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A Review of the Current Status and Influencing Factors of Knowledge, Attitudes, and Practices (KAP) in Infectious Disease Prevention and Control among the Elderly

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Abstract

The elderly population generally faces issues such as a lack of knowledge, passive attitudes, and insufficient implementation of preventive and control behaviors in infectious disease prevention. Although many elderly people have a strong awareness of disease prevention, they often struggle to effectively understand and carry out scientific prevention and control measures due to a lack of necessary health knowledge. Further analysis reveals that key factors influencing the infectious disease prevention and control behavior of the elderly include education level, income, accessibility of medical services, family support, and health promotion. Based on these influencing factors, this article suggests strengthening health education, improving medical services, and reinforcing community support as multi-faceted measures to enhance the elderly's ability to prevent and control diseases, thereby promoting the overall health level of society.

Keywords

Elderly, Infectious Disease Prevention and Control, Knowledge-Attitude-Practice (KAP) Model

1. Introduction

With the improvement of medical standards and the iterative development of medical technologies, the average life expectancy in China is increasing year by year. However, with the gradual decline in birth rates, the aging population in China is becoming an increasingly severe issue. According to data released by the

National Bureau of Statistics of China, in 2024, the population aged 60 and above will reach 310.31 million, accounting for 22.0% of the total population. This percentage was only 15.55% in 2014, ten years ago, indicating that China is entering the stage of a moderately aging society. In recent years, the frequent emergence of newly discovered infectious diseases, combined with the elderly population's higher prevalence of chronic diseases and weaker immune systems, has made them a high-risk group for severe infections. Therefore, the elderly population has become a key target group for future health protection.

The Knowledge, Attitude, and Practice (KAP) model is one of the commonly used models to assess how individuals' knowledge and beliefs influence the transformation of health behaviors [1]. This model divides human behavioral change into three stages: acquiring knowledge (Knowledge), forming beliefs (Attitude), and adopting behaviors (Practice). The model can provide guidance for health educators, helping them to impart health knowledge to target groups, shift their health concepts, and ultimately promote the development of correct health awareness in the face of sudden situations (such as newly emerging infectious diseases). This, in turn, helps to solidify their health beliefs, leading to the proactive adoption of preventive measures. Studies have shown that, prior to the COVID-19 pandemic, people's knowledge, attitudes, and behaviors regarding infectious disease prevention and control were significantly lower than those after the pandemic [2]. This indicates that since the outbreak of COVID-19, there has been a significant shift in people's perspectives and strategies for dealing with infectious diseases.

By analyzing the current status and influencing factors of knowledge, attitude, and practice (KAP) regarding infectious disease prevention and control among the elderly, scientific evidence can be provided to develop more targeted health education strategies. This, in turn, will effectively enhance the self-protection abilities of the elderly population, further safeguard their physical health, and improve the overall prevention and control effectiveness.

2. Epidemiological Characteristics of Infectious Diseases in the Elderly

Against the backdrop of an aging population, the health issues of the elderly have gradually become a focal point in the field of public health. The elderly population exhibits distinct epidemiological characteristics when facing infectious diseases, which are significantly different from those of other age groups. These characteristics are mainly reflected in higher susceptibility to diseases, longer disease progression, a higher incidence of complications, and higher mortality rates.

2.1. The Elderly Population Bears the Dual Burden of Infectious Diseases and Chronic Illnesses

As individuals age, the elderly population often experiences the onset of multiple chronic underlying conditions, such as hypertension, diabetes, and coronary heart

disease. The long-term presence of these chronic illnesses not only increases the physical burden but also continuously stresses the immune system, leading to a gradual decline in immune function. The immune system, as the body's defense mechanism, becomes weaker, resulting in more noticeable immune deficiencies when the elderly face common infectious diseases such as influenza viruses, pneumococcal bacteria, and herpes zoster virus. This decline in immune response directly affects the elderly population's ability to resist diseases, increasing the risk and severity of infections. For example [3], although there is no direct link between hypertension and tuberculosis, the elderly, as a high-risk group for hypertension, may face an increased risk of a higher incidence of tuberculosis. Furthermore, the immune response triggered in tuberculosis patients may impair endothelial function, which in turn affects the control of blood pressure levels. According to a monitoring study in the United States [4], approximately 13% of the 19 million elderly patients visiting emergency departments annually do so due to infectious diseases. This data reflects that infectious diseases have become a significant threat to the health of the elderly population.

