

## KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARD LIVER FIBROSIS/CIRRHOSIS AND TRADITIONAL CHINESE MEDICINE TREATMENT AMONG MEDICAL STAFF

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### Abstract

**Objectives:** This research aimed to assess toward liver fibrosis/cirrhosis and treatment, and to explore the association between KAP scores and demographic factors. **Methods:** Demographic information and KAP scores were collected through a self-administered questionnaire. **Results:** A total of 262 questionnaires were collected, with 155 (69.82%) females and a mean age of  $32.83 \pm 8.17$  years. Mean knowledge, attitude, and practice scores were  $15.99 \pm 4.58$ ,  $22.69 \pm 4.11$ , and  $23.09 \pm 3.36$ , respectively. Working in a teaching hospital (OR = 3.562, 95% CI 1.214 - 10.448) was independently associated with adequate knowledge. Knowledge score (OR = 1.104, 95% CI 1.026 - 1.186) was independently linked to a positive attitude. Knowledge (OR = 1.263, 95% CI: 1.166 - 1.368) and attitude score (OR = 1.105, 95% CI 1.010 - 1.198) were independent predictors of proactive practice. Pathway analysis revealed that knowledge positively affected attitude ( $\beta = 0.24$ ,  $P < 0.001$ ) and practice ( $\beta = 0.30$ ,  $P < 0.001$ ), and attitude directly influenced practice ( $\beta = 0.22$ ,  $P < 0.001$ ). **Conclusion:** Medical staff demonstrated adequate knowledge, a negative attitude, and proactive practices regarding liver fibrosis/cirrhosis and TCM treatment. Targeted educational programs, interdisciplinary training, and awareness campaigns should be implemented to improve attitudes and promote proactive patient care.

**Keywords:** Knowledge Attitude and Practice; Liver Fibrosis; Traditional Chinese Medicine

### Introduction

The escalating incidence of liver disease poses a growing challenge to public health, with liver fibrosis and cirrhosis emerging as significant concerns (Shi, Yan, Lu, 2022). Chronic hepatitis infections, a key contributor to liver fibrosis, can ultimately lead to cirrhosis and the development of neoplasms (K. J. Wu, Qian, Zhou, 2023). Although some progress has been made in biological and chemical therapies, there are still limitations in finding treatments that effectively target and reverse advanced fibrosis. The role of traditional Chinese medicine (TCM) in this area is also worth attention. Since the 1970s, TCM has played a significant role in the treatment of liver fibrosis, making TCM formulations essential in this context (Tao, Tian, Chen, 2019; W. Wu, Piao, Wu, 2019). Studies has shown that both

classic and modern TCM formulas, such as Yin Chen Hao Decoction, Xiaoyu Xue Decoction, Xiao Chai Hu Decoction, Yiguan Jian Decoction, Huangqi Decoction, Da Huang Zhe Chong Pill, Fuzheng Huayu Formula, Fufang Biejia Ruangan Tablet, Anluo Huaxian Pill, and Compound 861, exhibit certain anti-fibrotic effects in patients with liver fibrosis and in animal models of this condition (Dai, Fan, Hu, 2022; H. Li, 2020; Z. Li, Zhu, & Ouyang, 2023). TCM stands out for its favorable safety profile, marked by few side effects (Duan, Lv, Jiang, 2022). However, despite its promise, there remain critical considerations in its integration into clinical practice, which require in-depth exploration.

The KAP model, developed in the 1950s, serves as a diagnostic tool, illuminating a group's understanding, beliefs, and actions in areas like health literacy. It's founded on the premise that knowledge influences attitudes, which, in turn, guide behaviors (Deng, Guo, Wang, 2022; Dwiartama, Nirbayati, Giri-Rachman, 2022; Praharaj, Mallick, Nath, 2022). Medical staff play a direct role in patient diagnosis and treatment, with their attitudes and practices significantly impacting patient outcomes and quality of life. By comprehending the knowledge, attitude, and practices of medical staff on this topic, the research can provide targeted recommendations to enhance clinical practice, fostering a more comprehensive and patient-centered approach, with the potential to improve patient quality of life and treatment outcomes. Additionally, it is noteworthy that there is a lack of KAP studies in this specific field.

### **Study objective**

To assess toward liver fibrosis/cirrhosis and treatment, and to explore the association between KAP scores and demographic factors.

