

Research/Technical Note

# Analysis of Disease Adaptation Ability in Patients with Hepatolenticular Degeneration: Current Status and Influencing Factors

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## Abstract

**Objective** To investigate This study aims to examine the disease adaptation ability capabilities of hepatolenticular degeneration patients during their treatment treatment, and explore to identify the factors influencing these affecting their adaptation ability. **Methods** A total of 210 hepatolenticular degeneration patients in treatment were selected by convenience sampling method, method and was employed to select 210 patients undergoing treatment for hepatolenticular degeneration. The investigation utilized a general information questionnaire, the Disease Acceptance Scale AIS-CHI questionnaire, and the Chinese version of the Simple Roy Coping with Adaptation Scale Scale. were used for investigation. **Results** The results of multiple Multiple linear regression analysis showed revealed that factors such as place of residence, education level, occupation, medical payment mode, and average monthly income of family members significantly influenced were the main factors affecting the disease adaptation ability capabilities of these patients. **In conclusion**, patients withpatients. In conclusion, patients with hepatolenticular degeneration exhibit suboptimal patients. **Conclusion** Hepatolenticular degeneration patients show poor adaptation ability abilities during treatment. Therefore, Consequently, it is incumbent upon the responsibility of medical staff to guide assist patients and their families to in actively managing cope with the their disease status status, thereby facilitating so as to better adapt to the disease adaptation and ensuring thus ensure the physiological and psychological health well-being of patients post-discharge.

## Keywords

Wilson's Disease, Disease Adaptability, Coping Ability, Influencing Factor Analysis

## 1. Introduction

Hepatolenticular degeneration (HLD), also referred to as Wilson's disease (WD), is an autosomal recessive genetic disorder. The disease-causing gene, ATP7B, is situated on chromosome 13q14.3 and encodes the copper-transporting protein ATP7B. This protein plays a crucial role in regulating

copper metabolism within the liver. Mutations in the ATP7B gene result in abnormal protein function, leading to disruptions in copper-blue protein synthesis and biliary excretion, which subsequently triggers Wilson's disease [1]. Wilson's disease is a hereditary metabolic disorder that can be managed

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with medication. The prognosis for this condition largely depends on the timing of treatment initiation. Early intervention has been associated with less severe damage and improved outcomes. Therefore, patients should begin their medication regimen promptly upon diagnosis [2]. Treatment typically involves long-term use of copper-chelating drugs and regular medical check-ups. However, the diagnosis of Wilson's disease necessitates long-term lifestyle modifications and ongoing treatment, imposing substantial psychological and financial stress on both patients and their families. The prolonged duration of the disease, extended treatment cycles, and lack of specific medications often place significant mental and financial burdens on patients and their families [3]. Disease-related feelings of shame, such as "being a burden to the family" and "feeling powerless", further exacerbate this psychological strain [4-6]. The lifelong nature of Wilson's disease underscores the importance of patients' ability to adapt to their condition. Poor adaptation may lead to non-adherence to medication and potential psychological issues during treatment. Given the difficulty in curing Wilson's disease [7], patients' ability to adapt directly impacts their medical behavior and treatment compliance, ultimately influencing rehabilitation outcomes [8, 9].

In conclusion, it is crucial to support Wilson's disease patients in developing effective disease adaptation strategies. This can be achieved through robust psychological and social support, which not only helps patients and their families navigate the challenges of the disease but also enhances their quality of life and promotes recovery. However, there is a notable lack of research on the experiences and issues faced by hepatolenticular degeneration (HLD) patients during the disease adaptation process. The objective of this study is to gain a comprehensive understanding of HLD patients' adaptive capabilities from their perspective, investigate factors influencing adaptation, and shed light on why some patients may encounter difficulties in effectively adapting to the disease.