2.2. Elderly Individuals Are More Prone to Complications When Infected with Infectious Diseases, and the Mortality Rate from These Diseases Is Higher

Elderly individuals typically exhibit more complex clinical symptoms after being infected with infectious diseases, and their illness duration is usually longer, making treatment more difficult. This phenomenon is primarily linked to the natural decline of the immune system in older adults. As people age, their immune function gradually weakens, resulting in a significant decrease in their ability to resist pathogens. Therefore, when elderly individuals contract infectious diseases, they not only tend to present more severe symptoms but are also often accompanied by other complications, such as myocarditis, otitis media, and stroke. The insufficient immune function makes it difficult for older individuals to mount a rapid and effective immune response when faced with infections, leading to prolonged illness and even exacerbation of the condition.

In addition, elderly individuals exhibit a higher risk of death and poorer prognosis when confronted with infectious diseases. Their immune system's ability to respond to infections is much lower than that of younger people, making it difficult for them to recover quickly after infection, and they may even develop life-threatening severe conditions. For instance, a study on influenza showed that elderly individuals accounted for 61.2% of hospitalized flu patients [5], and as age increases, the mortality rate of influenza patients rises significantly, highlighting the higher risk faced by the elderly after contracting the flu. Moreover, with age, the mortality rate continues to increase. Among confirmed COVID-19 cases, elderly individuals made up 31%, while in the death toll, elderly individuals represented a staggering 81% [6], further confirming the unique vulnerability of the elderly when facing severe infectious diseases.

2.3. The Economic Burden on Elderly Individuals after Contracting Infectious Diseases Is Substantial

Due to the common presence of multiple chronic diseases in elderly individuals, their treatment often involves long-term medication, frequent check-ups, and multiple hospitalizations. Moreover, complications may arise during the treatment process, significantly increasing medical costs. For families with relatively limited financial resources, such medical expenses are often unaffordable, leading to increased financial strain and, in some cases, preventing elderly individuals from receiving the necessary medical care.

In addition, the elderly population's demand for and reliance on medical resources have put increasing pressure on the social healthcare system. As the population ages, the number of elderly individuals continues to grow, leading to a sharp rise in the demand for medical services. At the same time, due to the gradual decline in physical function and the prevalence of multiple diseases in the elderly, their needs in areas such as disease prevention, treatment, rehabilitation, and care have become more complex and diverse. This poses higher requirements for the allocation of existing medical resources and service models. In this context, the traditional healthcare system is no longer sufficient to fully meet the needs of the elderly population, highlighting the urgent need for comprehensive health management for the elderly and a more rational allocation of resources.

3. The Theory and Current Status of Infectious Disease Prevention, Knowledge, Beliefs, and Practices in the Elderly Population

3.1. The Theoretical Framework of Knowledge, Beliefs, and Practices in Infectious Disease Prevention and Control for the Elderly

The Knowledge, Attitude, and Practice (KAP) model, referred to as the KAP theory model, refers to the process of changing health behavior through three continuous steps: acquiring knowledge, forming beliefs, and changing behavior. "Knowledge" refers to the awareness and understanding of relevant information, "Attitude" refers to the beliefs and attitudes towards health knowledge, and "Practice" refers to the actual health behaviors adopted based on the knowledge and beliefs.

In the theoretical framework of knowledge, attitude, and practice for infectious disease prevention and control in the elderly, "Knowledge" primarily refers to the elderly's understanding and mastery of information related to infectious diseases and preventive measures. The elderly typically obtain various information about infectious diseases, including transmission routes, symptoms, and preventive measures, through channels such as social media, community bulletin boards, and family communication. However, due to differences in age, education level, and health status among the elderly, these factors often influence their ability to understand and absorb related knowledge.

"Attitude" reflects the elderly's trust in and attitude towards infectious disease prevention and control knowledge. Beliefs are shown by whether the elderly recognize the effectiveness of preventive and control knowledge and are willing to internalize this knowledge into their own values. Attitude, on the other hand, reflects the importance the elderly place on preventive measures and their willingness to take action to prevent diseases. After acquiring knowledge about infectious diseases, elderly individuals tend to assess the information based on their own life experiences. They form their beliefs based on whether they accept the knowledge, which in turn influences their defensive attitudes and the level of their proactive measures.