### **Scope of the Research**

#### **1. Population Scope**

The hospitals involved in this research include The First Affiliated Hospital of Guangxi University of Chinese Medicine, Ruikang Hospital Affiliated to Guangxi University of Chinese Medicine, Affiliated Cancer Hospital of Guangxi Medical University, Yulin Hospital of Traditional Chinese Medicine, Guilin Hospital of Integrated Chinese and Western Medicine, Qinzhou Hospital of Traditional Chinese Medicine, Shenzhen Hospital of Traditional Chinese Medicine, Chongqing Hospital of Traditional Chinese Medicine, Shuguang Hospital, Shanghai University of Traditional Chinese Medicine, The First Affiliated Hospital of Hunan University of Chinese Medicine, among medical staff.

#### **2. Variable range**

Inclusion criteria encompassed medical staff employed in the Hepatology, Gastroenterology, and Infectious Diseases departments who willingly expressed their intention to participate in the survey. Exclusion criteria were applied to discard invalid questionnaires characterized by repetitive responses, consistent response patterns, or missing responses exceeding 10%, as well as questionnaires completed in less than 100 seconds.

#### **3. Time frame**

This research was conducted between November 8, 2023 and December 31, 2023.

### **Research Methodology**

#### **1. Research Methodology**

In this research, the questionnaire was used to conduct the research.

#### **2. Research Steps**

In this research, a questionnaire survey was used to collect data, and then data analysis was carried out to finally obtain the research results.

### 3. Data Collection

The study collected data from hospitals described above between November 8, 2023, and December 31, 2023.

### 4. Data Analysis

The questionnaire design was developed based on the Guidelines for the Integrated Diagnosis and Treatment of Liver Fibrosis (2019 Version)(Hepatology, 2019), and Guidelines for the Prevention and Treatment of Chronic Hepatitis B (2022 Version)(Diseases, 2022). In a pilot study involving 52 questionnaires, a Cronbach's  $\alpha$  coefficient of 0.782 was obtained, indicating acceptable internal consistency for the questionnaire. The construct validity of the questionnaire was supported by several key indicators. The Chi-square/degrees of freedom (CMIN/DF) ratio was 2.712, falling within the ideal range of 1-3, which indicated an excellent fit. The Incremental Fit Index (IFI) and Comparative Fit Index (CFI) were 0.873 and 0.872, respectively, surpassing the 0.8 benchmark, which indicated a good fit. Additionally, the Tucker-Lewis Index (TLI) was 0.856, surpassing the acceptable threshold of 0.8. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.890, with a statistically significant Bartlett's test of sphericity ( $P < 0.001$ ), further supporting the questionnaire's construct validity.

The final questionnaire included the collection of demographic information (gender, age, education level, professional title, etc.). The knowledge dimension consisted of 10 questions, each graded with 2 points for correct answers, 1 point for partially correct answers, and 0 points for incorrect answers, resulting in a total score range of 0 to 20. The attitude dimension comprised 7 questions that utilized a five-point Likert scale, ranging from very positive (5) to very negative (1), yielding a score range from 7 to 35. The practice dimension involved 6 questions using a similar Likert scale, spanning from always (5) to never (1), with a total score range of 6 to 30.

The survey was conducted in collaboration with a diverse sample of 10 hospitals nationwide, targeting medical staff in the Hepatology, Gastroenterology, and Infectious Diseases departments. During the formal survey, uniform instructions were provided to eligible medical staff. To streamline the data collection process, an electronic survey questionnaire was developed using the Wenjuanxing (Questionnaire Star) app and distributed via QR code images through personal WeChat accounts or WeChat groups to facilitate responses.

### Research Results

Initially, a total of 262 questionnaires were collected, excluding 25 cases of questionnaires with short response time ( $<100$ s), 1 case of disagreed to participate, 27 cases of questionnaires with the same option in KAP questions, remaining 222 valid questionnaires, with a validity rate of 84.73%. Among them, 155(69.82) were females, their mean age was  $32.83 \pm 8.17$  years, 149 (67.12%) were doctors, of which, 133 (59.91%) were TCM practitioners. 128 (57.66%) had a bachelor's degree, 99 (44.59%) had been working for less than 5 years, 100 (45.05%) had an intermediate or higher professional title, 145 (65.32%) were working in hepatology department, 122 (54.95%) had no research project yet.

