19–57 years, and the average age was 36.03 (SD=9.56) years. There were 19 male participants (59.38%), and 24 participants (75.00%) were married or cohabiting in a romantic or sexual relationship. Most participants (87.50%) were living with others (lovers, family or friends), had a junior high school education (34.38%) and had a full-time job (68.75%). Eight participants (25.00%) reported that their annual household income per capita was less than 24 000 CNY, and 15 participants (46.88%) rated their current health as fair. Fatigue was the most often reported symptom experienced by a majority of the patients with CHB in the past 6 months (see [table 1](#)).

Types of WHPLCs

The impacts of CHB on participants linked with WHPLCs could be classified into 11 subthemes in accordance with Greenhaus and Beutell's model of role conflicts: time-based conflicts, strain-based conflicts and behaviour-based conflicts⁵² (see [figure 1](#)).

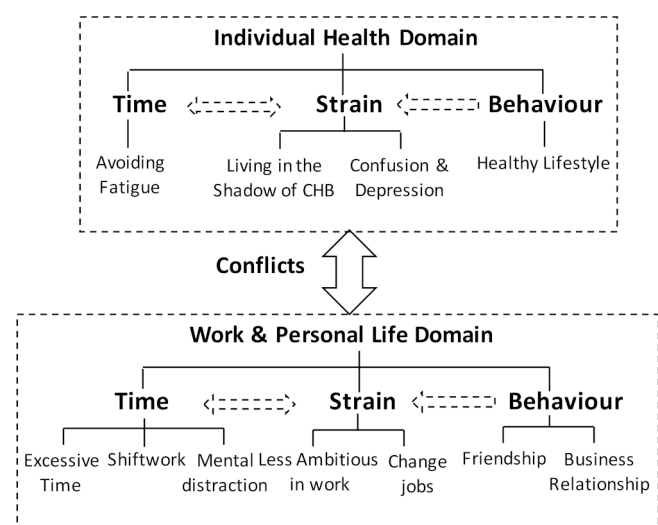
Time-based conflicts

Time-based conflicts occur when an individual could not be physically and psychologically present within multiple roles simultaneously (eg, incompatibility of time in work, rest and housekeeping), which were acknowledged by participants as a key type of WHPLCs.

From the interviews, participants reported that their work roles were generally demanding (like most jobs requiring excessive work time), while enough rest and fatigue avoidance were necessary for patients with CHB in treatment based on doctors' advice. Twelve participants mentioned that they had been asked to work overtime. Five of them refused to work for extra time considering the impact on their disease status, while the other five participants who could not refuse working overtime struggled with their worries about CHB and pressures from work: 'I don't want to work for extra hours because of the disease [CHB]. But when we were busy, everyone was there and worked overtime, how can I ask to leave. It [asking to leave] was impossible' (33201, female). Correspondingly, another issue identified by participants was that time-based conflicts may influence their job choice.

Table 1 Demographic and disease characteristics of participants (n=32)

Variables	N	Percentage	Variables	N	Percentage
Age (years)			Annual household income per capita (CNY)		
<30	8	25.00	≤24 000	8	25.00
30–39	12	37.50	24 000–56 000	15	46.88
40–49	10	31.25	≥56 000	9	28.12
≥50	2	6.25	Self-rated health		
Gender			Excellent	1	3.12
Male	19	59.38	Very good	4	12.50
Female	13	40.62	Good	6	18.75
Marital status			Fair	15	46.88
Married/cohabitation	24	75.00	Poor	6	18.75
Divorced/separated	3	7.37	Other diseases		
Single	5	15.63	Hypertension	2	6.25
Living conditions			Jaundice	1	3.12
Living with family/lover/friends	28	87.50	Chronic gastritis	1	3.12
Living alone	4	12.50	Other	5	15.63
Educational attainment			None	23	71.88
Elementary school or below	3	9.38	Disease symptoms		
Middle school	11	34.38	Fatigue	24	75.00
High school	5	15.62	Nausea	8	25.00
Junior college	4	12.50	Anorexia	11	34.38
College or above	9	28.12	Low fever	2	6.25
Employment status			Other	1	3.12
Full-time job	22	68.75	No symptoms	4	12.50
Homemaker	3	9.38	Disease symptoms severity		
Part-time job	1	3.12	None	4	12.50
Student	2	6.25	Mild	19	59.38
Unemployment	2	6.25	Moderate	8	25.00
Other	2	6.25	Severe	1	3.12

**Figure 1** Three types of WHPLCs and the association. CHB, chronic hepatitis B; WHPLCs, work–health–personal life conflicts.

