

Perceived Asthma Control Care and Health Care Participation in Patients with Asthma

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Received: 1 April 2020

Accepted: 11 October 2020

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Background: Asthma is one of the most severe and life-threatening health problems, the better control of which is one of the main goals in asthma management to be achieved by patients' balanced participation in the treatment process. This study aimed to investigate asthma control, perceived care, and health care participation in patients with asthma.

Materials and Methods: This descriptive-analytical study included 221 asthmatic patients, who were selected using the convenience sampling method from those referring to pulmonary clinics in Kerman, Iran. The required data were collected using three questionnaires including Asthma Control Test (ACT), Perceived Care of Asthma Questionnaire (PCAQ), and Partners in Health Scale (PIH). The linear regression test was used to analyze the collected data with SPSS software version 21.

Results: In this study, 14.31, 42.22, and 87.33% of the patients had a favorable condition in asthma control, perceived asthma care, health participation, respectively. The disease duration was significantly associated with the level of perceived asthma care. Moreover, perceived asthma care had a significant relationship only with occupation. From another perspective, the relationship between marital status, level of education, city of residence, disease duration, and occupation with health care participation was significant.

Conclusion: Patients would have more control over asthma if there were training programs underpinned by disease-based strategies and educational content regarding the risk factors of the disease, and the patients' experience and knowledge of the disease were promoted. Furthermore, reinforcing self-control and perceived asthma care skills and involving patients in healthcare process would also enhance the disease control.

Key words: Asthma, Asthma control, Perceived care, Health care participation, Asthmatic patients

INTRODUCTION

Asthma is a chronic inflammatory disease of the airways and one of the most common non-communicable diseases worldwide (1). Asthma is estimated to affect 400 million persons by 2025 (2), accounting for 4.7% of the world's total Disability-Adjust Life Years (DALY). Asthma management of is of paramount significance since there is

no definitive treatment for the disease (1). Asthma is also an important national health priority due to its high prevalence, high morbidity and mortality rates, and direct and indirect costs (3). The disease management would primarily reduce medical costs and improve individuals' quality of life (4).

Since the early 1980s, the prevalence of asthma has increased among all age ranges, genders, and races. Meanwhile, providing treatment for the disease and evaluating drug therapy and its effects have been of great concern, and less attention has been paid to the effect of asthma on issues such as individuals' mortality and quality of life (5). In Iran, there are 800-850 deaths per day, 6% of which are caused by respiratory diseases. Moreover, according to the Ministry of Health and Medical Education, 10% of Iranian people suffer from asthma (6). The global prevalence of asthma is estimated to be 3 to 35%, and its prevalence is about 2.7 to 34.4% with the mean prevalence of 13.14%, in Iran (7).

Perceived asthma care refers the extent to which the patients have faith in their control over different aspects of their lives (8). There are various factors to be considered in the optimal management and control of asthma, some of which are environmental control, family co-operation, and appropriate use of medications. All factors require patient acceptance, which is directly associated with the level of education. Self-management in the treatment of chronic illnesses affects one's motivation and makes individuals spare their efforts to maintain healthy behaviors; hence, the more frequent the patients' positive attitudes and self-management behaviors are, the better their asthma control would be (9). Olajus-Clow et al. showed that the mean score of perceived asthma care was 40.01, indicating a strong perception (10). Similarly, in Brazil, Chipfield et al. showed that the mean score of perceived asthma care was 46.21, suggesting a strong perception (11).

Studies on health care participation in the asthma care process have reported the lack of knowledge of the disease management and non-adherence to treatment as the leading causes of asthma treatment failure (12-14). Previous studies have also indicated that the participation of asthmatic patients in the care process paves the way for psychological interventions (15-17). In this regard, Ahmed et al. examined the impact of web-based training on asthmatic patients in Canada and revealed \$ 306 million saving in the control group (18). The health care

participation of patients with asthma encompassed collaboration and coordination between healthcare providers and recipients with chronic diseases (19).

Since severe and persistent asthma, late diagnosis of asthma and inability to purchase medication are the leading causes of asthma-related mortality in Kerman (20), the present study aimed to investigate asthma control, perceived care, and health care participation of patients suffering from asthma.

MATERIALS AND METHODS

This descriptive-analytical research was a cross-sectional study conducted during April-September 2017. This study included 221 asthmatic patients, who were selected using the convenience sampling method from those referring to pulmonary clinics in Kerman, Iran. The researcher visited these centers to collect the required data, and patients with asthma approved by a specialist were asked to participate in the study. Three questionnaires, namely Asthma Control Test (ACT)(21), Perceived Care of Asthma Questionnaire (PCAQ)(22), and Partners in Health Scale (PIH)(23), were used to collect the data.

ACT is used to measure asthma control in individuals aged 12 years and above and is scored based on a five-point Likert scale. In each item, the highest and the lowest levels of control receives scores of 5 and 1, respectively. The minimum and maximum scores of the test are 5 to 25, respectively, with 5 indicating poor asthma control and 25 representing complete and strong asthma control. The closer the score is to 25, the higher the control level of asthma is. A score >20 suggests that the patient's asthma is well-controlled (24).