The mean knowledge, attitude, and practice scores were  $15.99 \pm 4.58$  (possible range: 0 - 20),  $22.69 \pm 4.11$  (possible range: 7 - 35), and  $23.09 \pm 3.36$  (possible range: 6 - 30), respectively. The knowledge score varied from participants with different occupation type ( $P = 0.031$ ), education level ( $P < 0.001$ ), professional title ( $P = 0.007$ ), and whether their hospital a teaching hospital ( $P = 0.011$ ). In terms of the attitude score, there were difference among participants with different occupation type ( $P < 0.001$ ), education level ( $P = 0.003$ ), and professional title ( $P = 0.049$ ). The difference of practice score was found among those with different professional titles ( $P = 0.040$ ) and research project type ( $P = 0.007$ ).

The analysis of the knowledge dimensions revealed that the highest proportion of participants selected the “Well-known” option for three specific items: 74.32% recognized that treatment for liver fibrosis and cirrhosis involves etiological treatment, fibrosis treatment, management of cirrhosis complications, and monitoring for liver cancer (K3); 74.32% were aware that etiological treatment, such as long-term inhibition of hepatitis virus replication and alcohol cessation, is crucial in reducing liver damage and promoting the repair of fibrotic liver tissue (K4); and 72.97% understood that liver fibrosis is a pathological process in chronic liver diseases, leading to cirrhosis and severe conditions like portal hypertension, liver cancer, and liver failure (K2). Conversely, the highest proportion of participants selected the “Heard of” option for the following items: 44.14% acknowledged that no approved chemical drugs or biological agents currently exist for liver fibrosis treatment (K6); 40.54% were aware of the potential of three proprietary Chinese herbal medicines, including Fuzheng Huayu Capsule/Tablet, Complex Turtle Shell Soft Liver Tablet, and Anluo Huaqian, to reverse liver fibrosis (K7); and 40.54% recognized the need for anti-liver fibrosis treatment in patients who do not respond to antiviral therapy (K10).

Regarding attitudes, 66.22% of participants strongly believed in the significant value of Traditional Chinese Medicine (TCM) in combating liver fibrosis, even when effective antiviral treatments are available (A1). Additionally, 62.16% felt there is a substantial need for more effective proprietary TCM products (A2). Concerns about the unknown interactions between Chinese and Western medicines were noted by 54.06% of participants (A3). Interestingly, despite these concerns, 85.58% indicated they would not discontinue the clinical use of Chinese herbal medicines due to incompletely understood mechanisms (A4). However, 30.18% expressed skepticism about TCM due to insufficient evaluation of its efficacy and safety (A5), and 28.38% refrained from prescribing Chinese herbal medicines due to a lack of sufficient knowledge (A6). Notably, 61.26% did not believe that combining Chinese and Western medicines would increase patients' economic burden and expressed a willingness to recommend this approach to their patients (A7).

In terms of practice, 40.99% of participants consistently provided detailed patient education (P1), while 57.66% ensured that patients adhered to alcohol abstinence (P2). Among those whose antiviral therapy was ineffective, 41.44% recommended considering a combined TCM therapy (P4). Furthermore, 46.85% were proactive in acquiring new therapies and professional knowledge (P5). However, there was a notable percentage of participants who were less proactive: 30.18% were never or rarely proactive in recommending combined TCM therapy for early-stage treatment (P3), and 44.14% were not very proactive in recommending liver biopsy (P6).

The findings demonstrated substantial correlations between knowledge, attitude, and practice within the examined population. Knowledge exhibited a positive correlation with attitude ( $r = 0.246$ ,  $P < 0.001$ ) and an even stronger association with practice ( $r = 0.453$ ,  $P < 0.001$ ). Furthermore, a positive relationship was observed between attitude and practice ( $r = 0.364$ ,  $P < 0.001$ ).

The pathway analysis results indicate significant direct relationships within the model: Knowledge has a direct positive effect on attitude ( $\beta = 0.24$ ,  $P < 0.001$ ), attitude directly influences practice ( $\beta = 0.22$ ,  $P < 0.001$ ), and knowledge directly impacts practice ( $\beta = 0.30$ ,  $P < 0.001$ ).

In the multivariate logistic regression analysis, working in a teaching hospital (OR = 3.562, 95% CI: [1.214 - 10.448], P = 0.021) was independently associated with adequate knowledge. Furthermore, the knowledge score (OR = 1.104, 95% CI: [1.026 - 1.186], P = 0.008) was independently associated with a positive attitude. Moreover, the knowledge score (OR = 1.263, 95% CI: [1.166 - 1.368], P < 0.001) and attitude score (OR = 1.105, 95% CI: [1.010 - 1.198], P = 0.015) were independently associated with proactive practice.