In summary, this study aims to investigate the factors that affect the disease adaptation ability of HLD patients. We will conduct a comprehensive analysis to identify the difficulties and problems encountered by patients during the adaptation process, including psychological, social, and physiological disturbances. Furthermore, we will propose targeted interventions to help patients adapt to the disease, such as psychological support, education, and social services. By addressing the obstacles in the adaptation process, we hope to improve the quality of life for HLD patients and provide valuable guidance for future research. In conclusion, this research endeavors to gain a comprehensive understanding of disease adaptation processes for HLD patients through their own lens. Furthermore, it aspires to propose pragmatic strategies to enhance adaptive capabilities, thereby providing fresh perspectives and avenues for future research.

## 2. Object of Study

### 2.1. Study Object

A convenience sampling technique was employed to select 200 patients diagnosed with hepatolenticular degeneration for the study period from February to May 2023. The inclusion criteria were as follows: 1) Patients met the diagnostic criteria set by the "Chinese Guidelines for Diagnosis and Treatment of Hepatolenticular Degeneration 2023" [10]; 2) No language barriers or communication issues; 3) Ability to independently or with assistance from researchers complete the necessary research questionnaires. Exclusion criteria included: 1) HLD combined with other severe conditions such as intellectual disability and mental disorders; 2) Inability to cooperate with the investigator.

### 2.2. Research Tools

1. General Information Regarding Hepatolenticular Degeneration Patients: This study incorporates a range of factors including patient age, educational attainment, the presence of a partner, monthly household income, method of medical payment, disease progression, and exercise habits.
2. The Chinese version of the Acceptance of Illness Scale (AIS-CHI) [11]: This research utilizes both the AIS questionnaire and the revised Adaptation of Disability Scale (ADS-R) to evaluate initial stroke patients. The convergent validity of AIS is assessed by calculating the correlation between the scores of these two instruments. Developed by researchers, including Felton from the Community Research and Action Center at the New York University Department of Psychology [12], this questionnaire comprises eight statements detailing the adverse effects of the disease. These primarily encompass restrictions imposed by the disease, a decline or loss of self-sufficiency, reliance on others, and diminished self-esteem. A higher patient's score signifies an enhanced ability to adapt to the limitations and psychological discomfort induced by the disease. Scoring employs a Likert 5-point scale: 1-Very Agree, 2-Agree, 3-Not Sure, 4-Disagree, 5-Very Disagree. The total score varies between 8 and 40 points, with a score below 20 denoting low acceptance levels and significant emotional issues. Scores ranging from 20 to 30 suggest moderate acceptance, while scores exceeding 30 indicate high or complete acceptance of one's condition. The original scale's Cronbach's  $\alpha$  coefficient is 0.85. Initially applied to Polish patients, the Polish version of the questionnaire yielded a Cronbach's  $\alpha$  coefficient of 0.82 [13].
3. "Simplified Coping and Adaption Processing Scale" [14, 15]: The Simplified Coping and Adaption Processing Scale (CAPS-15) is an adaptation of the 47-item Coping and Adaption Processing Scale, developed by Professor

Roy in 2016. This adaptation, termed CAPS-15, facilitates swift and efficient evaluation of individuals' coping and adaptation capabilities during times of adversity or crisis [2]. It has been employed to gauge coping and adaptation skills in patients with spinal cord injuries [10], mothers of premature infants [10], cancer patients [16], among others, demonstrating its broad applicability. This research utilizes the Chinese version of the Simplified Roy Adaptation Scale (Coping Adaptation Processing Scale, CAPS-15), translated and revised by Chinese scholar Li Shijie [10]. The scale is a unidimensional tool, comprising 15 items, each evaluated on a Likert 4-point scale from "Never" to "Often", with scores spanning from 1 to 4. The cumulative score varies between 15 and 60 points, with a higher score signifying stronger coping and adaptation abilities in the face of adversity or crisis. The Cronbach's  $\alpha$  value for the scale stands at 0.815, the Content Validity Index (I-CVI) ranges from 0.83-1.00, and the two-week test-retest reliability coefficient lies between 0.834-0.990. Upon analysis, the total Cronbach's  $\alpha$  value for CAPS-15 within the study population is determined to be 0.877.

