

The Importance of Health Literacy in Patients with Chronic Kidney Disease: A Literature Review

Salehoddin Bouya¹, Jasem Allahyari², Mehran Hesaraki^{3*}, Maryam Koochakzai⁴ and Abdulbaset Maleknejad⁵

¹Clinical Immunology Research Center, Ali-ebne Abitaleb Hospital, Zahedan University of Medical Sciences, Zahedan, Iran

²Department of Nursing, School of Nursing, Zabol University of Medical Sciences, Zabol, Iran

³Department of Pediatrics, School of Medicine, Zabol University of Medical Science, Zabol, Iran

⁴Department of Midwifery, School of Nursing and Midwifery, Zabol University of Medical Science, Zabol, Iran

⁵Department of General Surgery, Medicine School, Zahedan University of Medical Sciences, Zahedan, Iran

*Corresponding author: Mehran Hesaraki, Department of Pediatrics, School of Medicine, Zabol University of Medical Science, Zabol, Iran, Tel: +98 54 32232176; E-mail: Ganjresearch@gmail.com

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Abstract

The spread of chronic diseases is increasing due to the changing lifestyle in the growing human societies. Understanding and having knowledge of the causes of diseases, which are referred to as health literacy, can be useful in reducing the incidence of chronic diseases, such as chronic kidney disease (CKD). The level of health literacy in chronic diseases such as CKD can play a significant role in reducing the complications of the disease and preventing its progression. Among effective ways to enhance the level of health literacy in patients include creation of an educational program related to their needs, which can have a significant effect on the process and the level of these patients' satisfaction from the treatment as well as encouraging them towards it.

Keywords: Health literacy; Chronic kidney disease; Evaluation of functional health literacy in adults

Introduction

Chronic kidney disease (CKD) is one of the fundamental and growing problems of the health system in the current age [1], which is caused by the kidney damage. The symptoms of CKD include proteinuria, decreased glomerular filtration rate (GFR), and decreased renal function [2]. CKD accounted for 11.5 million death cases by 2011, and the death cases have been estimated to increase to 14 million by 2030 [1]. A total of 26 million American people suffer from the CKD, and this figure is estimated at around 600 million worldwide in spite of existing treatments and the development of self-management behaviors in these patients [3]. The increasing prevalence of diseases such as diabetes, hypertension, cardiovascular diseases, and metabolic syndrome has affected the increase in the CKD incidence rate [4]. Approximately 2% of chronic renal patients undergo end-stage renal disease (ESRD) [5] and need treatment procedures such as dialysis,

kidney transplantation, if they do not choose appropriate treatment. These procedures impose high healthcare costs. However, adherence to self-management behaviors practiced to change lifestyle such as taking medications (blood sugar control, reducing proteinuria and, if necessary, controlling diabetes), avoiding potential nephrotoxic drugs (steroidal and anti-inflammatory drugs) and avoiding high-risk behaviors (smoking, salty diet, avoiding exercise) can contribute to the reduction of the disease progression and its complications [4,5]. The implementation of self-care programs requires patients to participate in the decision-making process and implementation of care process, and patients should be able to understand and use health information in order to play an effective role in health and self-care decisions, the skills referred to as health literacy [6]. Health behaviors (such as exercise and timely drug use) are commonly referred to as the proximal health outcomes of health literacy because a low level of health literacy is a significant predictor of the health outcomes of chronic diseases due to inappropriate understanding of self-care behaviors such as drug use, diet, and combination with the treatment team [7].