For example, shiftwork in China usually requires one to work continuously for more than 8 hours and/or to be on night duty, which is difficult for participants to take. ‘Some factories are running on two shifts, twelve hours.... Even though such factories provide higher pay, I dare not work there because I know I am not strong enough. In addition, staying up late is definitely not good for my liver’ (12201, female).

Mental distraction at work caused by non-fulfillment of obligations of the sick role was illustrated by three participants, which generally resulted in less involvement in work. Six participants expressed their consideration of potential or actual fatigue from CHB, for example, ‘I’ve felt tired recently... What I consider most is how to reduce workload. I don’t seem to have anything else to think about [in work]’ (31203, female). ‘What I’m most dissatisfied with is my poor physical condition. I avoid working hard because I feel worried about the future consequences (related to CHB)’ (12101, male).

Moreover, time-based conflicts existed between the family role and sick role as well: 'About half a year ago, I found that my body became worse and felt tired, but I was too busy building a house for my family to see the doctor [for periodic review]' (22101, male). 'Sometimes I still need to do housework when I come back home [from work]; this made me feel [tired]. Anyway I just want to have a rest, without any interests in leisure activities outside with friends' (42201, female).

These time-based conflicts may lead to side effects on career development and personal life involving performing family and friend roles. They might feel stressed because they could only commit to limited obligations in specific roles, together with feeling guilty and remorseful, as they were unable to spend time on work/family or with friends. Participants facing such situations might also experience strain-based WHPLCs.

Strain-based conflicts

Strain-based conflicts occur when strain and fatigue associated with one role crossover into another role and affect performance of that other role.³¹ When mental and emotional strain stems from a sick role and there is a spillover of negative emotions from one domain to the another (eg, from personal health to work), many participants experienced strain-based conflicts that manifested as living in the shadow of CHB as well as confusion and anxiety.

Living in the shadow of CHB was identified by participants as being generated from sick roles and spreading to work-related roles. The majority of participants reported that they had experienced discrimination because of the social stigma of HBV. Nine participants noted that they faced discrimination when they applied for a job and four of them shared their failed job interview experiences: 'There is a shadow in my heart [speaking in a low voice]. And it (CHB) is not particularly good for our jobs. Nowadays, when I am looking for a job, I will feel a headache once I hear words like "healthy body" and so on (wry smile)' (21104, male). If someone suffers such a situation repeatedly, he or she might have a profound memory of CHB-related stigma, resulting in a change in cognition and coping style for a specific thing like looking for job, which is manifested as discouragement or strain, especially in the period when they were just starting antiviral therapy. In addition, living in the shadow of CHB was manifested as participants giving up promotion opportunities (work role) due to their self-discrimination in the sick roles. Fifteen participants shared the opinion that CHB made them less ambitious in their careers, 'After I had this disease, I gave up a lot of opportunities... Because of this disease... I lost interest in fighting for some positions... I know I shouldn't be too tired, so I gave up all the chances.... Well, as a patient, I don't have to be so ambitious at work' (31203, female).

Confusion and anxiety were reported by eight participants when they had difficulty changing work to balance the demands of the health and work domains, and these

emotions even flowed to the family domain, 'Considering fatigue, and I have to work for 13 hours a day. Thus, I want to change my job, but I have no suitable jobs to change to. These matters make me confused now [chuckles]' (31202, male). Meanwhile, this participant was anxious and pressured as a father because he had to raise three children, with a low annual household income per capita.

Behaviour-based conflicts

Behaviour-based conflicts refer to various behavioural expectations attached to work, health and personal life domains and the incapacity to adjust one's behaviour to meet these expectations within each life domain.