The scoring system in PCAQ is based on a five-point Likert scale, with 5 for strongly agree and 1 for strongly disagree. The mean scores of <25, 25-36, and >36 indicates low, moderate, and high perceived care, respectively (25).

The scoring scale of PIH is also based on the nine-point Likert scale (ranging from zero for very low to eight for very high), representing the patient's level of participation in care. The mean scores of <12, 12-20, and >20 indicates

low, moderate, and high levels of health care participation, respectively (23).

To enter the research environment, necessary arrangements were made with the specialized pulmonary clinics. After referring to the specialist, he was asked to introduce patients with confirmed asthma to the researcher. The research objectives were explained to the participants, and the questionnaires were distributed among them in an appropriate place. Moreover, the patients were ensured of the confidentiality of their information, and their informed consent was also obtained. The researchers provided some explanation if some items were not understandable for the elderly patients.

Content validity was considered to determine the validity of the questionnaires. To this end, the opinions of some experts (three pulmonary specialist physicians, three health management tutors, and two nursing tutors with at least three years of asthma treatment history) were concerned.

To assess the reliability of the questionnaires, they were distributed among 30 asthmatic patients in the specialist pulmonary clinics. Cronbach's alpha coefficients of ACT, PCAQ, and PIH were 0.82, 0.86, and 0.80, respectively.

Descriptive statistics (namely mean, standard deviation, and percentage) were used to analyze the data. Linear regression was also used for statistical analysis. Data analysis was performed with SPSS software version 22 at $P \leq 0.05$.

RESULTS

Table 1 presents the participants' demographic information, and Table 2 shows that 14.31, 42.22, and 87.33% of the patients have a favorable condition in asthma control, perceived asthma care, health participation, respectively (Table 2).

The relationship between disease duration and perceived care in controlling asthma was significant; hence, with a one-year increase in the disease duration, asthma control increased as by 0.175%. Moreover, no significant relationship was noticed between asthma control and the other valuables (Table 3).

Table 1. Frequency distribution of demographic variables among patients with asthma studied in Kerman

Demographic Variable	Number (Percent)	
Gender	Male	82(37.1)
	Female	139(62.9)
Age Categories	0-20	5(2.3)
	21-30	26(11.8)
	31-40	44(19.9)
	41-50	64(29.0)
	51-60	34(15.4)
	61-70	31(14)
	71-80	16(7.2)
City of residence	81-90	1(0.5)
	Kerman	103(46.6)
	Cities surrounding Kerman	107(48.4)
Occupancy	Out of Kerman Province	11(5)
	Self-employment	39(17.6)
	Worker	14(6.3)
	Employee	36(16.3)
	Homeworker	105(47.5)
	Student	10(4.5)
	Retired	15(6.8)
Number of children	Unemployed	2(0.9)
	0-2	90(40.7)
	3-5	85(38.5)
Marital status	5-10	46(20.8)
	Single	178(80.5)
Duration of illness(1year)	Married	20(9.1)
	15>(weak)	186(84.2)
	15-25	25(11.3)
Level of Education	25<(strong)	10(4.5)
	Diploma	49(22.2)
	Diploma-Bachelor	120(54.3)
	Master degree-Doctorate	39(17.6)
	Post Doctorate	13(5.9)
Patient's accompany	Alone	46(34.4)
	Child	57(25.8)
	Friends	18(8.1)
	Family	23(10.4)
Number of doctor's visit per year	Spouse	47(21.3)
	15>	209(94.6)
	15-30	10(4.5)
	30<	2(0.9)

Table 2. Frequency distribution of asthma control, perceived care and health care participation in patients with asthma

Aspects of status	Descriptive statistics	Number (percentage)
Asthma control	Strong	32 (17.31)
	Moderate	117 (53)
	Poor	72 (32.69)
Perceived care	Strong	182 (82.36)
	Moderate	36 (16.29)
	Poor	3 (1.35)
Health care participation	Strong	193 (87.33)
	Moderate	9 (4.07)
	Poor	(8.60)

Table 3. The relationship between demographic variables and status of asthma control, Perceived asthma care and Health care participation among asthmatic patients

	Asthma control test		Perceived asthma care		Health care participation	
	P-value	Regression coefficient	P-value	Regression coefficient	P-value	Regression coefficient
Gender	0.863	-0.159	0.125	1.876	0.076	4.309
Age categories	0.479	-0.034	0.830	-0.012	0.968	-0.005
Marital status	0.253	1.432	0.053	-2.716	**0.007	8.832
Level of education	0.732	0.223	0.068	1.328	**0.000	8.893
Number of children	0.308	0.287	0.138	0.468	0.060	-1.396
City of residence	0.996	-0.004	0.769	-0.256	**0.000	8.097
Duration of illness (1 year)	**0.001	0.175	0.580	0.033	**0.001	0.175
Number of doctor's visit per year	0.322	0.064	0.913	-0.008	0.246	-0.197
Patient's accompany	0.879	0.042	0.901	-0.038	0.513	0.476
Occupation	0.401	-0.259	**0.004	-0.990	**0.013	2.014

As presented in Table 3, only the relationship between occupation and perceived asthma care was significant, and no significant relationship was found between other variables and perceived asthma care. Moreover, the relationship between marital status, level of education, city of residence, disease duration, and occupation with health care participation is significant, and there is no significant relationship between participation in health care and the other variables.