Health literacy

The level of health literacy is one of the public health concerns in such way that the level of health literacy has been estimated to be between 7% and 47% in developed countries, and this figure is much higher in developing countries. However, the level of health literacy is also one of the factors affecting the outcomes and progression of diseases [8,9]. The low health literacy level is associated with a low level of awareness and poor understanding for treatment regimen, interpretation of health messages, increased hospital admissions, mortality rate and healthcare costs in such way that the annual costs imposed by low illiteracy levels in the United States is estimated to be between 106 and 238 billion dollars [8,10]. The concept of health literacy level was first introduced in 1970 [11]. Some of the factors that led the researchers to pay more attention to the health literacy over the past years include the inability of the public health system to promote health policies and maintain public health alone, taking into account high costs and limited outcomes in lifestyle changes. Health promotion is considered as a fundamental right for every human being as well as a determinant of quality of life, including physical and emotional well-being in the face of communicable or non-communicable diseases, or any other health threat [12]. Health literacy is a term used for one's skills to perform effective healthcare activities and appropriately use medical information [13]. Conceptual health literacy is related to capacities affecting the acquisition of knowledge, skills and abilities obtained from health education to provide care for ourselves and others. Therefore, literacy is a new concept that refers to the teaching of healthy behaviors and a step forward in empowering patients to make decisions about health management and disease. Important aspects of health literacy include the ability to understand the health information, participate in the healthcare process, and remove barriers from the health system that prevent patients from understanding the health promotion. Health literacy has been considered as a factor affecting patient information programs, care programs, social networks and health systems over the past two decades [3,14]. According to the WHO Commission's conclusion, eliminating the barriers to accessing primary education is not only an important part of development activity, but also brings benefits to the public health. In fact, health literacy means the ability to access, perform, understand

and decide on the use of health information. High level of health literacy leads to an increase in the level of awareness and understanding, reduced health care costs, reduced admission frequency, increased acceptance of treatment, active decision-making on the health field; however, lower levels of health literacy leads to impaired health status, increased health care costs, increased admission frequencies and decreased adherence to treatment in people [15]. Accordingly, the health literacy can be a risk factor, or it can be an asset. A risk factor in the sense that low level of health literacy can threaten the health status of the individual and an asset in the sense that the level of health literacy can be created in people through education in patients, which in turn promotes their health status [6].

Types of health literacy levels

The Nutbeam divides the health literacy into three levels: functional, interactive, and critical [16]. The level of functional health literacy refers to the basic skills used to obtain health information, such as the use of health systems and health risks [17]. Interactive health literacy describes advanced literacy skills that enable individuals to extract the meaning of health information and provide new information on changing circumstances and interaction with others in order to expand existing information and make decisions [17].

Critical health literacy describes advanced literacy skills that enable critical analysis of information obtained from a wide range of sources and information about the broader range of determinants of health, as well as the use of this information to better control life events and the conditions affecting their health status [17]. Media literacy has been introduced as the fourth level of health literacy in adolescents. This level of literacy has been derived from the combination of three types of health literacy as defined by Nutbeam. Specifically, media health literacy includes the identification of health-related media, the recognition of their effects on health behaviors, critical analysis of content, and the action or intention to apply a media message at the individual or societal levels [18].

Health literacy dimensions

The level of health literacy consists of four dimensions (access to health information, understanding health information, processing and evaluating health information and using health information) and three levels (health care, disease prevention and health promotion).

Four dimensions of health literacy in healthcare domain include the ability to access information on medical or clinical issues, the understanding of medical information, interpretation and evaluation of medical information, and informed decision making on medical issues in accordance with medical advices.

Four dimensions of health literacy in the field of disease prevention include the ability to access information about health-related risk factors, understanding of information about risk factors, interpretation and evaluation of information about risk factors and informed decision-making about the health risk factors.

Four dimensions in the field of health promotion include particularly, the ability to sort out yourself with the health determinants in the social and physical environment, understanding, understanding of information and health determinants in the social and physical environment, interpretation and evaluation of information on health determinants in the social and physical

environment, and the ability to make informed decisions about the health determinants in the social and physical environment [11].

Health literacy measurement

To measure health literacy, there are a variety of tools, one of the most commonly used of which is rapid estimate of adult literacy in medicine (REALM), as noted by researchers. This tool is a 66-word diagnostic test that divides the scores based on the number of words accurately pronounced by the patient and its scores range from 0 to 66 [19].

