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Research Article

Progress on Compliance and Psychological Factors in Patients with Chronic Diseases

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Abstract

As the primary disease that threatens human health and life seriously, the situation of chronic diseases is becoming increasingly severe. In recent years, many studies of patient compliance have emerged in the field of general practice. This article reviews the progress of research on patient compliance and cognitive psychological factors. In order to improve the level of patient compliance and optimize the management effect of chronic diseases in the context of the new medical model. From the current research status, new ideas and suggestions have been proposed.

INTRODUCTION AND OVERVIEW

Chronic disease is a general term for diseases that do not constitute infection and have long-term accumulation to form disease damage. The full name of chronic disease is chronic noninfectious disease, which does not refer to a particular disease, but a general term for a class of diseases with hidden onset, long course and persistent disease [1]. It is lack of exact evidence of infectious biological etiology, complex etiology. Even some chronic diseases have not been completely identified. Although the comprehensive prevention and control of chronic diseases has been gradually intensified, the situation remains grim. Thus, all physicians are supposed to pay attention to this situation.

CURRENT STATUS OF CHRONIC DISEASES

Advances in people's society have changed the disease spectrum and the incidence of chronic diseases. The chronic disease is non-communicable. It is not infectious but has cumulative damage to health [2]. According to statistics, about one-third of adults worldwide suffer from serious chronic diseases [3]. The mortality rate is as high as 70 percent annually worldwide [4]. Therefore, chronic diseases are a great threat to human health worldwide [5]. With the increasing incidence of chronic diseases, the age of onset also tends to be younger [6]. In addition, chronic diseases are characterized by high incidence, high disability rate, high risk of death, low degree of understanding, low effective control rate and low clinical medical effect [7]. Besides, chronic diseases lead to many serious problems, such as pain experience, treatment burden, impaired quality of life, and low social benefits [8].

Chronic diseases are majorly harmful diseases, mainly including coronary heart disease, hypertension, diabetes, dyslipidemia, chronic kidney disease, gouty arthritis, other diseases, and chronic tumors [9]. For example, many patients with chronic diseases will become depressed, anxious, pessimistic and even depressed because of the long-term suffering of chronic diseases, which poses a great threat to their mental health [10]. If people ignore chronic diseases and how harmful they can be, more serious consequences are inevitable in the near future.

In fact, a large number of chronic disease prevention practices have proved that although chronic diseases cannot be cured, they can be prevented and controllable [11]. The key measures for chronic disease prevention include the control of multiple risk factors, early detection and intervention, and standardized management. In recent years, the research of chronic diseases has attracted increasing social attention, so it is urgent to standardize the management of chronic diseases. The degree of compliance of patients has a significant impact on the management and control effect of diseases, but many patients with chronic diseases have poor compliance [12]. Definitely, effective intervention is urgently needed.

Compliance Issues

Patient compliance refers to the consistency and correct degree of behavior and doctors' advice [13]. Studies have shown that important factors affecting patient adherence to medication include attitudes and perceptual behavior, and the psychological condition of the patient [14]. In a clinical setting, Morisky Drug Adherence Scale (MMAS-8) is widely used to evaluate compliance [15]. Several studies on patient compliance have shown that the influencing factors are complex and diverse, mainly including patient factors, physician factors, and social factors such as the medical system [16]. Patients themselves, mainly include intentional or unintentional factors. Among them, the patient's intentional behavior leads to non-compliance, such as refusing to take medication or stopping medication. There are also poor compliance caused by unintentional factors, such as patients simply forget to take medication [17]. It is also very common for doctors to bring about the current situation. For example, doctors fail to timely emphasize the importance of disease treatment and prevention, and inadequate health education and other reasons have a negative impact on patient compliance [18]. Other aspects, such as health insurance problems, economic causes, and adverse drug reactions, are all factors affecting compliance [19]. In other aspect, the influencing factors of patient compliance mainly include two levels. First, objective factors [20]. Including the patient's age, social and educational background and son on. Another, it is because of subjective aspects [21]. Including the patient's own attitude, views and feelings.

Psychological Theoretical Basis for Improving Patient Compliance

According to the Reach G [22], based on the philosophical point of view, the phenomenon of non-compliance in the treatment of patients with chronic diseases is a major problem facing contemporary medicine. In fact, patient patience and foresight are prerequisites for compliance, and patients who do not adhere to long-term treatment often fail to prioritize the future and show sufficient perseverance. There are many patterns for improving of patient behaviors, such as Knowledge Attitude/Belief and Practice [23], Health Belief Model [24], The Theory of Planned Behavior [25], The Transtheoretical Model [26], The Diffusion of Innovations Theory Model [27], The Health Promotion Model [28], Green PRECEDE-PROCEED Mode [29] and so on. Different theoretical models express different specific meanings. (Table 1) shows the main points of the patterns for improving of patient behaviors. Theoretically, patient knowledge and cognition affect patient attitudes and beliefs, which in turn influences behavior. In a word, the above modes deepen the understanding that patients' personal factors affect their compliance and clarify the theories and methods of changing compliance from the psychological and behavioral perspectives from different aspects.

