

*Original article*

## Connection between Alexithymia and Chronic Diseases of the Heart and Lungs

Marija Lazarević

*Dom zdravlja "Dr Milenko Marin", Loznica, Serbia*

### SUMMARY

**Introduction.** Alexithymia is manifested by limited abilities to identify and express emotions and is a possible risk factor for the onset and treatment of the disease.

**Objective.** To determine the dependence of the presence of alexithymia in patients with chronic lung and heart diseases.

**Methodology and results.** One hundred respondents aged 35 to 75 participated in the research, 50% of whom were being treated for chronic lung diseases, and 50% for chronic heart diseases. After filling out the Toronto Twenty-Point Scale (TAS-20) questionnaire, the degree of alexithymia was determined. Using the Chi-square test for independence, it was determined that the presence of alexithymia and chronic heart and lung diseases were dependent characteristics ( $p > 0.0005$ ), and a significantly larger number of respondents with established alexithymia were treated for chronic lung diseases. Using the Chi-square test, it was shown that the presence of alexithymia and the gender of the subject were not dependent characteristics, while the non-parametric Mann-Whitney U test of significance was used to analyze the dependence of alexithymia and the age of the subject. It demonstrated that there was a statistically significant difference in the age of the subjects with and without alexithymia ( $p < 0.05$ ).

**Conclusion.** In this paper, we found that alexithymia is a more significant risk factor for the occurrence of chronic impairment of lung function in relation to heart disease.

**Keywords:** alexithymia, asthma, heart diseases, psychosomatics

Corresponding author:

**Marija Lazarević**

e-mail: marijalazarevicsil@gmail.com

## INTRODUCTION

Alexithymia is a personality characteristic that is manifested by limited abilities to identify and express emotions and is a possible risk factor for the onset and treatment of diseases. A person with alexithymia has difficulty recognizing their own and other people's emotions, but also has difficulty presenting their feelings to others. They have reduced ability to imagine and practical style of thinking on a cognitive level, while on an affective level, these people have a reduced ability to be aware of emotions. The term "alexithymia" means "without words for feelings". This term was introduced by Sifneos, after which it was revised several times. These patients have difficulties in identifying feelings and differentiating between feelings and bodily sensations, in describing feelings, narrowed imaginative processes and a stimulus-bound externally oriented cognitive style (1).

Alexithymia was first observed in patients with psychosomatic reactions. People with alexithymia interpret the physical symptoms of an emotional reaction as symptoms of a somatic illness. Research points to the importance of the influence of genes on the appearance of this personality trait, some with the mother's gene (2), and some with the father's gene (3). Potentially, genes in alexithymia can affect the transcription of neuronal receptors or neuro-

transmitters, or they can affect the development of neurons. Also, some research highlights the role of family factors in childhood, such as a dysfunctional family environment (4), life in a broken family (5) and emotional, sexual and physical abuse in early childhood (6).

A psychosomatic illness is a physical illness with a pathoanatomical lesion, in the origin and course of which the influence of psychological factors is crucial or at least significant. Sympathetic hyperfunction, which conditions the fight reaction with the expression of emotions, leads to cardiovascular diseases and endocrine disorders, while under the influence of parasympathetic and withdrawal reactions, disorders of the respiratory and gastrointestinal systems develop. Emotional reactions play a crucial role in the emergence of psychosomatic diseases, depending on the way the body reacts to them and with what part (7).

## METHODOLOGY AND RESULTS

This cross-sectional study involved 100 respondents aged 35 to 75 years, divided into two groups, with average age  $52.74 \pm 10.99$ . They were treated at the primary level of health care and regularly visited

**Table 1.** Demographic characteristics and distribution of patients according to chronic diseases

Variable		Lung disease group N (%)	Heart disease group N (%)	All patients N (%)
Age	35 - 45	21 (42)	11 (22)	32 (32)
	46 - 55	9 (18)	17 (34)	26 (26)
	56 - 65	9 (18)	15 (30)	24 (24)
	66 - 75	11 (22)	7 (14)	18 (18)
Sex	Male	22 (44)	29 (58)	51 (51)
	Female	28 (56)	21 (42)	49 (49)
Marital status	Married	41 (82)	43 (86)	84 (84)
	Not married	9 (18)	7 (14)	16 (16)
Chronic lung* diseases	Chronic obstructive pulmonary disease	31 (62)	7 (14)	38 (38)
	Asthma	19 (38)	3 (6)	22 (22)
Chronic heart diseases*	Arrhythmia	5 (10)	20 (40)	25 (25)
	Cardiomyopathy	2 (4)	7 (14)	9 (9)
	Ischemic heart diseases	3 (6)	23 (46)	26 (26)
Total patient*		50 (100)	50 (100)	100 (100)