Test of functional health literacy in adults (TOFLHA) is a questionnaire consisting of two parts. The first part relates to the medical information or the structure of a scenario, such as the guidelines for a diagnostic test. Individuals will examine the questions and respond to them. The second part will provide a medical text to the individuals who will fill in the blank spaces using the appropriate words and scores range from 0 and 100, with the higher scores representing a better level of literacy. The score(s) rating of the questionnaire is (such) that scores less than 60, 60-74 and higher than 75 indicate low, moderate and good levels of health literacy, respectively [18]. The shorter form of this questionnaire (S-TOFLHA) consists of 36 questions, which should be answered within 7 min and the scores of the questionnaire are divided into three levels: weak, moderate and good. Brief health literacy screen (BHLS) consists of three questions and five options. The scores of this questionnaire range from 3 to 15 with the higher score indicating higher levels of health literacy [20]. Newest vital sign (NVS) is another instrument for assessing the level of individuals' literacy. This questionnaire provides the subjects with health information, and they are asked to respond to the questions using the information given. Their score is later extracted and classified using the answer key [21]. Providing four correct answers indicates a good health literacy, two to three correct answers indicating moderate health literacy and one or no correct answer would indicate low level of health literacy [22].

Health literacy in patients with chronic kidney disease

Despite the increasing awareness of the importance of health literacy in patients with chronic kidney disease (CKD) (19), they have a low level of health literacy, according to reports, with 23% of them lacking health literacy, which can cause serious problems, such as the progression of cardiovascular diseases, diabetes, lack of referral for dialysis, and increased admission frequency, a decrease in the number of peritoneal dialysis that leads to an increase in infection rate and an increase in mortality rate [5]. It also reduces adherence to treatment regime in these patients and increases the use of medical equipment and services, such as increasing the number of admissions and increasing referral to emergency departments [23]. Considering that managing CKD requires changing one's lifestyles, including the use of complex diets and therapies for those with limited health literacy is challenging [10] and having health literacy makes adherence to treatment through increasing information about the disease. That is, more knowledge about CKD leads to an increase in the acceptance of treatment, and the highest health literacy score in patients with CKD relates to adherence to measures that reduce the treatment costs in these patients [12]. Various factors play a role in the low level of health literacy in these patients. The results of a review study showed that factors such as social and economic factors can play a role in the health literacy of these patients [4]. Other studies also reported that factors such as low education level, low income, male gender and race reduce

the level of health literacy [13]. Promoting the level of health literacy requires an education process, which is considered as the most important tool for increasing the level of health literacy [13,16]. Educational or therapeutic interventions used to promote the level of health literacy are not only intended to reduce complications, but also to improve the health self-management of each individual. The most important measure is to encourage patients to participate in educational plans on the disease management. Managing patients with chronic renal disease is a complex process and requires a broad understanding of some of conditions, such as blood pressure control, weight, consumption of fluids, diet, exercise, medications, as well as moving towards the health system and establishment of communication with many health care providers. The aim of these measures is to increase the level of health literacy and promotion of self-management behaviors in order to reduce complications in these patients [6].

Health literacy status in patients with chronic kidney disease

Although various studies have referred to the role of low level of literacy in diabetes, hypertension, acquired immune disease, and other chronic diseases, there is still little information about the role of literacy and CKD [24]. The results of a study conducted on 72 people showed that 21% of patients are illiterate and inefficient in controlling their blood pressure, which can be a long-term risk factor for cardiovascular disease in these patients [25]. The results of another study conducted on 480 patients showed that 32% of these patients also had a lower level of health literacy, with factors such as gender and low education affecting this result. Also, lower level of health literacy in these patients is associated with an increase in admission frequency and an increase in the treatment cost and CKD progression [14]. The results of a study on 36 kidney transplant recipients, showed a decrease in the level of health literacy by 72% [26]. The lower health literacy is an obstacle to accessing, understanding, and using health information in patients [14], which increases the risk of transplant rejection and decreases the adherence to the treatment regimen [26]. In various studies, the illiteracy rate is estimated to be between 16% and 32.7%, which has a negative effect on the treatment process and glomerular filtration and increases the risk of cardiovascular diseases [8,23]. Considering the importance of the health literacy in these patients, its improvement is also considered as one of the research priorities. It is necessary to pay more attention to the issue of health literacy in these patients in order to reduce complications and improve their quality of life and subsequently improve quality of life [10].

