

The Relationship Between Health Literacy and Self-Administration of Inhalation Therapy in Patients with Obstructive Lung Diseases

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ABSTRACT

The aim of this study was to explore health literacy and level of knowledge regarding the administration of inhaled medications of patients with obstructive lung diseases. Additionally, the study aimed to assess the relationship between patients' health literacy and knowledge of the administration of inhaled medication in relation to patients' demographic characteristics, experience and education on inhalation therapy administration. A cross-sectional study among patients with obstructive lung diseases treated in the Pulmonology Department of Požega County General Hospital from November 2022 to March 2023 was conducted. The research instrument used was the validated Croatian version of the functional health literacy test SAHLCA-50. A total of one hundred and one respondents, aged 18 to 81 years and older, participated in the study. The results indicated that 65 respondents (64.4%) demonstrated adequate health literacy. Female respondents exhibited significantly higher levels of health literacy ($p=0.01$) and knowledge on MDI administration ($p=0.001$). Respondents aged 18 to 40 demonstrated significantly higher levels of health literacy compared to respondents aged 61 to 80 ($p = 0.003$) and those 81 years and older ($p = 0.007$). A higher level of knowledge on MDI administration was observed in respondents who had been using MDI for 5 to 10 years and in those who received education from medical professionals prior to MDI self-administration ($p = 0.03$). The study highlights the importance of health literacy and patient education in individuals suffering from obstructive lung diseases, as these factors represent crucial prerequisites for the correct self-administration of inhalation therapy.

Key words: health literacy, inhalation therapy, obstructive lung diseases, inhalation technique, education

Introduction

The term health literacy first appeared in the United States in 1974¹. At that time, the concept of “health literacy” was described as the responsibility of individuals for their own health as well as the responsibility of the public to create a stimulating environment that is important for maintaining health^{1,2}. Research conducted in the early 21st century indicated the relationship and interaction between health literacy and health care outcomes^{1,3}. In the last 40 years, health literacy has become the subject of research and discussion by many scientists^{3–5}. Medical professionals found that low health literacy can negatively affect the communication and understanding between

medical professionals and patients, the level of adherence to health recommendations, the interpretation of health information critical to the treatment of all health conditions, and self-monitoring by patients^{1,2}. A person is considered health literate if they apply health concepts and information in new situations and participate in conversations related to various health and medical knowledge and cultural beliefs⁶. Health literacy is also a competency that medical professionals must possess in their practice to ensure that the process of patient care is customized and individualized as best as possible for each individual².

Obstructive lung diseases represent one of the major public health problems in the world, including Croatia⁷. As such, they are one of the main causes of mortality and morbidity, leading to major economic and social issues⁷. The prevalence of both asthma and chronic obstructive pulmonary disease (COPD) is increasing⁷. Worldwide, more than 340 million people have asthma, while the number of chronic obstructive pulmonary disease exceeds 384 million^{8,9}. The above figures suggest that approximately 700 million people per year intermittently or continuously use some form of therapy for asthma and COPD, of which at least one and very often multiple inhaled medications are the most common^{8–10}. Inhalation therapy is considered the foundation and key to the successful management of asthma and COPD^{8,9}. Bronchodilation and good anti-inflammatory effect can be achieved by oral or parenteral administration of the mentioned medications, but the best and fastest therapeutic response is obtained if they are inhaled^{8,11,12}. Inhalation therapy by means of various inhalers ensures direct transport of the medications to the respiratory tract, where the site of action is located, allowing them to exert an effective result fast, with a lower dose of the medications and fewer possible systemic side effects^{8,12}. There are two main groups of inhalers, i.e., metered-dose pressurized inhalers (MDIs) and dry-powder inhalers (DPIs)¹⁰. Currently, several types of inhalers on the market are used to manage obstructive pulmonary diseases¹³. The different inhalers are administered in different ways; it is precisely these various techniques of administration that cause confusion among patients, and in many cases, even medical professionals are not familiar with the correct administration technique^{13,14}. The efficacy and therapeutic response to inhalation therapy administered through an inhaler are often greatly affected by errors resulting from its improper use^{8,14}. Medical professionals should be aware of the obstacles in inhalation therapy administration to adequately help patients and educate them as much as possible about the correct use of inhalers and the self-administration of medications by inhalation, thus facilitating the daily life of patients with obstructive lung diseases^{11,14,15}. This study aimed to explore health literacy and level of knowledge regarding the correct administration of inhaled medications of patients with obstructive lung diseases. Additionally, the study assessed the relationship between patients' health literacy, knowledge of the administration of inhaled medication and patients' demographic characteristics, experience, and education on inhalation therapy administration.

