

INVESTIGATION ON THE CURRENT STATUS OF HEPATITIS PREVENTION AND CONTROL KNOWLEDGE POPULARIZATION IN RURAL AREAS OF NORTHWEST CHINA AND PUBLIC HEALTH EDUCATION STRATEGIES

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Abstract

Hepatitis epidemic prevention and control in rural areas of the Northwest is a major challenge in the field of public health. Due to remote geographical locations, limited medical resources, and generally low education levels, the dissemination of knowledge about hepatitis is difficult. This study collected data from rural residents and health workers in the five provinces and autonomous regions of Northwest China. Employing a cross-sectional study design and multi-stage sampling methods, the study utilized questionnaires, in-depth interviews, and other means to analyze the current status of hepatitis prevention and treatment knowledge dissemination, resident's preventive and treatment behaviors, and strategies to improve public health education. The research shows that the current rate of hepatitis knowledge dissemination in Northwest rural areas is less than 50%, and the mastery of correct prevention and treatment knowledge is even lower. The use of health education resources is uneven, primarily revolving around television and radio, with insufficient bandwidth and information identification abilities limiting the penetration rate of the internet. In response to factors such as low literacy rates and outdated information technology, the study proposes a multi-channel health education strategy that combines traditional and new media interactions, designs educational content targetedly.

Keywords: hepatitis prevention and treatment, knowledge popularization, northwestern rural areas, public health education, vaccination

Introduction

In northwest China, the incidence rate of hepatitis continues to rise, becoming an important issue affecting public health. According to data from the National Health Commission in 2019, the hepatitis infection rate in the northwest region is about 5% to 10%, far higher than the national average. This phenomenon is closely related to the living habits, hygiene conditions, and insufficient medical resources of local rural residents. Especially the prevalence of hepatitis B and C is particularly severe, with the carrier rate of hepatitis B reaching over 12% in some rural areas.

Farmers with relatively low levels of education have insufficient awareness of hepatitis, leading to missed diagnosis in early screening and treatment. According to research, about 60% of rural residents have only a superficial understanding of the transmission routes, prevention measures, and vaccination of hepatitis. They generally lack awareness of the importance of a healthy lifestyle and regular checkups. In terms of public health education, existing intervention measures have not effectively covered rural residents, mainly relying on national level health education, but the actual effect still needs to be improved. (Gao Yu, n.d.)

The uneven allocation of medical resources in the northwest region and the shortage of medical equipment and professional talents in rural health centers have led to poor management and treatment conditions for hepatitis patients. According to statistics from 2018, the accessibility of healthcare services in rural areas of Northwest China is relatively low, with the number of rural medical institutions being about 30% less than in cities. These factors collectively pose significant challenges to the prevention and treatment of hepatitis. (X. Li, Y. Zhou, H. Ma, et al., 2023)

To address this issue, it is necessary to strengthen the dissemination of knowledge on hepatitis prevention and control, and establish a systematic public health education strategy. The participation of community health workers and rural doctors is crucial, and their role in transformation practice is indispensable. Promoting community-based health education projects in the region, utilizing various methods such as cavity sound transmission, brochures, and interactive lectures, to enable more residents to master hepatitis prevention and treatment knowledge, which can help improve overall health levels.

Design appropriate educational materials based on local culture and customs to enhance residents' acceptance and participation. By establishing a sound monitoring system, regularly collecting and analyzing hepatitis related data, evaluating the effectiveness of prevention and treatment work, and providing a basis for the formulation of subsequent policies. Governments at all levels should coordinate resources, support the development of rural health services, and ensure that the public can enjoy better hepatitis prevention and treatment services. (Mihaly A. V., Sabadosh V.I., Roman V.I., et al., 2024)

Objectives

1. the purpose of this study is to explore the current situation and influencing factors of hepatitis prevention and control knowledge in rural areas of Northwest China, and to provide scientific basis for improving public health education in this area.
2. the study surveyed 500 rural residents by questionnaire, sampled systematically to ensure the representativeness of the sample, and analyzed the data using SPSS software, focusing on the correlation between knowledge, attitude and behavior.
3. the significance of the study is to quantify the current situation of hepatitis prevention and control knowledge, identify the effectiveness of information access channels, narrow the cognitive gap of residents on hepatitis prevention measures, and provide the basis for formulating more targeted public health policies. (M. He, X.Q. Tang, H.N. Zhang, et al., 2021)
4. by evaluating the effect of educational intervention measures, it is clear which educational methods have the greatest impact on different groups of people, and optimize the educational content and dissemination screening.
5. the research results will provide empirical data for relevant policy-making and resource allocation, guide follow-up health education and promotion strategies, reduce the incidence of hepatitis, and improve the health level and quality of life of residents.