\*Some patients had both lung and heart diseases and one of them lasted less than 5 years

their chosen doctor and used the prescribed therapy. The first group consisted of 50 subjects who had had lung function disorders for more than 5 years, and the second 50 patients who had been treated for heart disease for more than 5 years, and in whom the presence of psychiatric diseases had not been established (Table 1). Beside those data, all patients had arterial hypertension, too, and consequently, this disease had not been analyzed in further details.

All respondents were given the TAS-20 questionnaire, on the basis of which the degree of manifestation of alexithymia was assessed, and after the interview, the scores of this test were also determi-

ned. The TAS-20 is the most widely used questionnaire for measuring alexithymia and consists of three subscales which had been validated for Serbian population (8). Only the total scores of the TAS-20 were analyzed in details, according to the primary study objectives. The first subscale identifies feelings, the second describes difficulties in describing feelings, and the third describes the externally oriented thinking.

There were 51 men (51%) and 49 women (49%) among the respondents. The total number of respondents who were diagnosed with alexithymia in the entire sample was 62, while there were 38 respondents without alexithymia (Table 2 and 3).

**Table 2.** The frequency of alexithymia in patient with chronic lung and cardiovascular disorders

Variable		Alexithymia N (%)		Statistics
		Yes	No	
Chronic lung diseases group (N = 50)	Chronic obstructive pulmonary disease	17 (34)	14 (28)	$\chi^2 = 0.33$ , p = 0.56
	Asthma	12 (24)	7 (14)	
	Total	29 (58)	21 (42)	
Chronic heart diseases group (N = 50)	Arrhythmia	5 (10)	21 (42)	$\chi^2 = 0.09$ , p = 0.95
	Cardiomyopathy	2 (4)	9 (18)	
	Ischemic heart diseases	2 (4)	11 (22)	
	Total	9 (18)	41 (82)	

**Table 3.** Association of alexithymia with chronic lung and heart diseases

Chi-square tests					
	Value	df	Asymptotic Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson's Chi-square	16.978	1	< 0.001		
Continuity correction	15.323	1	< 0.001		
Likelihood ratio	17.644	1	< 0.001		
Fisher's exact test				< 0.001	< 0.001
Linear-by-linear association	16.808	1	< 0.001		
N of valid cases	100				

Using the Chi-square test for independence, it was determined that the presence of alexithymia and chronic heart and lung disease are dependent characteristics ( $p > 0.0005$ ) (Table 2). It was found that a significantly larger number of respondents with established alexithymia were being treated for chronic lung diseases (Figure 1).

Using the Chi-square test, it was determined

that the presence of alexithymia and the gender of the subject are not dependent characteristics, while for the analysis of the dependency of alexithymia and the age of the subject (Figure 2), the non-parametric Mann-Whitney U test of significance was used and it determined that there was a statistically significant difference in the age of subjects with and without alexithymia ( $p < 0.05$ ) (Table 4).