Participants and Methods

The study was conducted on the population of patients diagnosed with obstructive lung diseases in the Pulmonology Department of the Požega County General Hospital in the period from November 2022 to March 2023. The criteria for inclusion in the study were adult hospitalized patients aged 18 years and older, understanding and

speaking the Croatian language, diagnosed with obstructive lung diseases (Asthma – J45, COPD – J44.9, Unspecified chronic bronchitis – J42), and using an MDI therapy. The final sample included 101 patient. The study was voluntary and all of the respondents signed consent form. The Ethics Committee of the Požega County General Hospital (Reg. No.: 02-7/1-1/1-3-2023) granted consent to conduct the study.

Two instruments were used in the study. The first instrument was a questionnaire developed for the purpose of this study, including patient's socio-demographic data (age, sex, education, employment status, marital status), data on self-administration of inhalation therapy (number of years using the MDI (metered-dose inhaler), education on proper use of MDI by a medical professional, initial and/or repeated demonstration of a MDI use to a medical professional, patient's self-assessment on the proper use of MDI) and eight questions regarding patient's knowledge of the correct administration of inhaled medication by MDI. The latter questions were multiple choice with one correct answer, containing correct and/or incorrect descriptions of procedures during the application of inhaled medication, with the respondents having to choose the answer they consider correct. For each correct answer, one point was assigned, giving a total score range between 0 and 8 points.

The second instrument was the Croatian version of the SAHLCA-50 (Short Assessment of Health Literacy for Spanish Adults). The SAHLCA-50 questionnaire has been translated to Croatian language and proved to be a stable and reliable instrument for assessing and comparing functional health literacy in all areas and at all levels of the healthcare system in Croatia⁶. The SAHLCA-50 questionnaire consists of fifty different concepts (medical terms), each medical term being supplemented with two terms (one related and one unrelated), with the respondent's task to choose the term that he/she believes corresponds better to the medical term offered. If the total result of the correct relations of a synonym with the medical term is less than or equal to 42 points, the respondent is considered health-illiterate.

Descriptive statistical methods were used to describe the frequency distribution of the studied variables. Means were reported as arithmetic mean, range, and standard deviation. One-way ANOVA was used to test the differences in the results between several independent groups of respondents and the T-test was used to verify the results between two independent groups of respondents. The chi-square test (χ^2) was used to test the relationship between categorical variables. The Kolmogorov-Smirnov test was used to test the normality of the distribution. Post-hoc comparisons (Tukey) was used to assess the significance of differences between pairs of group means. The value $p < 0.05$ was taken as the statistical significance level. The statistical package IBM SPSS 25, manufactured in Chicago, USA, 2017, was used for data processing.

Results

The study included 101 respondents: 57 (56.4%) male and 44 (43.6%) female respondents. The respondents age ranged from 18 to 81 years and older; sociodemographic characteristics of the respondents are presented in the Table 1.

The mean of the SAHLCA-50 questionnaire was 43.05 (SD = 5.02). The Kolmogorov-Smirnov test was used to test the normality of the distribution of health literacy and it was found to be significant ($P = 0.001$). In order to check whether the potential cause of the asymmetric distribution of results lies in large deviations of the results from their arithmetic means, the boxplots were examined, but no large number of outliers in the distribution were observed, and it was not decided to delete the outliers. Homoscedasticity was tested by Levene's test of homogeneity of variance. The homogeneity of the sanctions variables was checked with respect to the demographic variables. When tested with regard to the mentioned variables, the variance of the health literacy variable was homogeneous ($P > 0.05$) for all variables except the place of residence and marital status ($P < 0.05$), and despite the significant result of the Kolmogorov-Smirnov test, parametric tests were used. According to the respondents'

scores, 65 respondents (64.4%) were health-literate, while 36 respondents (35.6%) were health-illiterate.