DISCUSSION

According to the findings, most of the patients were below 15 years old, and they were visiting their physicians less than 15 times per year. Dean et al. stated that asthma could profoundly affect children (26), and Horner et al. showed that asthma affects the quality of life, and that the severity of asthma is inversely correlated with the quality of life (27). The frequency of hospitalization is doubled in spring and autumn for asthmatic children aged below 15 years (28). Since the patient's lack of knowledge and awareness is the main cause of the increase in the prevalence of asthma (12) and given that asthma alters the patients' family life and social activities (29) and limits their physical activities, it can pose psychological problems such as anxiety, depression, and despair. In other words, it affects different aspects of patients' lives (13). Patients' quality of life would be promoted if there were training programs underpinned by disease-based strategies and

educational content regarding the risk factors of the disease, and the patients' experience and knowledge of the disease were increased.

According to the present findings, a majority of participants had moderate levels of asthma control and high levels of perceived care and healthcare participation. One of the main goals in asthma management is to achieve and maintain optimal asthma control (30). Most studies in the last two decades have addressed asthma control by implementing behavioral interventions (31). Frequent visits to physicians and continued follow-up seem to increase patients' knowledge about the disease. High levels of perceived care have also been reported in by Olajus-Clow et al. and Chipperfield et al. (10,11). This finding is consistent with those of the present study. In Katz et al. study (32), perceived care was moderate, and it was low in Thakur et al. (33). This finding is not in line with the present findings. This difference could be due to the hospitalized study populations, the significance of disease management after recovery, participants' poor access to health care, and the concerned disease. The participation of patients and their families in the care and treatment is of great importance in the care process. Although it is important for patients with asthma and their families to understand their condition and treatment, knowledge is not exclusively enough to change behavior as such individuals need to be empowered. Collaborative care empowers families to recognize their shortcomings and

change their situations. A sense of empowerment can be achieved by information, support, and life skills. The empowerment of the patients begins with the disclosure of information and the provision of education and ends with the patient's active participation in making decisions about the disease and treatment process. Implementing an empowerment program aimed at increasing patients' knowledge, motivation, self-esteem, and self-efficacy can enhance self-control and preventive behaviors, thereby promoting their health status and quality of life.

In the present study, among the asthmatic patients' demographic variables, only disease duration had a significant relationship with the level of asthma control. In Batman's et al. study, age, level of education, and disease duration were significantly correlated with asthma control (34). Lavoie et al. reported a significant relationship between the level of education, disease duration, and level of income with asthma control (35). These findings were not in a similar vein with those of the present study. In Sundbom et al. study, there was a significant relationship between disease duration, age, level of education, and occupation with asthma control (36). As the disease progresses, the person gains experience and becomes more aware of the disease, and as the disease exacerbates or becomes less acute, the patient gains more experience and controls his/her asthma. The type of population and the number of samples can be contributing factors to these conflicting findings.

In the present study, gender and occupation had a significant relationship with perceived care. However, Kähkönen et al. reported that gender and disease duration had a significant relationship with perceived care (37). In Olajus-Clow's study, demographic variables such as age, level of education, and occupation significantly correlated with perceived care (10). In Katz's study, gender and occupation had a significant relationship with perceived care (32). The nature of cardiac diseases, asthma and long-term complications result in a significant relationship between perceived care and disease duration. A patient's gender plays a vital role in disease management because

most women are not employed, while men, due to their responsibility in family care and occupation, have a low level of perceived care. Furthermore, due to environmental stimuli and stress, the type of occupation also plays a critical role in asthma management.

In the present study, marital status, level of education, city of residence, disease duration, and occupation were significantly correlated with health care participation. In Smith et al. study, there was a significant relationship between age, level of education, disease duration, occupation, and number of children with health care participation (38). Heijmans et al. reported a significant relationship between age, education, household status, level of income, disease duration, and level of disability with health care participation (39). In Newhouse et al. study; however, only age and level of education had a significant relationship with health care participation (40). A higher literacy level leads to higher health care participation because individuals with higher levels of education raise their awareness of the disease. The type and nature of most chronic diseases may cause other variables not to be significantly correlated with health care participation.

Patients and their companions must receive necessary medical and self-care training. This study showed that asthmatic patients' trust in their ability to control the symptoms of the disease is an influential factor. Performing a needs assessment from the perspective of health care professionals and meeting the identified needs can alleviate the challenges in this field.

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