### 2.3. Investigation Method

Surveys were executed to ascertain the duration required for mastery of the questionnaire. The researcher elucidated the content and objective of this study to patients with hepatolenticular degeneration, following patient consent. Subsequently, an informed consent form was signed, and the patients independently completed the questionnaire. Out of 210 distributed questionnaires, 200 valid responses were retrieved, yielding a recovery rate of 95.2%.

### 2.4. Statistical Methods

Statistical analysis was conducted using SPSS22.0 software, employing the Analysis of Variance (ANOVA) method for

univariate examination of variances in variables such as age, education level, economic income, marital status, occupation type, disease stage, and participation in medical insurance on a scale. Additionally, correlations between scales were analyzed, and multivariate linear regression was performed on multiple factors. The significance level for testing was set at  $\alpha = 0.05$ .

## 3. Results

### 3.1. General Condition of Patients with Hepatolenticular Degeneration

The questionnaire survey incorporated data on gender, age, ethnicity, residential location, hobbies, physical activity levels, disease duration, marital status, educational attainment, occupation, method of medical expense payment, and average monthly family income. Out of 210 distributed questionnaires, 200 valid responses were obtained, yielding an effective response rate of 95.2%. The demographic characteristics of the study participants comprised 123 males (61.81%) and 76 females (38.19%). The age distribution was most skewed towards the 31-40 age bracket (35.68%), with rural residence being the most common (45.23%). A majority of participants were unmarried (52.76%), and irregular physical activity was a common occurrence (42.21%). A wide range of occupational categories were represented, with "other" being the most prevalent (32.66%). Junior high school education was the most common level of education attained (37.69%), and a significant proportion reported engaging in both smoking and drinking (76.88%). The highest proportion of families had an average monthly income of less than 2000 yuan (34.17%). Disease duration was most commonly less than 5 years (34.67%), with the New Rural Cooperative Medical Scheme being the most popular method of medical payment (53.27%). For comprehensive details, please refer to Table 1.

**Table 1.** General demographics.

Category		Frequency	Composition ratio (%)	Category		Frequency	Composition ratio (%)
Gender	Male	123	61.81%	Education level	Primary school and below	20	10.05%
	Female	76	38.19%		Junior middle school	75	37.69%
Age	< 20	23	11.56%		Technical secondary school or high school	39	19.60%
	20-30	70	35.18%		Junior college	26	13.07%
	31-40	71	35.68%		Bachelor degree or	39	19.60%

Category		Frequency	Composition ratio (%)	Category		Frequency	Composition ratio (%)
Place of residence	41-50	24	12.06%	Hobby	above		
	>50	11	5.53%		Smoking only	24	12.06%
	City	73	36.68%		Drink only	2	1.01%
	County and town	32	16.08%		Smoking, not drinking	14	7.04%
	Countryside	90	45.23%		Drink alcohol and do not smoke	6	3.02%
	Other	4	2.01%		Both	153	76.88%
Marital status	Married	83	41.71%	Per capita household Monthly income	Less than 2000 yuan	68	34.17%
	Unmarried	105	52.76%		2000-3000yuan	48	24.12%
	Divorce	11	5.53%		3000-5000yuan	42	21.11%
Sport	Regular exercise	68	34.17%	Course of disease	>5000yuan	41	20.60%
	Irregular exercise	84	42.21%		<5years	69	34.67%
	No exercise	47	23.62%		5-10years	57	28.64%
Occupation	Farming	24	12.06%		10-20 年	47	23.62%
	In business	13	6.53%		>20 年	26	13.07%
	On the job	27	13.57%	Medical expenses Method of payment	Provincial medical insurance	6	3.02%
	Retirement	3	1.51%		City medical insurance	16	8.04%
	Freelance	52	26.13%		New Rural Cooperative Medical System	106	53.27%
	Student	15	7.54%		Employee medical insurance	28	14.07%
	Other	65	32.66%		At his own expense	7	3.52%
					At his own expense	36	18.09%