The mean knowledge of using MDI was 5.25 (SD = 1.74). The Kolmogorov-Smirnov test was used to test the normality of the distribution of knowledge about the use of MDI and it proved to be significant ($P < 0.001$). In order to check whether the potential cause of the asymmetric distribution of results lies in large deviations of the results from their arithmetic means, boxplots were examined, but no outliers in the distribution were observed. Homoscedasticity was tested by Levene's test of homogeneity of variance. The homogeneity of the sanctions variables was checked with regard to demographic variables and variables related to the use of inhalers. When tested with regard to the mentioned variables, the variance of knowledge about the use of inhalers was homogeneous ($P > 0.05$) for all variables except marital status ($P < 0.05$), and despite the significant result of the Kolmogorov-Smirnov test, parametric tests were used.

Table 2. shows a significant difference in health literacy according to sex ($T = 2.471$; $p = 0.01$), i.e., women had a significantly higher level of health literacy. There was also a significant difference according to age ($F = 5.772$; $p = 0.001$); post-hoc comparisons (Tukey) showed that respondents aged 18 to 40 had a significantly higher level of health literacy than respondents aged 61 to 80 ($p = 0.003$) and those 81 years and older ($p = 0.007$). There was also a significant difference regarding education level ($F = 11.349$; $p < 0.001$). Respondents who completed a bachelor's degree (BA) or master's degree (MA) had significantly higher health literacy compared to respondents who completed secondary education ($p = 0.02$), primary education ($p < 0.001$), and those with no education ($p < 0.001$). Respondents who completed secondary education had significantly higher health literacy compared to respondents who completed primary education ($p = 0.002$) and respondents with no education ($p = 0.02$). A significant difference is also present according to whom the respondents live with ($F = 3.050$; $p = 0.03$), i.e. respondents who lived with a family had a significantly higher level of health literacy compared to single respondents ($p = 0.02$).

In Table 3, there was a significant difference in the knowledge of MDI use according to the sex of the respondents ($T = 3.298$; $p = 0.001$): women had significantly higher knowledge levels than men. There was also a significant difference according to whom the respondents live with ($F = 5.821$; $p = 0.001$), i.e., respondents who lived with a family scored significantly higher on the health literacy questionnaire compared to respondents who lived alone ($p < 0.001$). There was also a significant difference according to the level of education ($F = 7.216$; $P < 0.001$), respondents with completed BA and MA had a significantly higher level of knowledge about the use of MDI-inhalers compared to respondents with completed elementary school ($P < 0.001$) and uncompleted elementary school ($O < 0.001$), respondents with completed secondary school also have a significantly higher level of

TABLE 1
SOCIODEMOGRAPHIC CHARACTERISTICS OF
RESPONDENTS (N = 101)

		N (%)
Sex	Female	44 (43.6)
	Male	57 (56.4)
Age	18 to 40	19 (18.8)
	41 to 60	29 (28.7)
	61 to 80	37 (36.6)
	81 and older	16 (15.8)
Place of residence	Rural	43 (42.6)
	Urban	58 (57.4)
Education	No education	12 (11.9)
	Primary	24 (23.8)
	Secondary	55 (54.5)
	BA and MA	10 (9.9)
Employment status	Employed	26 (25.7)
	Retired	49 (48.5)
	Unemployed	19 (18.8)
	Student	7 (6.9)
Martital status	Single	17 (16.8)
	Married/domestic partnership	48 (47.5)
	Divorced	9 (8.9)
	Unmarried	6 (5.9)
	Widowed	21 (20.8)
Household members	Alone	39 (28.6)
	With family	41 (40.6)
	With spouse	18 (17.8)
	With partner	3 (3)

*BA-bachelor's degree, MA – master's degree

TABLE 2

RELATION OF HEALTH LITERACY AND SOCIODEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