Table1: The main points of the patterns for improving of patient behaviors.

Types	Main Points
Knowledge Attitude/Belief and Practice	The cognition, attitude or belief of patients can promote the development of good behavior habits of patients with chronic diseases
Health Belief Model	The emergence of patients' health beliefs is a necessary condition for behavior change
The Theory of Planned Behavior	Patients' behavior is fundamentally determined by their attitude, subjective consciousness standard and ability to control their behavior
The Transtheoretical Model	Patient compliance also needs to go through a certain stage from poor to good
The Diffusion of Innovations Theory Model	The social spread of new ideas is extremely rapid, and this also applies to the idea of disease control
The Health Promotion Model	The consciousness of tending to health can promote the behavior of tending to health
Green PRECEDE-PROCEED Mode	A variety of behavioral change theories are applied comprehensively, and multiple factors affecting patient behavior and plans are considered

Cognition and Attitudes of Patients with Chronic Diseases Influence Treatment Compliance

Howren MB, et al. [30] believed that the self-management behavior of patients with chronic diseases was the prerequisite for treatment compliance. Raebel MA [31] noted that patients' attitudes and beliefs largely affected patient adherence. A study conducted by McGuckin C, et al. [32] in Ireland suggested that self-monitoring, subjective perception and norms of conduct were key factors affecting compliance. Besides, Hegde SK, et al. [33] listed several significant factors for compliance with chronic diseases as follows. Such as patients spontaneously changed the dose or the number of drugs. Like there were no near pharmacies in the village so that patients could not understand the words of doctors. Health care service providers could not explain the severe consequences of not taking medicine or changing the dose by themselves, which was a threat for patients with chronic disease. Ibarra Barrueta O, et al. [34] pointed that The Haynes-Sackett and Morisky-Green questionnaire and visual simulation scale were used to assess the compliance with chronic disease treatment in many Spanish hospitals. The results of 723 questionnaires showed that only 56 percent of chronic treatment patients had good compliance, and the patients believed that it was difficult to stick to taking medicine. Therefore, they even did not pay attention to it anymore.

Mental Status in Chronic Disease Patients Affects Compliance

According to Grenard JL, et al. [35], a meta-analysis had suggested that depression led to worse adherence to a

range of chronic diseases in the United States, and also had bad cardiovascular outcomes. Results from Hoogendoorn Claire J, et al. [36] supported that the severity of depressive symptoms was a strong influence of poor compliance in adults with chronic diseases. And fatigue may also was associated with non-adherence to treatment. Studies both at home and abroad have shown that the compliance factors affecting the patients with chronic diseases are diverse and extensive, including the factors related to cognition and psychology [37]. For example, patients' own awareness of the disease and medication is insufficient, as well as the negative impact of depression, anxiety, worry, despair and other bad emotions on compliance. From the patients' own background, patients' cognition and attitude determine their behavior and actually are the fundamental factors affecting compliance [38].

The Effect of Psychological Factors in Patients with Common Chronic Diseases

Today, low patient compliance is one of the most important therapy-limiting factors in chronic diseases. Common chronic diseases include hypertension, coronary heart disease and diabetes. Nextly, the correlation between compliance and psychological factors for patients with different chronic diseases is expounded.

Hypertension (HT)

The use of antihypertensive drug treatment has altered the natural history of hypertension. The medication compliance of hypertension patients is also a vital part of clinical work. De Geest S, et al. [39] showed that about half of the resistant hypertension patients could not do long-term regular medication. Through interventions such as health education from the patient level, patient cognition could be enhanced obviously. Furthermore, by reducing the complexity of drug prescription, or changing their own lifestyle according to their environment, it is easy to improve patient adherence and prognosis. Thalacker KM [40] provfied the community hypertension patients Health Belief Model. Specifically, Health Belief Model could promote patients' understanding of the disease, and the individual perception degree and depth. By referring the model properly, it was beneficial for patients to perceive behaviors in reducing the harm, and it was conducive for patients to timely find and solve the problems. Recently, Health Promotion Mode mainly includes checking out omissions and filling in gaps, enhancing knowledge to enhance personal ability and literacy, and encouraging and educating patients to develop positive health promotion behaviors [41].

Diabetes Mellitus (DM)

The survey of compliance with type 2 diabetes patients by Shams N, et al. [42] concluded that 81.4% of patients were dissatisfied with blood glucose control, and poor compliance was observably associated with illiteracy and poor diabetes knowledge. A study conducted by Jiraporncharoen W, et al. [43] in May to December 2016 in Chiang mai, Thailand for oral hypoglycemic treatment of type 2 diabetes patients in-depth interview, explored the attitude of patients and its influence on medication adherence and summed up the related to patients medication adherence of four subjects: attitude to disease, attitude to treatment, attitude to family support and attitude to the health care team. Diabetic patient symptoms at diagnosis, understanding and acceptance of medication, the presence of family support, and physicians' concerns about medication adherence were all associated with improved adherence. According to Alvarado-Martel D, et al. [44], motivation, diabetes management training, disease beliefs, and self-efficacy were major factors in adherence to self-care behavior, and that anxiety and depression were highly prevalent and associated with lower adherence. Yasmin F, et al. [45] noted that mobile phone-based health reminders for patients to comply with the effective management of type 2 diabetes drugs and healthy lifestyle recommendations, with obvious specific and positive effects.