Health literacy limitations in patients with chronic kidney disease

Many factors in patients with chronic kidney disease play a role in reducing the level of health literacy and the most important limitations that have reduced the level of health literacy in these patients include age over 65, being a minority group, lack of higher education, immigration, and being a refugee [24]. Also, the World Health Organization (WHO) has identified referred to lack of access to schools for education as the most important cause for low level of health literacy in its reports of, and considers removal of barriers to education as the most important factor that promotes the level of health literacy in society [7].

Strategies for promoting the level of health literacy in patients with chronic kidney disease the U.S. Department of Health and Human Services (HHS) recommends a number of factors such as improved

communication skills between health care professionals, the use of simple and individualized education materials, increased research on health literacy and evidence-based interventions to promote the level of literacy. To achieve this goal, nurses should promote their communication with the patient and thus educating and promoting the level of health literacy in them through the following strategies: quiet and soft talking when teaching patients, using simple language instead of using medical terminologies that can further reduce patient understanding, the use of visual resources such as the shape and image of educational items, the provision of information in a small and understandable quantity for patients, obtaining the patient feedback, and encouragement of patients to ask questions. Nurses possess a special position in terms of educating and promoting the level of health literacy since they elucidate cases that patients cannot understand, and facilitate learning by removing the barriers [15]. Other cases that contribute to promotion of the literacy level of patients with CKD include the development and dissemination of accurate, accessible and practical health and safety information through the selection of accurate and accessible educational, promotion in the health system to improve health information, communication, informed decision making and access to health services providers in patients CKD through promotion of decision tools to improve the level of literacy, such as informing patients about treatments for the CKD, which include dialysis and kidney transplantation, or the choice of dialysis methods. Other cases also include provision of accurate information based on standards and health and scientific information based on educational curriculum to reach this goal in patients with CKD through the development of therapeutic programs for patients at all stages of the CKD regarding topics such as lifestyle changes, nutrition, choice of procedure, and transplantation. Supporting and expanding local efforts to provide adult education, English language training and appropriate health information services at the cultural and linguistic level in the community. Dialysis units should be encouraged to provide information in several common languages among patients in order to increase the information in order to improve the level of literacy in patients with CKD and to achieve this goal. Collaboration, development of guidelines, and policy change to achieve national policies between national kidney foundation (NKF), American society of nephrology (ASN), renal physicians association (RPA), American association of kidney patients (AAKP), American kidney fund (AKF), and national kidney disease education program (NKDEP) can help to find issues that reduce the level of health literacy in these patients. And enhancing basic research and development, and implementing and evaluating methods and interventions for the promoting the level of health literacy and encouraging the assistance of patient centered outcomes research institute (PCORI) and national institutes of health (NIH) organizations to the level of literacy in patients with CKD, including literacy screening questions such as those existing in the national registry such as US renal data system (USRDS). Increasing the publication and use of evidence based on health literacy interventions through information about the level of literacy on CKD education on websites, magazines and newspapers [24].

Conclusion

The level of health literacy plays a key role in managing and reducing the CKD-related complications, which requires more attention to this issue in these patients. To promote the level of health literacy, as a predictor of harmful behaviors in patients, screening patients for health literacy by using existing questionnaires can help

identify and implement educational programs related to the needs of these patients.

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