		SAHLCA-50 score			
		M (min – max)	SD	T	p*
Sex	Female	44.43 (30 – 50)	4.73	2.471	0.01
	Male	42.00 (29 – 50)	5.03		
Place of residence	Rural	41.83 (29 – 50)	5.87	-2.141	0.03
	Urban	43.96 (30 – 50)	4.11		
		M (min – max)	SD	F	p†
Age	18 to 40	46.21 (37 – 50)	3.83	5.772	0.001
	41 to 60	44.13 (30 – 50)	4.73		
	61 to 80	41.51 (29 – 48)	5.37		
	81 and older	40.93 (33 – 48)	3.76		
Education	No education	40.00 (33 – 48)	4.63	11.349	<0.001
	Primary	40.12 (29 – 48)	4.83		
	Secondary	44.03 (30 – 50)	4.43		
	BA and MA	48.40 (44 – 50)	2.06		
Employment status	Employed	47.30 (37 – 50)	2.67	13.170	<0.001
	Retired	41.00 (29 – 48)	4.60		
	Unemployed	41.84 (30 – 48)	5.27		
	Student	45.00 (40 – 50)	4.00		
Marital status	Single	44.47 (32 – 50)	5.51	2.419	0.05
	Married/ domestic partnership	43.81 (30 – 50)	4.75		
	Divorced	43.77 (39 – 45)	2.48		
	Unmarried	40.16 (31 – 48)	5.70		
	Widowed	40.71 (29 – 48)	5.17		
Household members	Domestic partnership	48.41 (43–50)	2.04	3.050	0.03
	Alone	41.48 (30 – 49)	4.83		
	With family	44.68 (29 – 50)	4.79		
	With spouse	42.50 (30 – 49)	5.30		
	With partner	44.66 (41 – 47)	3.21		

* T test, † One-way ANOVA, BA – bachelor's degree, MA – master's degree

health literacy compared to respondents with completed elementary school ($P = 0.002$) and non-completed elementary school ($P = 0.01$), and respondents who have completed secondary school compared to respondents who finished elementary school ($P = 0.006$). A significant difference was also present according to the working status of the respondents ($F = 8.950$; $P < 0.001$), respondents who were employed had a significantly higher level of knowledge about the use of MDI-inhalers compared to retired ($P < 0.001$), unemployed ($P < 0.001$) and students ($P = 0.04$). Although a significant difference was found according to marital status of the respondents ($F = 2.701$; $P = 0.001$), post-hoc comparisons showed that there was no significant difference between the groups.

Table 4 shows the results indicating a significant difference in knowledge of MDI use regarding the duration of MDI use ($F = 2.901$; $p = 0.02$). Post-hoc comparisons (Tukey) showed that respondents who had been using MDIs for 5 to 10 years had significantly higher health literacy score compared to respondents who had been using it for more than 15 years. There was also a significant difference depending on whether the

respondents were educated by medical professionals about the self-administration method prior to using the MDI ($T = 2.177$; $p = 0.03$), with respondents who were educated before using the MDI reporting significantly higher level of knowledge.

The results presented in Table 5 show a significant relationship between health literacy and duration of MDI use ($\chi^2 = 12.251$; $p = 0.01$). Looking at the adjusted residuals with Bonferroni correction, there was no significant relationship between groups of respondents. There was also a significant association between health literacy and education prior to prescribing MDIs by medical personnel ($\chi^2 = 3.875$; $p = 0.04$). Looking at the adjusted residuals with Bonferroni correction, there was no significant association between groups of respondents. There was also a significant relationship between health literacy and demonstrating the administering technique of the MDI to medical professionals ($\chi^2 = 6.459$; $p = 0.01$). Significantly more literate respondents indicated that they had demonstrated the administering technique of the MDI, while significantly more illiterate respondents indicated that they had not.