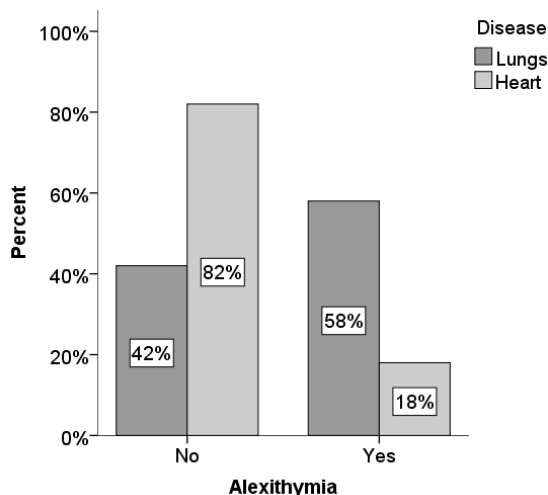


Figure 1. Association of alexithymia with chronic lung and heart disease

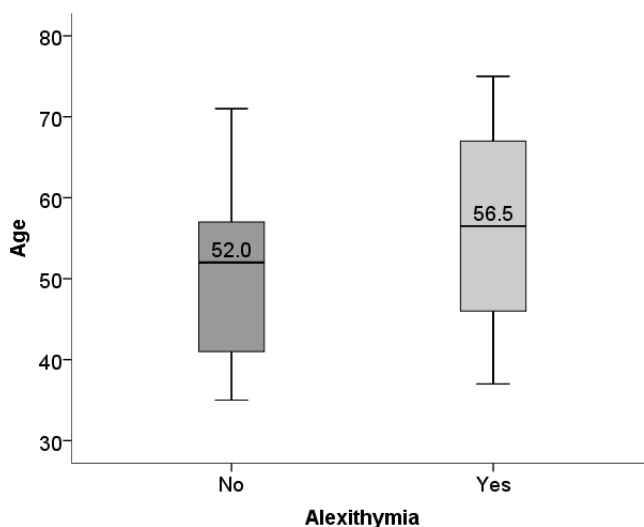


Figure 2. Dependence of alexithymia on the age of the subject

**Table 4.** Dependence of alexithymia on the age of the subjects

Test statistics <sup>a</sup>	
	Age
Mann-Whitney U	855.000
Wilcoxon W	2808.000
Z	-2.295
Asymp. sig. (2-tailed)	.022

## DISCUSSION

The connection of alexithymia with chronic diseases has been shown in many studies so far. However, the way patients react, whether they withdraw or react combatively in crisis situations, which can affect a series of reactions in the body that disrupt homeostasis and condition the appearance of psychosomatic diseases, has not been sufficiently investigated.

The "multiple code" theory is one of the theories that explains alexithymia by explaining affective states that are first expressed non-verbally, with facial expressions and body language, and then with speech. Dissociation of these processes occurs in people with alexithymia. People with pronounced alexithymia are not able to adequately recognize basic emotions, such as fear, anger and sadness, which can also affect biochemical and pathophysiological reactions in the body (9).

People with the characteristics of alexithymia, due to disturbed interoceptive awareness and reduced ability to be aware of emotions, interpret somatosensory enhancement and physical symptoms as a sign of physical illness, which can consequently cause various physical disturbances. Alexithymia was previously seen exclusively as a psychosomatic disease, however, these patients often visited somatic doctors because of numerous and persistent somatic symptoms involving the respiratory and cardiovascular systems (10).

An emotional state can damage a person's physical health. Some research has looked at the relationship between emotional reactions and respiratory symptoms, finding that emotional reactions can lead to asthma exacerbations. Also, alexithymia can affect the worsening of this chronic lung disease. Studies have shown that a significantly higher prevalence of alexithymia was found among patients who experienced a near-fatal asthma attack (36%)

compared to patients who had asthma but did not experience a near-fatal attack (13%), while patients with alexithymia underestimated both physical and emotional component of asthma exacerbation (11, 12). Feldman also showed that a higher alexithymia score was associated with increased reporting of asthma symptoms and decreased lung function. In his research, a higher alexithymia score was associated with poor asthma control, poor adherence and poorer quality of life (13).

In the search for a better solution for the treatment of asthma, it is necessary to take into account the influence of alexithymia. Psychosomatics researchers have shown that classical psychotherapy approaches are not sufficient for the treatment of alexithymia and that psychodynamic group psychotherapy would significantly contribute to reducing psychopathological distress in alexithymic patients (14, 15).

In the research by Ristić S., which examines the connection between alexithymia and asthma in adolescents on a total sample of 411 students, the frequency of verified alexithymia was 7.3%, while in the group of 210 students with asthma it was 11% ( $p < 0.05$ ). In the group of subjects with asthma, there are significantly more of those with verified and possible alexithymia compared to subjects without asthma. She showed that the group with alexithymia had significantly more of those with anxiety and asthma. The total alexithymia score of subjects with asthma was negatively correlated with pulmonary function parameters FEV1/FVC (%) (16). Several research connected alexithymia and COPD, too.

In a study conducted in China with 103 patients, 53 of whom had chronic obstructive pulmonary disease (COPD), in which the 20-item Toronto scale was used, it was found that alexithymia occurred more often in patients with COPD than in the

control group (17). A study conducted by Tcelebis A. et al. confirms a high prevalence of anxiety and depression symptoms in Greek outpatients with COPD. The prevalence of alexithymia in patients with COPD, contrary to what has been observed in patients with other chronic respiratory diseases, appears to be lower. However, we observed a strong association between alexithymia, depression and anxiety levels (18).