Ten participants reported that healthy lifestyle achievement was sometimes incompatible with work and/or personal life. Social interaction in work or personal life may require a person to energetically engage in social activities that are usually accompanied by alcohol consumption, smoking, and so on, in the Chinese context. 'At least now, making friends requires smoking, drinking and feast activities.... I dared not drink too much. But if I don't drink much, others will feel I am not friendly and sincere. So making [especially business] friends is most seriously influenced by this disease [CHB]' (12101, male), 'He [the doctor] advised me not to drink and smoke. And he gave me many suggestions about diet. However, to be honest, it is hard to resist. Unless I don't work, there is no way' (12202, male).

Four participants chose to reduce social activities to avoid such conflicts, but this choice did not help them resolve conflicts and was even adverse in balancing demands from each life sphere. One said, 'In social situations like a party, it is impolite to refuse drinking. So I prefer not to participate because drinking is harmful for CHB. [However,] Sometimes I would offend some people [friends or business partners] by declining parties [sigh]' (11101, male).

Associations in three types of conflicts

Through the interviews, it is not hard to find that time-based and strain-based conflicts can sometimes be interchangeable, especially in the work domain. For treatment-naive patients with CHB, both types of conflicts are related to the barrier of changing jobs and are easily influenced by work (time, intensity and so on) and society (stigma and so on), while behaviour-based conflicts are more influenced by specific competencies and the social context. There was also qualitative evidence in our study showing that unbalanced behaviour-based conflicts may result in psychological health problems and thence strain-based conflicts. 'Playing with friends requires drinking, and such opportunity is not much, only once or twice a year. But now it seems that I cannot even drink once, which means losing the pleasure of drinking with my friends' (22102, male). 'It (CHB) impacts making friends most significantly, which caused poor mental health. If I want to make a friend, he will not be satisfied until I get

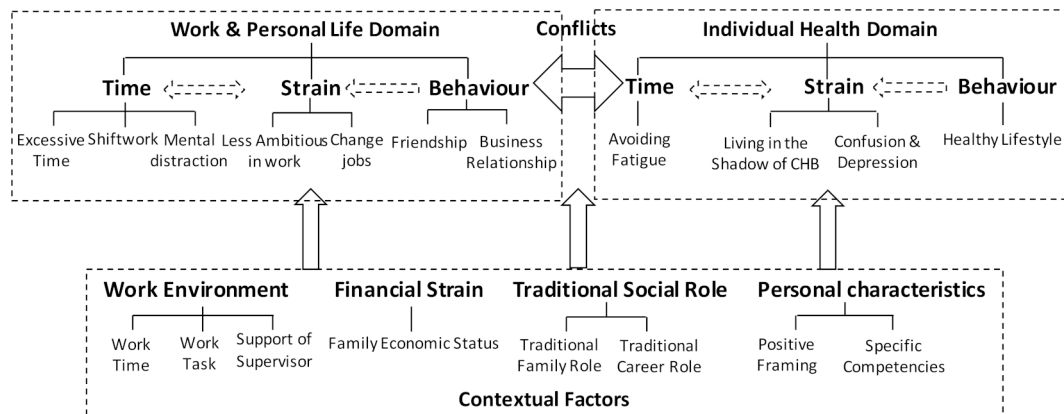


Figure 2 Contextual factors of WHPLCs. WHPLCs, work–health–personal life conflicts.

drunk, because he thinks that drinking a lot will show my sincerity' (12101, male).

Contextual factors

For each type of WHPLCs, participants noted some contextual factors alleviating their role conflicts. Contextual factors include personal characteristics, financial strain, traditional social role and work environment. Eight subthemes of these four themes were clarified (see figure 2).

Personal characteristics

Positive framing was identified as a common coping strategy used to adapt to a long-term sick role and thereby helps to reduce strain-based conflicts. As one stated, 'Because I am a positive person. I am also open-minded... Well, I can accept it [CHB] calmly and live with it... Although this disease [CHB] is a burden in my heart' (11103, female). The interviewer also found this participant reading a book called *Your Mind Can Heal Your Body*, which guided patients on how to control the negative emotions and release themselves from strain and depression during the disease process.

Three participants reported that they used their specific competencies, including effective problem-solving skills and social skills to dissolve behaviour-based conflicts. For example, one mediated behaviour-based conflict by giving an excuse for abstaining rather than telling the truth, 'Q: Well, what kind of reason will you use to tell them you do not drink? A: Alcohol allergy' (13303, male). Such a method can maintain their good living habits without forcing them to refuse others bluntly, which can in turn help reduce their mental strain.