TABLE 3

RELATION OF KNOWLEDGE ON MDI USE AND SOCIODEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

		Knowledge on MDI use			
		M (min – max)	SD	T	p*
Sex	Female	5.90 (3 – 8)	1.58	3.298	0.001
	Male	4.80 (2 – 8)	1.72		
Place of residence	Rural	5.23 (2 – 8)	1.77	–0.269	0.78
	Urban	5.32 (2 – 8)	1.74		
		M (min – max)	SD	T	p†
Age	18 to 40	5.73 (3 – 8)	1.44	1.573	0.201
	41 to 60	5.51 (2 – 8)	2.06		
	61 to 80	5.18 (2 – 8)	1.77		
	81 and older	4.56 (3 – 6)	1.15		
Education	No education	4.41 (2 – 8)	1.72	7.216	<0.001
	Primary	4.33 (2 – 7)	1.30		
	Secondary	5.65 (2 – 8)	1.63		
	BA and MA	6.60 (3 – 8)	1.89		
Employment status	Employed	6.61 (4 – 8)	1.32	8.950	<0.001
	Retired	4.97 (2 – 8)	1.54		
	Unemployed	4.42 (2 – 8)	1.64		
	Student	4.85 (2 – 8)	2.26		
Marital status	Single	4.52 (2 – 8)	1.94	2.701	0.03
	Married/ domestic partnership	5.77 (2 – 8)	1.75		
	Divorced	4.33 (2 – 7)	1.93		
	Unmarried	5.66 (5 – 7)	0.81		
Household members	Widowed	5.09 (3 – 8)	1.33	5.821	0.001
	Domestic partnership	4.48 (2 – 8)	1.53		
	Alone	6.00 (2 – 8)	1.61		
	With family	5.44 (3 – 8)	1.91		
	With spouse	5.00 (4 – 6)	1.00		

* T test, † One-way ANOVA, MDI – metered dose inhaler, BA – bachelor's degree, MA – master's degree

TABLE 4

RELATION OF KNOWLEDGE ON MDI USE AND SELF-ADMINISTRATION OF INHALATION THERAPY

		Knowledge on MDI use			
		M (min – max)	SD	F	p*
How long have you been using the MDI (Years)?	<1	5.62 (3 – 8)	0.49	2.901	0.02
	1 – 5	4.90 (2 – 8)	1.77		
	5 – 10	5.88 (2 – 8)	1.70		
	10 – 15	5.42 (2 – 8)	2.17		
	>15	4.42 (2 – 7)	1.20		
		M (min – max)	SD	T	p†
Before being prescribed an MDI, were you instructed by MP on its proper use?	Yes	5.50 (2 – 8)	0.20	2.177	0.03
	No	4.64 (2 – 8)	1.60		
Have you ever demonstrated to MP how to use an MDI?	Yes	5.47 (2 – 8)	1.76	1.053	0.29
	No	5.11 (2 – 8)	1.72		
After a certain time, have you demonstrated the use of the MDI again or for the first time to MP?	Yes	5.64 (2 – 8)	1.80	1.167	0.24
	No	5.17 (2 – 8)	1.72		
Do you think you know how to use the MDI correctly?	Yes	5.80 (3 – 8)	1.56	6.018	<0.001
	No	3.72 (2 – 6)	1.27		

* One-way ANOVA, † T test, MDI – metered dose inhaler, MP – medical professional

TABLE 5
RELATION OF HEALTH LITERACY AND SELF-ADMINISTRATION OF INHALATION THERAPY

		Health literacy		X ²	p*
		Illiterate (N %)	Literate N (%)		
How long have you been using the MDI (years)?	<1	5 (13.9)	3 (4.6)	12.251	0.01
	1 – 5	7 (19.4)	15 (23.1)		
	5 – 10	11 (30.6)	25 (38.5)		
	10 -15	1 (2.8)	13 (20)		
	>15	12 (33.3)	9 (13.8)		
Before being prescribed an MDI, were you instructed by MP on its proper use?	Yes	23 (63.9)	53 (81.5)	3.875	0.04
	No	13 (36.1)	12 (18.5)		
Have you ever demonstrated to MP how to use an MDI?	Yes	11 (30.6)	37 (56.9)	6.459	0.01
	No	25 (69.4)	28 (43.1)		
After a certain time, have you demonstrated the use of the MDI again or for the first time to MP?	Yes	7 (19.4)	18 (27.7)	0.846	0.35
	No	29 (80.6)	47 (72.3)		
Do you think you know how to use the MDI correctly?	Yes	25 (69.4)	51 (78.5)	1.011	0.31
	No	11 (30.6)	14 (21.5)		