A smaller number of works deals with research on the connection between alexithymia itself, emotional response and chronic heart diseases. The paper of Zhu J. briefly describes the physiological basis of heart rate variability in different emotions, recognition of emotions, evaluation of emotional disorders, biofeedback, as well as an analysis of emotions based on this variability (19). A systematic and meta-analytic review of heart rate variability (HRV) for different symptoms was analyzed in the paper by Lehrer P. et al. This is a review of 1,868 papers where it was determined that HRVB has the highest correlation with anxiety, depression, and anger (20).

Alexithymia is common in patients with psychosomatic disorders such as gastrointestinal diseases, respiratory system diseases, migraine, dermatological symptoms and irritable bowel syndrome. It is associated with the regulation of affects such as modulation of arousal, appropriate expression and suppression of emotions, tolerance of painful emotions and cognitive assimilation. However, more research is needed to determine the connection between alexithymia and diseases of the cardiovascular system (21).

## CONCLUSION

Alexithymia is a significant risk factor for the development of chronic diseases due to the biochemical and pathophysiological reactions it causes in the body. In this paper, we determined that alexithymia is a more significant risk factor for the occurrence of chronic impairment of lung function compared to heart disease.

## References

1. Taylor GJ, Bagby RM, Parker JDA. Disorders of affect regulation. Alexithymia in medical and psychiatric illness. Cambridge: Cambridge University Press, 1997: 26-45.  
<https://doi.org/10.1017/CBO9780511526831.005>
2. Fukunishi I, Paris W. Intergenerational association of alexithymic characteristics for college students and their mothers. *Psychol Rep* 2001; 89(1), 77-84.  
<https://doi.org/10.2466/pr0.2001.89.1.77>
3. Lumley MA, Mader C, Gramzow J, Papineau K. Family factors related to alexithymia characteristics. *Psychosom Med* 1996; 58(3): 211-6.  
<https://doi.org/10.1097/00006842-199605000-00003>
4. Mallinckrodt B, King JL, Coble HM. Family disfunction, alexithymia and client attachment to therapist. *J Couns Psychol* 1998; 56: 737-45.
5. Joukama M, Tagnila A, Miettunen J, et al. Epidemiology of alexithymia among adolescents. *J Psychosom Res* 2007; 63(4): 373-6.  
<https://doi.org/10.1016/j.jpsychores.2007.01.018>
6. Joukama M, Lunttonen S, von Reventlow H, et al. Alexithymia and childhood abuse among patients attending primary and psychiatric care: results of the RADEP study. *Psychosom* 2008; 49: 317-25.  
<https://doi.org/10.1176/appi.psy.49.4.317>