### 3.2. Current Status of Disease Adaptive Capacity During Treatment in Patients with Hepatolenticular Degeneration

This study found a positive correlation between disease acceptance and adaptive capacity. First, the correlation coefficient of the Disease Acceptance Scale (AIS-CHI) with the Chinese version of the Brief Roy Adaptation to Illness Scale was 0.228, which was positively correlated. This result indicated that there is a certain association between patients' acceptance of their illness and their adaptive capacity. The

higher the degree of acceptance of the disease, the greater the relative improvement in patients' adaptive capacity when facing the disease. This may be closely related to factors such as patients' cognition of the disease itself, attitude towards it, and enthusiasm for treatment. According to patient distribution, we found that 39.70% of patients scored <20 points, indicating that this group of patients had a lower degree of acceptance of the disease and accompanied by significant emotional problems. This situation may be affected by factors such as the severity of the disease itself, maladaptation to the treatment process, and uncertainty about the future. The needs of this group of patients are more likely to lean towards mental health support and emotion management. Through a

deeper understanding of this group, we can develop more targeted psychological intervention strategies to improve their overall adaptive capacity. Relatively speaking, 43.72% of patients scored between 20~30 points, showing a moderate degree of acceptance. We can further explore factors such as social support, family relationships, and understanding of medical information for this group of patients. This helps us to understand patients with a moderate degree of acceptance more comprehensively, provide them with more appropriate rehabilitation suggestions and social support, and improve their overall adaptive level. Finally, 16.58% of patients scored >30 points, indicating that this group of patients had a high degree of acceptance of their own condition. This may be related to factors such as stronger self-regulation ability and a

positive attitude towards illness. Through a comprehensive analysis of the outcomes for this select group of patients, we can offer additional references to facilitate active adaptation and promote the propagation of these beneficial factors among other patients. For comprehensive details, please refer to [Tables 2, 3](#).

Through in-depth analysis of different scores of patients, we not only better understand the relationship between disease acceptance and adaptive capacity, but also provide more specific guidance for providing personalized rehabilitation intervention strategies. This refined analysis helps promote the development of medical services towards a more individualized and precise direction.

**Table 2.** Correlation analysis of disease acceptance measures with the suggested Roy coping adaptation scale.

	Disease Acceptability Scale AIS-CHI questionnaire	Chinese version of the Brief Roy Adaptation Scale
Disease Acceptability Scale AIS-CHI questionnaire	1.000	0.228**
Chinese version of the Brief Roy Adaptation Scale	0.228**	1.000

At the 0.01 level (two-tailed), the correlations are significant.

**Table 3.** Disease Acceptability Measure Scores.

	Frequency	Composition ratio
Disease Acceptability Scale AIS-CHI questionnaire	<20	39.70%
	20-30	43.72%
	>30	16.58%

### 3.3. Comparative Analysis of Disease Adaptive Capacity Scores in Post-Hemorrhagic Neuropathy Patients

In this study, we identified variables of statistical significance through single factor analysis. Subsequently, we performed multiple linear regression analysis using these variables as independent factors and the mean score of questionnaire items regarding disease adaptability in patients with hepatolenticular degeneration as the dependent variable. Our findings revealed that the primary factors influencing disease adaptability among patients ( $P < 0.05$ ) encompassed place of residence, educational level, occupation, method of medical cost payment, and per capita monthly income of the family, as detailed in [Table 4](#).

**Table 4.** Multiple linear regression analysis of disease adaptive capacity in patients with hepatolenticular degeneration Full size table.

	Disease Acceptability Scale AIS-CHI questionnaire		Chinese version of the Brief Roy Adaptation Scale	
	F	Significance	F	Significance
Place of residence	2.688	0.048	4.357	0.005



	Disease Acceptability Scale AIS-CHI questionnaire		Chinese version of the Brief Roy Adaptation Scale	
	F	Significance	F	Significance
Education level	2.023	0.093	9.015	<0.001
Occupation	2.018	0.065	2.555	0.021
Mode of payment for medical expenses	1.166	0.327	4.862	<0.001
Per capita monthly household income	1.677	0.173	3.343	0.02