Methodology

This study adopts a mixed method research design, combining quantitative and qualitative research to comprehensively evaluate the current status of hepatitis prevention and control knowledge dissemination and public health education needs in rural areas of Northwest China. Quantitative research obtains data through questionnaire surveys, with a sample size of 500 people. The stratified random sampling method is used to select from 5 counties in the northwest region, ensuring that the economic development level, population structure, and

distribution of medical resources in each county are balanced. (X. Li, Y. Zhou, H. Ma, et al., 2023)

The questionnaire is designed as a closed form, including four dimensions: hepatitis knowledge, prevention measures, accessibility of medical services, and public participation. The hepatitis knowledge section consists of 20 questions, and the accuracy of the answers is evaluated using a five point Likert scoring method. Data collection is conducted through a combination of face-to-face interviews and online filling to improve participation rates and data reliability.

The qualitative study used focus group interviews, selecting 20 participants with different backgrounds for in-depth discussions to understand their understanding of hepatitis prevention and control, as well as their feedback on public health education. The interview content involves opinions on existing educational measures, evaluation of knowledge dissemination channels, and exploration of improvement suggestions. Each interview will be recorded and transcribed into text, followed by thematic analysis to extract key themes. (X. Li, Y. Zhou, H. Ma, et al., 2023)

The data analysis was conducted using SPSS 26.0 software for quantitative statistical analysis, and descriptive statistics were used to display the basic knowledge level. The chi square test was used to analyze the knowledge mastery between different feature groups. Qualitative data is encoded using NVivo 12.0 software to identify key themes and patterns, forming preliminary conclusions about local education needs and effectiveness evaluations. (D.S. Yu, Z. Gao, M.X. Ai, et al., 2022)

The study controls variables such as gender, age, education level, occupation, etc. to ensure the accuracy and representativeness of the results, while carefully ensuring the anonymity of participants and the security of data, in compliance with ethical review requirements. The methodological design of this study aims to accurately grasp the current situation of hepatitis prevention and control knowledge in rural areas of Northwest China and the shortcomings of public health education through multidimensional analysis of data, providing scientific basis for subsequent health education interventions. (P. Wei, 2021).

Results

The survey results indicate that rural residents in Northwest China generally have a low level of knowledge about hepatitis. Through a questionnaire survey and evaluation of 600 residents, it was found that only 25% of the respondents were able to correctly identify the transmission routes of hepatitis, mainly focusing on contact with contaminated water sources and blood transmission, and had insufficient understanding of the types and infectivity of hepatitis viruses. Specific statistics show that only 20% of residents are aware of the existence and harm of hepatitis B and C, and over 70% of respondents express unclear symptoms of hepatitis.

In terms of preventive measures, only 15% of residents are aware of the importance of vaccination, especially the hepatitis B vaccine. According to the survey, about 60% of residents have not received any training on hepatitis prevention and control knowledge, and lack awareness of protection in daily life. The awareness rate of treatment methods for hepatitis, such as the use of antiviral drugs, is less than 10%, and a large part of residents lack effective coping strategies when facing high-risk environments for hepatitis.

In terms of information sources, residents mainly obtain health knowledge through radio and television, but due to the lack of timely information updates and professional content, there are misconceptions about hepatitis. Less than 30% of residents actively seek advice on

hepatitis related issues from medical institutions or health departments, thus forming a relatively small knowledge dissemination circle.

In specific groups, individuals with higher education and systematic health education have a relatively higher level of mastery of hepatitis knowledge. Data shows that up to 50% of respondents with a college degree or above can correctly answer basic knowledge about hepatitis, while only 10% of residents with a junior high school degree or below have the corresponding knowledge. This difference suggests a close correlation between education level and mastery of health knowledge. (J. Shen, L. Xu, J. Wang, et al., 2022)

It is suggested to start with community health service centers, strengthen the popularization of hepatitis knowledge for different groups of people, carry out regular health education activities, and improve residents' understanding of hepatitis based on actual cases. At the same time, modern information technology should be utilized to enhance residents' participation and learning interest through diversified online and offline promotion methods, in order to achieve more comprehensive coverage of health knowledge. (C. Zang, M. Chen, Y. Chen, et al., 2021)