"Practice" refers to the actual health behaviors the elderly adopt in their daily lives, such as wearing masks, washing hands frequently, and maintaining social distance. After acquiring relevant knowledge and forming positive beliefs, the elderly need to translate this knowledge into specific preventive actions to effectively prevent infectious diseases. However, due to limitations related to health conditions, age, and other factors, the elderly may face practical difficulties when implementing these preventive measures.

3.2. The Current Situation of Knowledge, Belief, Attitude, and Practice (KAP) of Elderly People Regarding Infectious Disease Prevention and Control

The level of knowledge, belief, attitude, and practice (KAP) of elderly people regarding infectious disease prevention and control is influenced by various factors, including age, educational level, regional differences, and personal income. As individuals age, their physical functions gradually decline, and their ability to receive and comprehend information also weakens, leading to certain barriers in their grasp of infectious disease prevention and control knowledge. A study based on the health literacy level of residents in Haidian District [7], Beijing, found that only 1.63% of elderly individuals over the age of 60 had an adequate level of infectious disease prevention and control health literacy, indicating that the KAP level of elderly people regarding infectious disease prevention is relatively poor.

A study conducted on hospitalized patients over the age of 60 at a hospital in Changchun City showed that elderly individuals with lower educational levels often lack essential health knowledge when facing infectious diseases, and are unable to fully understand the importance of preventive measures [8]. Especially during epidemics, elderly individuals without proper preventive knowledge are more likely to overlook basic protective measures, such as wearing masks, washing hands frequently, and maintaining social distancing, which, in turn, increases the risk of infection. Meanwhile, differences in living conditions, family economic status, and monthly income all influence the KAP levels of elderly people regarding infectious disease prevention and control. For elderly individuals with low economic income (including pensions), even in the face of a high infection rate of infectious diseases, their limited income prevents them from purchasing adequate prevention materials and fully acquiring skills related to disinfection and isolation

[9]. This, in turn, directly impacts their awareness of disease prevention and their actual preventive behaviors. Economic inequality further exacerbates the disparity in infectious disease prevention among elderly people, leading to inequities in health protection.

In summary, various factors such as age, educational level, economic status, and income disparities interact to influence the knowledge, attitude, and practice (KAP) levels of the elderly population in infectious disease prevention and control. Therefore, preventive measures for the elderly need to comprehensively consider these factors and adopt more precise and differentiated health education and resource support to improve the overall effectiveness of prevention and control.

4. Intervention Strategies for Infectious Disease Prevention and Control in the Elderly Population

4.1. Strengthening Health Education to Raise Awareness of Disease Prevention among the Elderly

Health education is the foundation for improving the ability of the elderly to prevent and control infectious diseases. The general health literacy rate among the elderly population is relatively low, especially for those with lower educational levels, who often lack a full understanding of the transmission routes, symptoms, and preventive measures of infectious diseases. Therefore, strengthening health education and increasing health knowledge training are particularly important for the elderly in preventing and controlling infectious diseases.

Mobile internet media, community outreach, health lectures, and other forms of health education are effective channels. Especially during an epidemic outbreak, disseminating knowledge of infectious disease prevention through methods such as text messages, radio, and television can help elderly people stay informed about control measures in a timely manner. Considering the differences in cognitive abilities within the elderly group, health education should be concise, diverse in form, and preferably use a combination of images and text, integrating the elderly's daily habits to ensure the effectiveness of information delivery.

4.2. Improving the Accessibility of Medical Services and Reducing Health Resource Inequality

Due to physiological and economic limitations, elderly people often face difficulties in accessing medical services. To effectively enhance the elderly population's knowledge, attitude, and behavior in preventing and controlling infectious diseases, the government can increase its focus on elderly individuals in terms of medical resource allocation and utilization, ensuring that the elderly have equal access to medical services.

On one hand, improving the primary healthcare system, especially by supporting remote and economically disadvantaged areas, is crucial. By strengthening the training of rural doctors and enhancing the service capabilities of primary healthcare institutions, elderly people will be able to receive basic medical services and epi-

demic prevention guidance close to home, avoiding missed opportunities for prevention and control due to transportation difficulties or a lack of medical resources.

On the other hand, it is essential to strengthen vaccination services for the elderly. Vaccination is one of the most effective methods for preventing infectious diseases, especially diseases like influenza and pneumonia, to which elderly populations are more susceptible. The vaccination rate among elderly people should be increased. The government can reduce vaccination costs for the elderly through subsidy policies and establish dedicated vaccination channels for the elderly in community health service centers, hospitals, and other facilities, ensuring that vaccination is not restricted by time, location, or financial conditions.