## 4. Discussion

### 4.1. Current Status of Disease Adaptability in Hepatolenticular Degeneration Patients

The results clearly indicated a significant positive correlation between the AIS-CHI and the Chinese version of the Brief Roy Adaptation to Illness Scale, highlighting the close link between patients' high acceptance of illness and better adaptation to illness. Specifically, it was found that 39.70% of patients had difficulty accepting their illness or showed low levels of acceptance, while this group presented significant emotional problems; 43.72% of patients showed moderate levels of acceptance; and 16.58% of patients were highly or completely accepted of their condition. This diversity of responses reveals the complexity of patients' acceptance of illness, providing useful clues for developing personalized intervention strategies. For HLD patients who are diagnosed with long-term copper elimination agents, their regular hospital checkups are particularly critical. Once hepatolenticular degeneration is diagnosed, a rare genetic disease characterized by a long course, recurrent disease, lack of specific drugs, and economic burden from long-term treatment, it places a greater psychological and economic burden on family members [17]. The stigmatization of HLD patients in this context as "a burden on the family" and "unable to do anything" further exacerbates the patient's psychological and social burden [6, 18-19]. For HLD patients, especially those who need long-term copper elimination agents, regular hospital checkups are essential. This is not only related to the control and management of the disease but also directly related to the economic and psychological burden on patients and families. Therefore, it is recommended that more convenient and patient-centered monitoring and follow-up mechanisms be established in the medical system to ensure that patients can receive timely and effective medical services. In response to the psychological and economic pressures faced by HLD patients and their families, professional guidance from caregivers becomes particularly crucial. Through multifaceted professional support, including psychological counseling,

social work, etc., patients can better face their illness and reduce their psychological and economic burden. It also reminds us that multidisciplinary collaboration among medical teams plays an important role in the treatment of rare diseases.

The results of the study revealed the psychological state and adaptation process of patients facing rare diseases, which requires comprehensive, personalized care and support from medical services to better respond to the needs of patients. Through a deep understanding of the research results, we were able to formulate rehabilitation interventions more accurately, help patients achieve comprehensive rehabilitation, and improve their overall quality of life. This not only helps medical practice become more individualized and precise, but also provides useful experience for building a more humane social support network. 3.2 Factors affecting the disease adaptive capacity of patients with hepatolenticular degeneration.

### 4.2. Factors Influencing the Disease Adaptive Capacity of Patients with Hepatolenticular Degeneration

#### 4.2.1. The Impact of Residence on Disease Adaptability During Treatment in Hepatolenticular Degeneration Patients

The findings unequivocally demonstrated a significant inverse correlation between patients' out-of-pocket expenditure and their psychosocial adjustment issues related to the disease ( $P = 0.005$ ,  $P < 0.05$ ). This suggests that as the financial burden on patients escalates, their ability to adjust to their illness progressively diminishes, while their psychosocial adjustment issues intensify correspondingly. This observation underscores the profound influence of financial stress on patients' mental health, underscoring the need for a more holistic approach to assessing patients' financial status in clinical practice and offering tailored support. Additionally, the data underscored the disparity in access to medical resources between urban and rural residents. This disparity may be attributed to the higher concentration of medical facilities and professionals in cities. Large general hospitals in urban areas have amassed a wealth of medical experts and state-of-the-art

equipment, ensuring patients receive comprehensive and efficient care. Consequently, urban residents are more likely to secure timely and expert medical advice. Given the rarity and complexity of hepatolenticular degeneration, urban patients may benefit from advanced treatment and professional guidance due to the abundance of medical resources available. This creates a more favorable medical environment for patients with rare diseases, enhancing treatment outcomes.

The current study elucidated a strong correlation between the financial status of these patients and their psychological adaptation. It also underscored notable disparities in access to medical resources between urban and rural populations. This insight paves the way for the provision of more nuanced and tailored medical services in subsequent research. We anticipate delving deeper into strategies to address the multifaceted needs of patients, both financially and psychologically, through enhanced medical management and holistic social support. The ultimate objective is to realize more holistic rehabilitation objectives in future endeavors.