Financial strain

Financial strain among treatment-naïve patients and their families was frequently mentioned in strain-based conflicts, which influenced health-seeking behaviour (eg, by delaying treatment) and job selection.

Eleven participants faced conflicts related to financial strain. Considering rough family economic status, five participants addressed that they were worried about the cost of lifelong treatment, which was why some of

them were not willing to take antiviral drugs. A participant noted, 'The economic condition of my family is not good. I cannot afford medicine... So I was reluctant to take medicine... If I took the antiviral drug at that time, I would not have developed into CHB now' (12201, female). When a conflict exists between individual health and family financial status, some Chinese people usually value their family roles more than their sick roles. However, as a result of delayed treatment, aggravation of their illness made participants regretful and stressed. In addition, four participants wanted to change to a more relaxing job but gave up to avoid financial strain on their family, 'This work is too stressful for me... I do want a lighter job... We do not have much savings left now. Alas. Very little [money]. [sigh] So I feel stressed. The kids will continue to study for a two-year graduate degree and they will work, then I need to consider their marriage' (11101, male).

Traditional social roles

Based on gender stereotypes, traditional social roles in Chinese culture include traditional family roles and career roles.

Generally, women and men play different family roles and shoulder various responsibilities in the Chinese family. Men are more likely to earn money and support the family financially, while women take more time to do housework and take care of children. Eight participants identified traditional social roles as associated with multiple role conflicts. It seems that women suffer less due to family financial burden and experience less individual health and work conflicts. As a female participant described, 'When I was diagnosed with CHB, I was forced to stop working in the factory. My husband told me that I did not need to work and suggested that I stay at home [look after the kid and do housework]. So I did not worry too much' (23101, female). In contrast, a male participant stated, 'It is harmful for health. So I have to think whether I should continue this job or not. I don't want to do this job any more. [silence] But when I calm down, if I don't work, as the primary breadwinner of my family, as a father, I still have two children [to raise]' (11101,

male). It was supposed that men would experience more individual health–work conflicts than women due to their work roles. A female participant reported, ‘You must drink even though you can’t drink.... In that situation, you are not allowed to say you cannot drink.... Nevertheless, you are a woman. If you were a man, drinking avoidance is not easy, right? [laugh]’ (11103, female).

Work environment

The work environment is important for time management, including work time, work tasks and supervisor support. Flexible work time and work tasks are positively related to autonomy at work and the control of time. In a flexible work condition, people will meet fewer time-incompatible problems and have less work stress, thus reducing time-based conflicts and strain-based conflicts effectively: ‘I don’t need to go to work at nine o’clock in the morning and finish at five. Regardless, freedom and creativity play a key role in my job. Compared with other jobs, I feel my work is more relaxing’ (13303, male). Moreover, a high level of supervisor support is positively associated with fewer time-based conflicts as well: ‘Working in the factory is also unconstrained. Other people work at 7:30 every day, but I arrive at the factory at 8 o’clock. The factory treats me nice’ (23101, female).

DISCUSSION

The participants recruited in our study experienced time-based, strain-based and behaviour-based WHPLCs, owing to contextual factors involving personal characteristics, financial strain, traditional social role and work environment. These findings are a critical first step in identifying the risk of work-related, health-related and personal life-related problems and in developing tailored interventions to achieve role balance.

Conflicts emerged between sick roles and other social roles

Time-based conflicts were usually associated with the discrepancy between work time requirements (such as excessive work time, shift work and inflexible work schedules) and enough rest required by the sick roles. A Japanese study found that patients with CHB faced employment-related difficulties owing to the limited time resources, and some of them were demoted or forced to quit their jobs.²⁹ Unbefitting working hours were also reported to interfere with family life as well.^{53–55} Gignac *et al*²³ reported that work and personal demands sometimes interfered with the time needed to care for arthritis, including scheduling healthcare appointments and getting rest. However, illness-related symptoms could interfere with work concentration and productivity, which further led to reduced time efficiency. Patients living with chronic diseases viewed fatigue as the main factor limiting their job opportunity and work capacity,^{23 56 57} which was consistent with our findings. The awareness of fatigue itself stressed the participants in our study who were pursuing career development and negatively influenced

their work performance further, which was also in agreement with previous evidence from a study focused on patients with rheumatic diseases.⁴¹