## Discussion

The medical staff demonstrated adequate knowledge, a negative attitude, and proactive practices concerning liver fibrosis/cirrhosis and TCM. Medical staff who were doctors generally displayed a better understanding and more positive attitudes towards TCM compared to nurses. Similarly, those with higher levels of education, such as a master's degree or above, demonstrated superior knowledge and attitudes. This finding is consistent with other research finding that higher education is associated with better cognitive and attitudinal outcomes, and that more educated individuals are more likely to engage with and understand complex medical concepts (Larnyo, Dai, Nutakor, 2022; Tang, Jia, Zhao, 2022).

Professional titles also played a critical role in shaping KAP outcomes. Participants with intermediate or higher professional titles not only had better knowledge and attitudes but also engaged in more proactive practices. Affiliation with a teaching hospital emerged as another significant factor influencing knowledge levels. Medical staff working in teaching hospitals tend to have better knowledge, which can be attributed to the academic environment that promotes ongoing learning and exposure to cutting-edge research and clinical practices (Ahmed, Abbasi, Herekar, 2022). Interestingly, gender did not significantly impact KAP outcomes, indicating that professional training and opportunities are equally effective across male and female medical staff. Moreover, knowledge and attitude scores were independently linked to proactive practice, highlighting the interconnectedness of these factors in influencing patient care. To enhance clinical practice and patient-centered care, addressing negative attitudes and providing targeted educational initiatives is crucial to fostering a more positive and proactive approach among medical staff.

Limited knowledge of TCM also influences practice decisions. Economic burdens associated with combined medicine usage can hinder TCM adoption, despite recognized effectiveness. To address these deficiencies and enhance clinical practice, initiatives should focus on comprehensive TCM education to bridge knowledge gaps and provide a robust evidence base for its efficacy and safety (Wei, Yu, Zhang, 2022; Zhang, Ren, Liu, 2020). Additionally, promoting continuous education and professional development, especially in the field of liver fibrosis/cirrhosis management, can foster a proactive approach to patient care (de Roos, Iedema, & de Boer, 2022; Guedes, Carvalho, Carbonel, 2022). However, it is essential to address the hesitancy regarding invasive diagnostic procedures by exploring less invasive alternatives, emphasizing the importance of evidence-based guidelines and professional education for improving clinical practice in liver disease management (Jawad, Lam, Cecola, 2022; Joore, van Bergen, Ter Riet, 2018).

Results of this research: Promoting educational activities and professional development programs can help clinicians acquire the necessary knowledge to apply TCM to the treatment of liver fibrosis and ultimately improve patient outcomes. First, promoting educational activities and professional development programs can help clinicians acquire the necessary knowledge to apply TCM to the treatment of liver fibrosis and ultimately improve patient outcomes. Second, help patients to understand the TCM treatment of liver fibrosis / cirrhosis, improve patients' compliance to the prevention and treatment of liver fibrosis and cirrhosis, effectively improve the disease progress and improve the quality of life of patients. Moreover, the active participation of patients can also help doctors to better evaluate treatment effects and adjust treatment options. Third, by collecting and analyzing clinical data on liver fibrosis / cirrhosis, we can provide valuable references and references for other hospitals. At the same time, these research results can also provide reference for government departments when formulating relevant policies and decisions, such as the allocation of public health resources, the coverage of medical insurance, TCM development policies and other aspects. Through such reference and reference, it can promote the overall level of the treatment of liver fibrosis / cirrhosis with integrated Chinese and western medicine, bringing good news to a wider patient group.

This research has several limitations. First, its cross-sectional design prevents the establishment of causal relationships or the observation of temporal changes, and the reliance on self-reported data introduces the possibility of response bias. Second, although this research was conducted in multiple hospitals, the findings are still limited to specific healthcare Settings, which may affect generalizability in other areas. Recall bias may also affect the accuracy of participants' reporting of past experiences and practices. Third, specific variables such as hospital policies, workload, and resource availability were not collected, which may have contributed to the weak associations observed.

In conclusion, medical staff had adequate knowledge, a negative attitude and proactive practice towards liver fibrosis/cirrhosis and TCM. Enhancing clinical practices in this domain necessitates targeted interventions focusing on improving medical staff attitudes and practices. Implementing educational programs and awareness campaigns can contribute to enhancing their understanding and fostering positive attitudes toward TCM treatment for liver fibrosis/cirrhosis. Furthermore, promoting collaborative efforts and interdisciplinary training among healthcare providers may encourage proactive and holistic approaches to patient care, facilitating the integration of TCM with conventional treatments.

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