#### **4.2.2. Influence of Education Level on Disease Adaptive Capacity Throughout Treatment in PHTN Patients**

The results of our study revealed a significant positive correlation between patients' work during treatment and their disease adaptation ability ( $P < 0.001$ ,  $P < 0.05$ ). This suggests that maintaining a balance between work and treatment may positively influence disease adaptation. Furthermore, cultural level significantly impacts cognitive illness among patients, with varying levels of culture potentially leading to distinct perceptions of illness and compliance abilities with medical orders. This underscores the necessity for developing individualized care plans to ensure effective comprehension and adherence to medical advice. Additionally, our research indicates that the extent of patients' positive perception of illness correlates positively with their disease adaptation ability [6]. This implies that patients who perceive their illness more positively tend to exhibit greater adaptability. These findings have implications for nursing teams and healthcare professionals, suggesting that promoting a positive attitude towards illness could significantly enhance the overall recovery process.

Disease adaptation significantly alters the psychological state of patients, influencing not only individual lives but also impacting entire families. Our research indicates that HD patients require regular hospital examinations during prolonged copper elimination, complicating treatment and imposing additional burden on both patients and their families. Consequently, it is imperative to emphasize the significance of family support in nursing plan formulation, offering corresponding psychological and social assistance to alleviate patient and familial stress. The study's findings underscore a deficiency in caregiver awareness regarding patient disease knowledge. Upon identifying patient vulnerabilities, care teams should implement targeted interventions. This may

entail delivering comprehensive health education that is detailed and comprehensible, thereby enhancing patients' disease awareness and fostering active participation in self-management and treatment processes. By concentrating on these areas, caregivers can offer more holistic support for patients' recovery journeys, thereby improving their overall quality of life.

#### **4.2.3. The Influence of Occupation on Disease Adaptive Capacity During Treatment in Patients with Hepatolenticular Degeneration**

The findings indicate that patients with hepatolenticular degeneration exhibited greater disease adaptability when they were able to continue working during treatment ( $P = 0.021$ ,  $P < 0.05$ ). Given the protracted and recurrent nature of hepatolenticular degeneration, this finding carries significant clinical implications. The prolonged duration of the disease, coupled with the lack of specific drug treatments, places substantial psychological and economic strain on patients and their families [20]. The employment status of these patients is particularly crucial in this context, as individuals who are employed are more likely to manage the financial burden associated with the disease. This can thereby alleviate both the psychological and economic stress on patients and their families.

The research revealed a significant correlation between patients' employment status and their positive attitude towards treatment, as well as improved disease adaptation. Patients who held jobs demonstrated greater adherence to medical recommendations with confidence, and were more likely to sustain effective treatment regimens. This not only enhances the patient's recovery process but also offers a more consistent financial support for the family, thereby positively impacting the overall familial mental health.

This outcome underscores the importance of considering patients with hepatolenticular degeneration's employment status during their treatment. By offering occupational support and rehabilitation services, these patients can more effectively address the multifaceted challenges associated with their disease, thereby facilitating their holistic recovery. Furthermore, this insight offers valuable guidance for future clinical practice and rehabilitation management strategies.

#### **4.2.4. The Impact of Medical Payment Method on Disease Adaptability Throughout Treatment in Hepatolenticular Degeneration Patients**

Our findings indicate a significant correlation between the degree of out-of-pocket payment and both psychosocial adjustment issues and disease adaptation ability ( $P < 0.001$ ,  $P < 0.05$ ). This finding aligns with previous analyses of medical expenses for patients suffering from hepatolenticular degeneration [2]. A high level of out-of-pocket payments places an increased economic burden on these patients, potentially inhibiting their access to necessary medical support due to

financial constraints. Consequently, this can exacerbate their psychosocial adjustment problems and reduce their disease adaptation ability. We therefore advocate for greater attention to social equity in medical policy development. By enhancing medical reimbursement methods and providing additional medical aid, we can alleviate the economic burden on patients. This approach would not only improve the overall quality of life for these patients but also foster the evolution of medical services towards a more humane and equitable direction.