HBV infection has been identified as a barrier in work and social life by many studies but mostly from the angle of disease prejudice and discrimination/stigma.^{25 47 58 59} Fatigue was only considered by doctors as a physical symptom along with nausea and digestion difficulties.^{25 47 58 59} However, few studies have investigated the impacts of fatigue on work and social lives among patients with CHB. The findings of this study add to the literature on how the sick roles, which require the avoidance of fatigue, physically and mentally impacted the work and family lives of patients with CHB.

Strain-based conflicts in this study usually arose from strain concerning CHB-related stigma experienced in work and other social roles. Patients living with CHB bore extensive social implications in the Chinese context, such as limited access to education and employment and difficulty in marriage and intimate relationships.^{25 47} Negative feelings and mental stress can stem from patients’ past experience of discrimination resulting in a ‘shadow’ that has a ‘lasting’ impact on how they perceive themselves.⁶⁰ Of the three types of role conflicts, strain-based conflicts are the most likely to harm relationships outside of work,⁶¹ and lead to sleeping difficulties, exhaustion, irritability and social withdrawal.⁶² The emotional symptoms found in these participants, such as confusion and anxiety, are consistent with previous studies.^{63 64} Recent evidence suggests that the counselling provided by clinicians can help patients on long-term sick leave relieve negative attitudes and thoughts, sort out the obstacles to getting back to work and consequently facilitate the balance of daily life roles.⁶⁵ Therefore, to improve the psychological status and relieve negative feelings and mental stress, interventions with psychological counselling should be part of the healthcare for treatment-naïve patients with CHB.

Specific patterns of behaviour required in one role may be incompatible with expectations regarding behaviour in another role, resulting in behaviour-based conflicts.⁵² Mohamed *et al*⁶⁶ pointed out that cessation of alcohol and smoking, dietary changes and exercise changes were the most common lifestyle changes among patients with CHB. However, our study found that maintaining a healthy lifestyles for patients with CHB on treatment was always against their social-related behaviour required by work life and personal life roles. Similarly, in other illness experience studies, alcohol reduction and fatty food avoidance were regarded as a burden by patients with CHB.^{50 67} Taking drinking as an example, drinking is a normal part of work life and served to improve social relationships in many cultures.⁶⁸ A study showed that drinking with colleagues after work has a positive impact on fostering harmony among colleagues and on deciding who will be in charge of group collaborations.⁶⁹ In addition, in China’s alcohol drinking culture, a person will make others feel that he or she is a ‘wet blanket’ and hard to cooperate with if he or she refuses to drink during

a banquet.⁷⁰ Men who are incapable of consuming a large quantity of alcohol are perceived as not masculine enough,^{71 72} which harms the development of a good relationship in the work and personal life domains. As discussed above, Chinese alcohol consumption is not just about enjoying the flavour of alcohol but also exploiting its utility for communication and building social bonds in work relationships and friendships.^{73–75} In the current study, participants who experienced such behaviour-based conflict also reported social withdrawal, such as refusing to attend meet-ups with friends or business banquets. A similar situation exists with smoking as well, owing to the social practices of cigarette gifting and sharing, which contribute to smoking initiation and failure to quit smoking in the Chinese context.^{76 77} These findings on the incompatibility between the demands of physical health and social life (work and personal life) helped us better understand why it was hard for some patients with CHB to follow doctors' advice about a healthy lifestyle in the Chinese context.

How to balance WHPLCs

Our results indicated that positive cognitive factors and specific competencies were associated with the coping strategies of patients with CHB in terms of appropriate self-identification of sick roles and adaptation to society, which helped them reduce strain-based conflicts and better cope with behaviour-based conflicts. As other studies have shown, positive framing and a spirit of dedication are essential for having healthier behaviour and a better mood.^{50 78} Nevertheless, few studies have addressed the effects of specific competencies, including effective problem-solving skills and social skills. In our study, individuals with high problem-solving skills and social skills can buffer behaviour-based conflicts. Such skill training needs to be more considered more in health promotion to relieve behaviour-based conflicts.