4.3. Strengthening Family and Community Support to Enhance the Execution of Health Behaviors for the Elderly

Family and community are the primary support systems in the daily lives of elderly individuals. Leveraging the role of family and community in elderly health management is crucial for enhancing the disease prevention capabilities of older adults.

Firstly, family members should be the primary responsibility bearers for elderly health management. When elderly individuals face infectious disease prevention and control, they often rely on family members for daily care and protective support. Family members need to pay attention to the health of elderly individuals, remind them to receive timely vaccinations, undergo regular checkups, and assist in adopting necessary protective measures. At the same time, family members should help elderly individuals take a more proactive approach to healthy behaviors, such as wearing masks, washing hands frequently, and maintaining social distancing, ensuring that they maintain a healthy lifestyle in their daily routines.

Secondly, the community can provide more comprehensive health management services for the elderly. Communities can not only regularly organize health lectures and checkup activities, but also form volunteer teams to assist elderly individuals with mobility issues in obtaining essential items like medication and food. Through the cooperation of communities and families, a healthy living environment can be created for the elderly, thereby enhancing their ability to prevent and control infectious diseases.

4.4. Improving Laws, Regulations, and Publicity to Safeguard the Health Rights of the Elderly

Laws, regulations, and publicity play a crucial role in safeguarding the health rights of the elderly in the prevention and control of infectious diseases. The government should establish and improve health protection laws and regulations specifically for the elderly, clearly defining their rights and responsibilities in infectious disease prevention and control. For instance, relevant regulations should be formulated to ensure that elderly individuals are entitled to priority vaccination, priority medical treatment, and other rights during an epidemic, ensuring that

they are not overlooked in public health emergencies.

Furthermore, the government and social organizations should strengthen publicity efforts targeting the elderly, particularly in the area of infectious disease prevention and control. Publicity materials such as brochures and videos specifically designed for the elderly should be created to widely disseminate knowledge on infectious disease prevention, remind elderly individuals to maintain personal hygiene, enhance their immunity, and make them aware of potential risks during epidemics. The government should also collaborate with the media, utilizing television, radio, the internet, and other platforms to widely spread information on infectious disease prevention, ensuring that the message reaches every elderly person.

5. Conclusions

The elderly population generally exhibits a situation in which there is a lack of knowledge, a positive attitude, but insufficient action when it comes to infectious disease prevention and control. Although a small proportion of elderly individuals hold a positive attitude towards the prevention and control of infectious diseases and are willing to take preventive measures, they often struggle to fully understand the necessity and scientific basis of these measures due to a lack of relevant health knowledge. As a result, there may be certain deviations or delays in their actual actions.

The main factors influencing the knowledge, attitude, and behavior of the elderly in infectious disease prevention include education level, income level, accessibility to healthcare services, family support, and health publicity. Studies show that elderly individuals with lower education levels often lack sufficient health knowledge and are unable to accurately understand the methods of infectious disease prevention and control. Additionally, elderly individuals with lower incomes are often unable to afford necessary protective supplies or health checks due to financial burdens, limiting their disease prevention behaviors. Furthermore, the uneven distribution of medical resources and delayed information dissemination also create difficulties for many elderly individuals in implementing preventive measures.

Therefore, multiple measures should be taken to strengthen the infectious disease prevention capabilities of the elderly population. On one hand, health education should be enhanced, especially by disseminating health knowledge in a simple and easy-to-understand manner. On the other hand, the accessibility of healthcare services should be improved, ensuring that elderly individuals can receive timely and effective medical support at all times. Moreover, the support from families and communities, as well as the improvement of policies and regulations, plays a vital role in safeguarding the health rights of the elderly and is significant for achieving the "Healthy China" strategy goals.

This article only provides a review based on the current status of knowledge, beliefs, and practices (KAP) regarding infectious disease prevention and control among the elderly, and the influencing factors, without analysis based on actual

survey data. Future studies could focus on regional surveys to analyze the KAP levels of elderly individuals regarding infectious disease prevention, conduct longitudinal studies to track changes in KAP over time, or compare the effectiveness of interventions in urban and rural environments in order to gain a more comprehensive and in-depth understanding of the factors influencing and interventions for the prevention and control of infectious diseases among the elderly.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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