Coronary Heart Disease (CHD)

Coronary heart disease is a serious threat to human health in China. The studies on patients compliance with CHD are abundant and ample. Gehi A's study [46] on compliance in coronary artery disease patients confirmed that adverse emotions such as depression had a negative impact on compliance in patients with coronary heart disease. Laba TL, et al. [47] proved that improving compliance with secondary prevention in cardiovascular patients was a key link to the prevention and control of coronary heart disease. Sun C, et al. [48] advocated that the effect of comfort care based on the collaborative care model on the compliance and self-care ability of patients with coronary heart disease was negligible.

Kähkönen O, et al. [49] put forward that the predictive factors known to explain adherence to treatment were male gender, close personal relationship, longer education, lower LDL cholesterol and longer duration of coronary heart disease without previous percutaneous coronary intervention. Among which, patients' cognition and attitude, as well as their perception of social relations and psychological status, affected medication compliance on a large scale. Zullig LL, et al. [50] identified successful strategies and promising practices for improving medication adherence among patients diagnosed with

CHD. Consistent intervention strategies included the following:

1) Facilitating patient-provider communication.

2) Using mHealth technologies with emphasis on two-way communication.

3) Providing patient education in tandem with lifestyle and behavioral counseling.

4) Providing psychosocial support.

Intervention Strategies for Compliance with Psychologically Related Chronic Diseases

Based on the factors related to improving patients' psychology, a number of intervention studies have been carried out to promote compliance. With the support of health care providers and families and the feeling of the care of doctors, patients can have greater trust in the medical team [51]. Deepen the patients' understanding of the disease, so as to accept the chronic course of the disease, and have a positive attitude towards medication, and ultimately improve medication compliance. To improve patients' cognition and attitude, we can learn from a variety of proven theories. And explore the measures of patients' daily behavior change from the premise of changing patients' knowledge and attitude [52]. For example, Ramkisson S, et al. [53] pointed out that many aspects including the psychological support that the patients get, the concern for the family and social problems, and the affirmation of the importance of the disease compliance were the important factors affecting the patient compliance. Michie's theoretical model of behavior change can be borrowed [54]. He showed that improving the medical compliance behavior of patients under the concept of the "behavior change wheel" can optimize the control and management of chronic diseases. In other way, motivational interviews significantly improved patient compliance, especially for chronic diseases with a long course of disease. Calano BJD, et al. [55] believed that implementing a community-based health plan was beneficial to community hypertension patients to increase knowledge and adhere to treatment programs, and improve the rate of BP control and compliance.

Studies have been conducted to improve patients' mood and psychology, such as psychological counseling. Social psychological interventions were carried out [56]. Social psychological interventions for patients with chronic diseases could effectively reduce the pain of patients receiving long-term medical treatment, improve treatment compliance, and also provide the possibility of affecting the morbidity and mortality of the disease. Then patients were encouraged to fully participate in the process of self-management of drugs [57], which had achieved remarkable results, and further pointed out that if patients adjust their psychological state, compliance would naturally improve. In short, intervention strategies for compliance with psychologically related chronic diseases mean to improve the cognitive and psychological status of patients in many ways.

Existing Problems

At present, the prevention and management of chronic diseases in China still has a long way to go. The high prevalence rate, high mortality rate, low cure rate and low compliance status quo of chronic diseases also bring great challenges to the management of disease. The poor compliance of patients is the basic problem to be solved urgently [58]. However, medical staff's researches on patients' compliance are limited, with insufficient understanding of psychological factors affecting compliance, and inadequate understanding of changing patients' specific cognition and psychological factors [59]. It is not conducive to the development of further research and the improvement of chronic disease management level.

Research Enlightenment

There are many reasons affecting the medication compliance of patients with chronic diseases, among which the mental and psychological factors of patients themselves occupy an important position. The attitude and cognition of patients are the key point to influence the concrete actions of patients. Therefore, fully recognizing the important role of patient cognitive and psychological factors is the basis of conducting compliance research and proposing compliance improvement strategies. And it also provides a new direction for further research in our clinical work. While the correlation between patients' psychological factors and compliance should be further explored. To see the essence through the phenomenon, we should be people-centered, carry out extensive trials, give full play to patients' subjective initiative, and improve patients' compliance from the psychological and cognitive level truly [60]. It is essential that future studies are needed to examine intervention effectiveness, scalability, and durability of observed outcome effects.

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