Antiviral therapy is an effective but almost lifelong treatment, which results in a huge economic burden and psychological stress to both patients and their families.⁷⁹ In China, as the disease progresses, the direct costs of CHB and its related diseases exceed 40% of household annual income,⁸⁰ and only a small proportion of patients with CHB have ever accessed treatment, with barriers including limited reimbursement and medical resources.^{25 81} In our study, we found that the financial strain had a significant influence on health-seeking behaviour, such as treatment delay. A possible explanation might be that the therapeutic schedules of some patients with CHB are dominated by economic factors rather than clinical outcomes, owing to inadequate reimbursement and low family income in China. Financial responsibility for other family members can cause financial strain as well.⁸² However, the participants who delayed antiviral therapy usually felt guilty about negative health consequences, which strengthened the strain-based conflicts. Taking the above into consideration, the government should formulate a special insurance reimbursement policy to provide low-price drugs for

patients with CHB in need of treatment to start antiviral therapy in a timely manner.

Traditional family roles were found to affect multiple role conflicts together with financial strain in this study, notably in married participants with children. The relationship among gender, household income and role conflicts in patients with chronic diseases has been reported previously. Gignac *et al*³² and Kobayashi *et al*⁸³ indicated that women suffered more negative impacts in terms of work–family conflicts from their chronic medical condition due to their responsibility for taking care of children or for family activities and obligations than men. In contrast to earlier studies, our findings suggest that male participants in this study suffered substantial family financial pressure and reported more individual health–work conflicts. This discrepancy may be attributed to different cultural contexts: men bear more responsibility for career success and family income in China,⁸⁴ and grandparents sometimes help to shoulder the responsibility for grandchildren, which reduces the work–family conflicts of women.⁸⁵ For such male treatment-naive patients with CHB, family support becomes important to help them achieve role balance, reduce stress and thus improve their adherence.

Hämmig and Bauer argued that physical working conditions such as a tiring posture at work and psychosocial working conditions such as time pressure are crucial risk factors for self-rated general health.⁸⁶ Analogously, we found that flexible work time and work tasks somehow form a 'fitting' work environment, which can help to solve the time incompatibility problems and relieve work pressure. This finding also agrees with an earlier study showing that the work environment plays a vital role in time management, influencing time-based and strain-based conflicts.⁸⁷ In addition, some studies have highlighted the importance of supervisor support to prevent both coworker conflicts and supervisor conflicts.⁸⁸ High supervisor support is also positively associated with work time control. However, the work environment varies across different worksites and employment types,⁸⁹ and it is difficult to change the work environment to resolve role conflicts.

Strengths and limitations

Previous studies have focused on the negative effect of chronic non-communicable diseases on work and personal life,^{32 90 91} and less attention has been paid to individuals living with chronic infectious disease. More importantly, as a special social role, the sick role is a health condition and the sum of the patient's social status, rights and obligations.⁹² Our study is one of the few to focus on the conflicts that emerged between sick roles and other social roles (ie, work and personal life roles) in treatment-naive patients with CHB. We found associations of time-based, strain-based and behaviour-based conflicts in different life spheres and identified four contextual factors. Because possible incompatibility and conflicts generated from lifestyle change and other aspects of life

among treatment-naïve patients with CHB have received little attention in existing interventions in China,^{48 49} the findings of this study provide a new perspective of role conflicts to guide psychological counselling for this population, especially at the beginning of antiviral therapy.

Several limitations should be noted, however. First, there were no significant differences in WHPLCs among the six sampled cities with different socioeconomic levels. A possible explanation might be that the impact of city socioeconomic factors may be less likely to be observed than that of individual economic factors via only face-to-face interviews concerning disease-related experiences. Second, we recruited participants with help from doctors and other healthcare staff, which might cause selection bias because patients with good adherence were more likely to be included than those with poor adherence. Third, qualitative studies in this study can only observe conflicts and possible associations rather than the magnitude and causality of these associations for which further studies are needed.

CONCLUSION

The findings of our study enhance our understanding of the WHPLCs experience of treatment-naïve patients with CHB in the Chinese context. These findings imply that multidimensional role conflicts should be taken into account in intervention design and psychological counselling to improve the well-being of this population. Associations among the three types of role conflicts need to be further examined.

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