* chi-square test, MP – medical professional

Discussion and Conclusion

The results showed that a considerable number of the respondents in this study (35.6%) were health-illiterate. The presented results are similar to the results of previous studies conducted in other countries, which focused on the concept of health literacy and showed that low health literacy consequently lead to worse outcomes in the treatment of certain diseases, while on the contrary, persons with higher health literacy take responsibility for their health, the health of their family, but ultimately also the responsibility for the health of their community^{16,17}. Research conducted in the USA and Taiwan reported the incidence of inadequately health literate persons in the hospital environment ranging from 29% to 77%^{18,19}. A recent survey in the Middle East pointed out that only 23.9% of respondents have an adequate level of health literacy^{20,21}.

Several studies examined the relationship between patients' health literacy and healthcare utilization^{22–24}. In a Danish population-based 4-year follow-up study in individuals with chronic obstructive pulmonary disease, low health literacy was associated with inadequate and ineffective utilization of health services, longer hospitalizations and increased hospital readmissions²², with other studies reporting also on higher rates of emergency department utilization²³ and inadequate use of preventive health services²⁴.

The results showed that women reported a significantly higher health literacy and that there was a significant difference between health literacy regarding respondents' age. There was also a difference regarding education level, i.e., respondents who had completed a BA or MA had a significantly higher health literacy than respondents with primary or secondary education. Other studies have also

supported the results of this study, reporting on the correlation between low health literacy and low education levels^{25,26}. Also, the results of previous research indicated an inadequate level of health literacy in people over 50 years of age as well as an irrational and disproportionate use of health resources by the same group²⁶.

The study showed that respondents who assessed that they knew how to use MDI correctly, had significantly higher scores on knowledge of using MDI. It is important to emphasize that health literacy is related to and affects the correct use of inhaled medications. The entire process of obstructive lung diseases management includes inhalation therapy, which places high responsibility on patients, as they are expected to understand their health condition, gather information and knowledge about the disease they are suffering from, and recognize information that is critical for self-monitoring of the disease and proper self-administration of the therapy²⁷. All of this, in many cases, exceeds the patients' level of health literacy and prevents them from understanding the information they need to self-manage their disease to the extent necessary²⁷. A series of studies conducted in different countries allowed the identification of impediments caused by low health literacy in patients with obstructive lung diseases^{27,28}. Some of these impediments are poor self-control of the disease, increased mortality rates, low adherence to therapy, lack of understanding of health recommendations and information due to lower levels of patient education, and others^{27,28}.

The results also show that retirees have lower health literacy and knowledge about the correct self-administration of inhalation therapy than employed persons and persons with higher education. The results are consistent with those of other studies conducted in different coun-

tries. A study conducted in Belgium showed that older patients have lower knowledge about the correct self-administration of medications for the management of obstructive lung diseases compared with patients aged 50 years or younger²⁹. The Belgian study also stated that the literature review revealed several factors that may influence adherence to therapy and correct use of inhaled medications^{29,30}, such as patients' age, comorbidities, knowledge of disease treatment, and poor communication between the patient and medical professionals^{29,30}. Many chronic diseases are associated with the continuing use of therapeutic regimens³¹. This includes COPD, where therapy adherence is key to controlling the disease³¹. Although COPD is progressive disease, properly applied therapy improves the patient's quality of life³¹. Inhaled medications are the first choice in managing COPD and other obstructive lung diseases, including asthma and chronic bronchitis.