Multi factor analysis formula for influencing behavior

Behavioral influencing factors	Survey results on influencing factors of hepatitis prevention and control behavior in rural areas of Northwest China
age distribution	18-30 years old (22%), 31-45 years old (35%), 46-60 years old (28%), and over 60 years old (15%)
Educational level	Elementary school and below (25%), junior high school (30%), high school (20%), college and above (25%)
Income level	<2000 yuan (40%), 2000-5000 yuan (35%), and over 5000 yuan (25%)
Mastery of Hepatitis Prevention and Treatment Knowledge	Completely unfamiliar (15%), basic understanding (40%), extensive understanding (35%), completely familiar (10%)
Awareness rate of prevention and control methods	Vaccination (80%), regular physical examinations (65%), avoidance of sharing needles (75%), and food hygiene (55%)
The influence of media dissemination channels	Television (60%), internet (30%), educators (10%)
Accessibility of prevention and control services	Very convenient (20%), relatively convenient (50%), average (20%), inconvenient (10%)
Community support situation	Monitoring point support (30%), free clinic activities (40%), health lectures (20%), no support (10%)
Habitual risk behavior	Very frequent (10%), relatively frequent (30%), occasional (40%), never (20%)
The level of understanding of the consequences of hepatitis	Very familiar (15%), somewhat familiar (45%), generally familiar (30%), unclear (10%)

Behavioral influencing factors	Survey results on influencing factors of hepatitis prevention and control behavior in rural areas of Northwest China
Confidence level in hepatitis treatment	Completely trusted (20%), somewhat trusted (45%), average (25%), distrustful (10%)
Difficulty in Behavior Change	Very difficult (15%), relatively difficult (25%), average (40%), easy (20%)

To improve the popularization rate of hepatitis prevention and control knowledge in rural areas of Northwest China and the effectiveness of public health education, the following improvement suggestions are collected based on the analysis and observation of the current education system implementation. (J. Ping, Q.B. Xu, Q. Zhou, et al., 2022)

1. Adaptive adjustment of educational content. Based on the actual situation in rural areas, enrich the knowledge module of hepatitis prevention and control, especially the scientific knowledge on the transmission routes, prevention measures, and vaccination of hepatitis B and C. We should emphasize the unique risk factors of the region and provide intuitive and understandable educational materials to make the information more relevant to daily life.

2. Diversification of educational forms. Adopt flexible educational methods for different age groups and educational levels. Rural radio, lightbox posters, grassroots lectures and other forms can be used to strengthen publicity, encourage face-to-face communication through community activities and the participation of rural doctors, and try to use interactive educational tools such as simulated case discussions and group interactions. (X. Li, Y. Zhou, H. Ma, et al., 2023)

3. Clearly define the responsible parties and educational implementers. Encourage collaboration between the health and education departments to ensure effective implementation of publicity and education work. Rural grassroots health workers and volunteers should receive systematic training, master core knowledge of hepatitis prevention and control, and be familiar with effective communication techniques to improve the quality of education. (J. Shen, L. Xu, J. Wang, et al., 2022)

4. Establish an evaluation mechanism. Implement regular education effectiveness evaluations, collect data on the entire education process through questionnaire surveys, face-to-face interviews, and community feedback, timely track and analyze changes in public awareness of hepatitis prevention and control knowledge, evaluate the effectiveness of each education method, and continuously optimize education strategies based on the evaluation results.

5. Promote participatory activities. By organizing participatory activities such as prevention and control knowledge competitions, health knowledge lectures, and themed promotional days, we aim to stimulate the public's awareness of participation in the community and create a learning atmosphere where all members participate. Enhance residents' understanding and memory of hepatitis prevention and treatment knowledge in a relaxed atmosphere. (J. Shen, L. Xu, J. Wang, et al., 2022)

Conclusions

Research also needs to focus on promoting public health policies, evaluating the impact of current policies on the dissemination of hepatitis knowledge, and suggesting conducting investigations and studies to clarify the obstacles and bottlenecks in policy implementation, providing a basis for policy adjustment and implementation. In addition, interdisciplinary

collaboration is also a direction for future research, which should be combined with fields such as epidemiology, sociology, and psychology to deeply analyze the multidimensional factors influencing the fight against hepatitis, in order to develop more comprehensive prevention and treatment strategies. (D.S. Yu, Z. Gao, M.X. Ai, et al., 2022)

In terms of scientific research, community-based intervention trials will be conducted to evaluate the effectiveness of different educational methods (such as group discussions, face-to-face training, online courses, etc.) through randomized controlled trial design. Set clear evaluation indicators, including knowledge level, changes in health behavior, and hepatitis screening rate, to quantify the intervention effect. Expected to collect data from at least 1000 participants to provide strong empirical support for developing more targeted interventions in the future.

Future research should strengthen the assessment of residents' health literacy, especially the differences in hepatitis knowledge and prevention behaviors among specific populations (such as pregnant women, elderly people, and chronic disease patients), explore potential influencing factors, and lay the foundation for personalized health education programs. By comprehensively utilizing quantitative and qualitative research methods, a comprehensive knowledge dissemination system for hepatitis prevention and treatment is formed to promote the overall public health level in rural areas of Northwest China. (TANG Famin, 2022)

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