

Exploration of a New Model of Comprehensive Cancer Prevention and Treatment Based on Psychological Support Strategies

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Abstract: The incidence of cancer has increased year by year, and it has become the disease with the highest mortality rate in China, posing a serious threat to the lives and health of Chinese residents and bringing a serious burden to individuals, families, and society. Prevention before cancer occurs is the most effective way to prevent cancer, reduce the incidence of cancer, and improve quality of life. Popularizing science can enhance residents' awareness of cancer prevention and improve their ability to prevent cancer. However, in the existing popular science model, popular science is rarely carried out from the perspective of psychological support. Therefore, this paper mainly explores a new model of comprehensive cancer prevention and treatment based on psychological support strategies.

Keywords: Cancer; Psychological support strategies; Comprehensive cancer prevention and treatment; A new model of popular science

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1. Introduction

With the acceleration of the aging of the population, as well as the existence of environmental pollution, high-paced work, and poor lifestyle habits, cancer has become a recognized global problem, and the number of new cancer cases worldwide has increased by 70% in the past 20 years. According to a survey report, the number of new cancer cases and deaths in the United States in 2024 is expected to be 2,001,100 and 611,700 respectively, and the number of new cancer cases will exceed 2 million for the first time, while the number of deaths from lung cancer, colorectal cancer and pancreatic cancer is expected to reach a new high ^[1]. In 2022, the number of new cancer cases and new cancer deaths in China will be about 4,824,700, and the crude mortality rate will be 3,417.75 per 100,000 ^[2]. In China, lung cancer is the malignant tumor with the highest incidence, followed by gastric cancer, esophageal cancer, liver cancer, and colon cancer, among which the mortality rate of lung cancer

increased from 5.5 per 100,000 in the 70s of the 20th century to 42.1 per 100,000 in 2012^[3-4]. The high incidence of cancer not only places a heavy burden on society but also leads to a significant decline in the quality of life of patients and the pain of the treatment process. As the disease progresses, up to 43% of cancer patients experience pain. Patients may experience pain when tumors invade visceral, nerve, or bone tissues, pain may occur when hollow viscera is completely blocked, and prolonged ulceration of tumors and infection can cause severe pain^[5]. At the same time, cancer patients are more susceptible to infections and other complications due to the rapid loss of bodily functions, resulting in abnormal function of the patient's various systems. In addition, cancer patients may experience psychological burdens and sleep disturbances due to a variety of factors, further reducing their quality of life^[6]. The current level of medical technology is not enough to completely cure cancer, as it is a fortress that has not been breached. The most effective way to treat cancer is to prevent the occurrence of cancer, so the prevention and treatment of cancer are of great significance and can reduce the incidence of cancer. The World Health Organization has put forward three 1/3 theories for the prevention and treatment of cancer, which believes that 1/3 of cancers can be prevented, 1/3 of cancers can be completely cured through early diagnosis, and 1/3 of cancer patients' lives can be prolonged by treatment. It can be seen that it is of great significance to popularize cancer knowledge and enhance cancer prevention ability and awareness of residents to reduce the social burden and improve the quality of life.

2. Current status of cancer prevention and control science

2.1. The status quo of the implementation of popular science in China

The key to raising awareness of cancer prevention and control among the whole people and actively promoting cancer science education lies in popularizing tumor-related knowledge to the general public in a timely and effective manner. In China, the national anti-cancer science popularization campaign was initiated by the China Anti-Cancer Association in 1995, and April 15–21 of each year is National Cancer Prevention and Treatment Publicity Week. Under the active advocacy of the China Anti-Cancer Association, and in close cooperation with anti-cancer associations of various provinces (municipalities and autonomous regions), cancer hospitals, professional committees, people from all walks of life, and charitable organizations, the scientific knowledge of anti-cancer and cancer prevention has been widely disseminated through various channels and forms. These efforts have significantly improved the public's awareness of cancer prevention and scientific knowledge and thus promoted the sustainable and healthy development of China's anti-cancer cause and science popularization^[7]. In China, community science popularization activities are the main form of cancer science popularization as the organizational framework in community science popularization is open and there are many participants. At the same time, community cancer science popularization is usually carried out under the guidance of professionals from the National Health Commission, disease control centers in various districts and counties, medical institutions, and volunteer groups. However, the complexity of the tasks undertaken by community workers limits the scale and further development of science popularization work. In addition, the funding for community science popularization mainly comes from the appropriation of government departments and neighborhood offices, but there is a general shortage of funds, which restricts the further development of community science popularization work.