Concurrently, hospitals across various regions can offer tailored treatment recommendations based on patients' economic circumstances. This assists in selecting cost-effective and rational therapeutic approaches as well as nursing methods. Moreover, hospitals are urged to augment their medical expenditures through online fundraising platforms or social welfare relief initiatives to extend additional support for patients. Such measures can enhance patient recovery, mitigate their financial and emotional burdens, and bolster their disease adaptation capabilities. In essence, by holistically addressing the economic status of patients, offering enhanced financial aid, and refining medical reimbursement strategies, a more conducive treatment environment for hepatolenticular degeneration patients can be established, fostering improved disease adaptation. This also underscores the need for societal sectors to collaborate in caring for and supporting individuals with rare diseases, advocating for a medical system that better addresses the comprehensive needs of its patients.

#### **4.2.5. The Influence of Household Per Capita Income on Disease Adaptive Capacity During Hepatolenticular Degeneration Treatment**

In the current study, a significant positive correlation was observed between the average monthly income of a family and disease adaptability during treatment for patients with hepatolenticular degeneration ( $P=0.02$ ,  $P<0.05$ ). This suggests that higher family income levels can facilitate better patient adaptation to hepatolenticular degeneration treatment. The formation of this association is likely influenced by various factors. For instance, every 1 patient hospitalized with hepatolenticular degeneration has 1-2 caregivers, which results in the partial loss of the family's labor force. This reduction in income may not be sufficient to cover the high medical costs associated with the disease and the basic needs of the family. Consequently, patients may struggle to adapt to their condition, leading to lower disease adaptability [21].

Firstly, patients with elevated household average monthly incomes may be more inclined to afford costly treatments, thereby actively participating in treatment and enhancing disease adaptation. Secondly, a higher household income could potentially translate into an improved quality of life, which can bolster the psychological well-being of patients and facilitate their adaptation to disease challenges. However,

such high household average monthly incomes might also coincide with increased work and familial obligations, imposing additional demands on patients' time and energy. Consequently, individuals from high-income households may encounter greater difficulties in juggling their disease management with familial responsibilities. Therefore, it is imperative for medical teams to take into account these comprehensive living conditions when formulating treatment plans. Beyond economic considerations, a high household average monthly income may significantly influence social support. The active involvement of family members in both financial and emotional support can potentially enhance patients' disease adaptation. Nevertheless, an undue sense of responsibility and familial expectations might induce additional stress, adversely affecting patients' mental health. Thus, this study underscores the multifaceted needs of patients with high household average monthly incomes during treatment. When designing rehabilitation programs for this demographic, it is crucial to consider the patient's life context in a personalized and holistic manner to ensure that all their needs are adequately addressed throughout the treatment process.

Generally, a high household average monthly income presents both a resource and a challenge that necessitates the careful consideration of the medical team and adept balance. Future research could delve deeper into the underlying mechanisms linking high household average monthly income with disease adaptation, thereby offering a theoretical foundation for more precise rehabilitation management.

## **5. Conclusion**

In conclusion, the adaptability of patients with hepatolenticular degeneration is limited. Factors such as residence, education level, occupation, medical payment method, and family's per capita monthly income significantly influence this adaptability. It is imperative for nursing staff to assist patients in selecting cost-effective treatment options and nursing practices that align with their financial capabilities. This support can enhance patient acceptance of their condition during hospitalization and promote active participation in patient associations. By engaging in activities within their capacity, patients can bolster their self-acceptance and disease adaptability. Consequently, this facilitates the swift reintegration of HLD patients into society and the resumption of normal living.

## **Abbreviations**

HLD: Hepatolenticular degeneration  
WD: Wilson's disease  
ATP7B: ATPase copper transporting beta  
AIS-CHI: Acceptance of Illness Scale  
ADS-R: Adaptation of Disability Scale-Revised  
CAPS-15: Coping and Adaption Processing Scale



## Conflicts of Interest

The authors declare no conflicts of interest.

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