The results of this study show a higher level of knowledge among the respondents who have been using MDIs for 5 to 10 years compared to those who have been using MDIs for more than 15 years. The results show inadequate knowledge on the correct use of inhalation therapy and express the need for possible improvement of patients' inhalation technique through adequate and continuous patient education on the correct use of inhaled medications. Patient education on the correct self-administration of inhaled medications can be crucial in reducing obstructive lung diseases exacerbations and significantly reducing hospitalizations and emergency department visits³². It is essential to educate the patient before prescribing an inhaled medication, but also during an extended period of use of a particular medication. It is because the results

show that significantly more health-literate individuals reported having demonstrated the technique of using an MDI to a medical professional. Often, the patient claims to have acquired the knowledge necessary to self-administer inhaled medications correctly and supports this with factual knowledge. However, the patient needs to demonstrate the inhalation technique and medical professional needs to review it over time because, even if the patient has been using inhaled medications for many years, errors can occur in the medication self-administration³³. As mentioned, inhaled medications are the first choice in managing obstructive lung diseases, so their correct self-administration is of great importance³². This study shows that some patients do not use the inhalers correctly and make repeated errors during each step. The results coincide with the results of a North Carolina study showed that health literacy interventions for patients with asthma and COPD led to the improvement of their inhalation technique³⁴. Following the results of studies conducted in other countries and in accordance with the results of this study, the importance of patient education is emphasized, which should be given more attention in the care of patients with obstructive lung diseases.

The conducted research provided valuable results for further discussion, but there are also shortcomings, such as the limitation of the study to functional health literacy. It would be beneficial to focus further research on interactive and critical health literacy to improve treatment outcomes of patients with obstructive lung diseases. Subsequent research should be directed toward developing validated multidimensional instruments for comprehensive measurement and investing in programs to enhance all levels of health literacy.

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POVEZANOST ZDRAVSTVENE PISMENOSTI I PRIMJENE INHALACIJSKE TERAPIJE KOD BOLESNIKA S OPSTRUKTIVNIM BOLESTIMA PLUĆA

SAŽETAK

Cilj ovog istraživanja bio je ispitati zdravstvenu pismenost te razinu znanja o primjeni inhalacijske terapije bolesnika oboljelih od opstruktivnih bolesti pluća. Također, istraživanje je imalo za cilj analizirati povezanost između zdravstvene pismenosti te znanja ispitanika o primjeni inhalacijske terapije s obzirom na demografske karakteristike ispitanika, iskustvo te postojanje edukacije o primjeni inhalacijske terapije. Provedena je presječna studija među bolesnicima oboljelim od opstruktivnih bolesti pluća koji su se liječili na Odjelu pulmologije Opće županijske bolnice Požega u razdoblju od studenog 2022. do ožujka 2023. godine. U istraživanju je sudjelovao 101 ispitanik starosti od 18 do 81 i više godina. Kao alat za procjenu razine zdravstvene pismenosti korištena je hrvatska inačica SAHLCA-50 upitnika za procjenu zdravstvene pismenosti (engl. *Short Assessment of Health Literacy for Spanish Adults*). Rezultati su pokazali da je 64,4 % ispitanika imalo primjerenu zdravstvenu pismenost, dok je 35,6 % ispitanika imalo nedovoljnu zdravstvenu pismenost. Ispitanice su pokazale značajno veću razinu zdravstvene pismenosti ($p=0.01$) te veće znanje o primjeni inhalacijske terapije ($p=0.001$). Ispitanici u dobi od 18 do 40 godina imali su značajno veću razinu zdravstvene pismenosti u usporedbi s ispitanicima u dobi od 61 do 80 godina ($p=0,003$) i onima starijima od 81 godine ($p=0,007$). Također, veću razinu znanja o pravilnoj primjeni inhalacijske terapije imali su ispitanici ženskog spola. Ispitanici koji su koristili MDI inhalatore 5 do 10 godina pokazali su značajno veću razinu znanja u usporedbi s onima koji su ih koristili 15 i više godina, kao i ispitanici educirani o pravilnoj primjeni inhalacijske terapije od strane zdravstvenih djelatnika ($p=0,03$). Niska zdravstvena pismenost je jedan od mnogih čimbenika koji pridonose nastanku i nezadovoljavajućoj kontroli kroničnih bolesti, dok je inhalacijska terapija ključna u liječenju opstruktivnih bolesti pluća. Ovo istraživanje naglašava višestruku ulogu i važnost zdravstvene pismenosti kod bolesnika oboljelih od opstruktivnih bolesti pluća te njezin utjecaj na pravilnu primjenu inhalacijske terapije.