2.2. Traditional popular science model

Traditional cancer prevention and control science publicity mainly adopts the traditional communication mode, which is carried out in the form of newspapers and magazines, popular science books, public service

advertisements, expert lectures, special programs, and on-site exhibitions^[8]. Over the past long period, these models of traditional medical science popularization have played an important role in popularizing medical science knowledge among the broad masses of people in China. In the 20th century, science and technology had not yet made great progress, and newspapers and magazines became popular media at that time. By regularly publishing popular medical content in these publications, they played an important role in that slower-paced era. Due to the relatively slow development of technology and treatments, the general population's access to information is extremely limited. Therefore, newspapers and magazines provide medical knowledge to the public, answer their doubts, and have a good effect of popularizing science through their authority and wide circulation. Expert popular science lectures are the most common way to popularize scientific knowledge by authoritative experts in a fixed place to explain relevant topics and professional medical knowledge. At the same time, popular science books can present medical knowledge systematically and comprehensively, especially when people are eager to grasp professional and detailed medical information, they can consult the corresponding medical popular science books, to obtain more in-depth and complete cancer-related knowledge.

With the development of the times, the traditional popular science model has certain limitations and is no longer suitable for the current social level. In particular, the popular science model with paper as the communication medium has limitations in the timeliness of the content. At present, people are in an era of rapid information, and the speed of updating scientific knowledge has reached an unprecedented height. The production and distribution of print media are relatively cumbersome and complex, resulting in a lag in content updates. At the same time, print media can only use words or pictures to popularize knowledge, which lacks interactivity and interest in the current situation when information access is very convenient and the pace of life is generally accelerated. In addition, the traditional method of popular science often presents the characteristics of linear and unidirectional, which is a kind of passive education of cramming, which fails to fully consider the audience's receptivity and feedback mechanism, resulting in the reduction of the effect of popular science. Therefore, to adapt to the development of the times, the popular science film and television drama model with film and television dramas as the main mode of communication has been opened, giving full play to the role of traditional media and new Internet media, widely publicizing the main information of cancer prevention and control knowledge, and enhancing the public's awareness and ability of self-prevention and control^[9-10]. The popular science film and television model is not only limited to traditional forms such as television, movies, short videos, and micro-films, but also includes Internet video platforms, mobile terminal video apps, community publicity, and in-vehicle advertising, which have the characteristics of multi-scenario communication and cross-border co-creation by the whole people^[11].

2.3. Popular science content

At present, the popularization of cancer content mainly focuses on the definition, causes, early characteristics, and preventive measures of cancer^[12]. At the same time, some professional science popularization also covers the diagnosis methods of cancer, the treatment plan of cancer, the rehabilitation and care of cancer patients, the latest research progress of cancer, the psychological and social impact of cancer, and the economic burden of cancer. With the continuous advancement of medical science and technology, new cancer research and treatment methods are emerging one after another, and popular science articles are regularly updated with the latest research progress on cancer, conveying the latest research results and clinical trial information to the public, and helping patients and their families understand cutting-edge treatment options^[13]. At the same time, cancer treatment is often

accompanied by high costs, and the popular science content will introduce the relevant medical security policies, charitable assistance programs, and how to reasonably plan the financial burden to reduce the financial pressure on patients. In addition, cancer patients require long-term rehabilitation and care after treatment. The content also includes diet, exercise, psychological adjustment, and how to cope with possible complications and sequelae during rehabilitation, and emphasizes the importance of family and social support. Through comprehensive and in-depth cancer education, the public can not only better understand cancer, but also be more calm and make informed decisions when facing cancer. This will not only help improve the survival rate and quality of life of cancer patients but also create a more inclusive and supportive atmosphere for cancer patients in the whole society.

Among the causes of cancer, psychological factors are also one of the important factors that lead to the appearance of cancer. Geng conducted a literature search of the electronic databases PubMed and Web of Science from the date of establishment to August 2022, screened a total of 628 data on psychosocial factors related to the incidence of ovarian cancer, and found that psychological stress may be a new risk factor for ovarian cancer^[14]. At the same time, the research of Liu Jinhui and other scholars has shown that there may be an interaction between various psychosocial factors and the occurrence and development of malignant tumors, but the location or type of tumors caused by different psychosocial factors and the operating mechanism of the influence of psychosocial factors on the body has yet to be further confirmed^[15]. This suggests that psychosocial factors have been proven to be involved in the occurrence and development of cancer and play a certain role in the onset of cancer. At present, the new concept of health advocated by social medicine also includes mental health and social health, but in the popular science of comprehensive cancer prevention and treatment, there is little content on the prevention of cancer caused by psychological factors.

3. A new model of comprehensive cancer prevention and treatment based on psychological support strategies

3.1. Mental health knowledge

With the progress of social development, people's pursuit of life has shifted from the material level to the spiritual level. However, the acceleration of the pace of modern life and the widespread dissemination of information on the Internet have made people vulnerable to negative information. Coupled with the continuous increase in life pressure, various psychological problems frequently appear. A negative life event is a life event in which the person feels distressed. Negative life events can trigger the body's stress response, which can have a certain impact on major organs such as the heart and brain, the endocrine system, and the immune system by regulating individual emotions or changing behaviors through the neuroendocrine system^[16]. Studies have shown that negative life events can cause cancer through the hypothalamic-pituitary-adrenergic axis and the sympatho-adrenomedullary system, mainly by causing the release of glucocorticoids, epinephrine, and norepinephrine, inhibiting immune responses, and can also regulate the expression of certain genes through the β adrenergic signaling pathway of the sympathetic nervous system to promote the proliferation and metastasis of tumor cells^[17]. Negative emotions mainly refer to the emotional reactions that affect completing work or thinking normally due to the external environment or their emotions in daily study, work, and life, which are mainly manifested as anxiety, fear, depression, anger, pessimism, despair, and so on. Studies have shown that negative emotions in residents are an important factor in accelerating the onset, development, and mortality of cancer^[18]. Personality traits refer to the unique manifestations formed by a person due to different living environments, education levels, life experiences,

and tolerances for things. It has been found that introversion is closely associated with the development of cancer in people with a C-type personality as the main trait ^[19]. Therefore, in the comprehensive prevention and treatment of cancer patients, it is of great significance to the tumorigenesis caused by psychosocial factors. In the context of popular science, medical staff can popularize information about what are the social psychological factors and the pathological mechanism of social psychological factors leading to the occurrence of cancer and how to respond to and mitigate these factors. Psychosocial factors include the above-mentioned negative emotions, negative life events, and personality traits, all of which can increase the risk of cancer by affecting the body's endocrine system and immune system. Secondly, the content of popular science should cover the pathological mechanisms of cancer caused by psychosocial factors.

3.2. Psychological support measures

After residents understand the impact of psychosocial on cancer, the popular science content should provide some psychological support strategies to cope with and alleviate these psychosocial factors. At present, the main clinical psychological support strategies include cognitive behavioral therapy, relaxation training, mindfulness meditation, and so on, which can effectively help residents manage stress and emotions. Cognitive-behavioral therapy (CBT) helps residents manage and alleviate psychological stress, emotional distress, and other related problems by modifying undesirable cognitive patterns, emotional responses, and behavioral patterns ^[20]. The core principles of cognitive behavioral therapy cover information processing, emotion regulation, and cognitive remediation, which together form a comprehensive psychotherapy system. Relaxation training mainly involves the exercise of tension and relaxation of muscle groups by residents, to regulate their physical and mental state more effectively, thereby helping to gradually overcome psychological disorders such as anxiety and tension ^[21]. Mindfulness meditation, on the other hand, is mainly to relieve psychological stress by cultivating an individual's non-judgmental awareness of the inner experience and the external environment. At the same time, residents are encouraged to actively participate in social activities in their lives, establish a good social support network, and enhance their psychological resilience. In addition, the popular science content should also emphasize a healthy lifestyle, such as regular exercise, a balanced diet, and adequate sleep, which can help improve the body's immunity and reduce the risk of cancer. Through the popularization of psychological support strategies for residents, the public's understanding of the role of psychosocial factors in the occurrence of cancer can be improved, and people can be encouraged to take active preventive measures, thereby reducing the incidence of cancer.

4. Concluding remarks

The awareness rate of cancer knowledge among Chinese residents is still at a medium level, and the development of comprehensive cancer prevention and treatment science is still slightly insufficient. The popular science model of comprehensive cancer prevention and treatment has changed from the traditional paper communication medium to diversified film and television popular science, which has expanded the dissemination of cancer knowledge popularization. The popular science model of comprehensive cancer prevention and treatment has changed from traditional paper, but in terms of popular science content, the impact of social psychological factors on the formation of cancer in residents has not been paid attention to. In the general model of cancer knowledge, it is necessary to pay attention to the content of psychological support strategies and form comprehensive prevention and treatment knowledge to reduce the incidence of cancer in residents. The media has been transformed into a

diversified film and television industry, which has expanded the dissemination of cancer knowledge and science popularization. This paper mainly explores the new mode of comprehensive cancer prevention and treatment of psychological support strategies, emphasizes the importance of psychological factors in cancer science, and puts forward the psychological content and psychological support strategies of popular science. However, further application is needed to determine the application value of the popular science model of comprehensive cancer prevention and treatment based on psychological support strategies.

Disclosure statement

The authors declare no conflict of interest.

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