7. Lazarević M, Jovović S. Psihosomatske reakcije i hipertenzija u uslovima stresa. *Opšta medicina*, 2017; 23: 1-2.
8. Trajanović NN, Djurić V, Latas M, Milovanović S, Jovanović AA, Djurić D. Serbian translation of the 20-item Toronto Alexithymia Scale: psychometric properties and the new methodological approach in translating scales. *Srp Arh Celok Lek*. 2013;141(5-6):366-70.  
<https://doi.org/10.2298/SARH1306366T>
9. Rokvić N, Jovanović T. Aleksitimija merena TAS-20 upitnikom: provera faktorske strukture upitnika i njenog odnosa sa zadovoljstvom životom i Velikih pet dimenzija ličnosti. *Psihološka istraživanja*, 2018; 21: 23-40.  
<https://doi.org/10.5937/PsIstra1801023R>
10. Kanbara K, Fukunaga M. Links among emotional awareness, somatic awareness and autonomic homeostatic processing. *BioPsychoSocial Medicine* 2016; 10: 1-11.  
<https://doi.org/10.1186/s13030-016-0059-3>
11. Serrano J, Plaza V, Surede B, et al. Alexithymia: a relevant psychological variable in near-fatal asthma. *Eur Respir J* 2006; 28(2): 296-302.  
<https://doi.org/10.1183/09031936.06.00008105>
12. Brown EL, Fukuhara JT, Feignine RJ, et al. Alexithymic asthmatics: The miscommunication of affective and somatic states. *Psychother Psychosom* 1981; 36(2): 116-21.
13. Feldman JM, Lahrer PM, Hochron SM, et al. The predictive value of the Toronto Alexithymia Scale among patients with asthma. *J Psychosom Res* 2002; 53(6):1049-52.
14. Vanheule S, Verhaeghe P, Desmet M. In search of a framework for the treatment of alexithymia. *Psychol Psychother* 2011; 84(1): 84-97.  
<https://doi.org/10.1111/j.1756-1183.2011.00106.x>
15. Grabe HJ, Frommer J, Ankerhold A, et al. Alexithymia and outcome in psychotherapy. *Psychother Psychosom* 2008; 77(3): 189-94.  
<https://doi.org/10.1159/000119739>
16. Stojanović Ristić S. Prediktivni značaj prisustva aleksitimije u proceni anksioznosti i depresivnosti kod studenata obolelih od bronhijalne astme (Doctoral dissertation, Univerzitet u Beogradu-Medicinski fakultet), 2018.
17. Han D, Zhang Y, Li B, Lv Z, Huo X, Li Y, et al. Alexithymia in Chinese chronic obstructive pulmonary disease (COPD) patients: The prevalence and related factors of alexithymia. *Psychiatry Research* 2012;198(2): 274-8.  
<https://doi.org/10.1016/j.psychres.2011.10.018>
18. Tselebis A, Kosmas E, Bratis D, Moussas G, Karkanas A, Ilias I et al. Prevalence of alexithymia and its association with anxiety and depression in a sample of Greek chronic obstructive pulmonary disease (COPD) outpatients. *Ann Gen Psychiatry* 2010; 9(1):1-7.  
<https://doi.org/10.1186/1744-859X-9-16>
19. Zhu J, Ji L, Liu C. Heart rate variability monitoring for emotion and disorders of emotion. *Physiol measur*, 2019. 40(6), 064004.  
<https://doi.org/10.1088/1361-6579/ab1887>
20. Lehrer P, Kaur K, Sharma A, Shah K, Huseby R, Bhavsar J, et al. Heart rate variability biofeedback improves emotional and physical health and performance: a systematic review and meta analysis. *Appl Psychophysiol Biofeedback* 2020. 45(3), 109-129.  
<https://doi.org/10.1007/s10484-020-09466-z>
21. Kušević Z, Marušić K. Povezanost aleksitimije i morbiditeta. *Liječnički vjesnik*, 2014. 136(1-2), 0-0.

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## Povezanost aleksitimije sa hroničnim bolestima srca i pluća

Marija Lazarević

*Dom zdravlja „Dr Milenko Marin“, Loznica, Srbija*

### SAŽETAK

**Uvod.** Aleksitimija se manifestuje ograničenim sposobnostima identifikacije i ispoljavanja emocija i predstavlja mogući faktor rizika za nastanak i lečenje bolesti.

**Cilj.** Utvrditi zavisnost prisustva aleksitimije kod bolesnika sa hroničnim bolestima pluća i srca.

**Metodologija i rezultati.** U istraživanju je učestvovalo 100 ispitanika starosti od 35 do 75 godina, od kojih se 50% leči od hroničnih bolesti pluća, a 50% od hroničnih bolesti srca. Ispitanicima je nakon popunjavanja upitnika Dvadesetostepene Toronto skale (TAS-20) utvrđen stepen aleksitimije. Primenom Hi-kvadrat testa za nezavisnost utvrđeno je da su prisustvo aleksitimije i hronične bolesti srca i pluća zavisna obeležja ( $p > 0,0005$ ); značajno veći broj ispitanika sa utvrđenom aleksitimijom leči se od hroničnih bolesti pluća. Primenom Hi-kvadrat testa pokazano je da prisustvo aleksitimije i pol ispitanika nisu zavisna obeležja. Za analizu zavisnosti aleksitimije i starosti ispitanika korišćen je neparametarski Man-Vitnijev U test značajnosti, kojim je utvrđeno da postoji statistički značajna razlika u starosti ispitanika koji imaju, odnosno nemaju aleksitimiju ( $p < 0,05$ ).

**Zaključak.** U ovom radu utvrdili smo da aleksitimija predstavlja značajniji faktor rizika za pojavu hroničnog oštećenja funkcije pluća nego za bolesti srca.

**Ključne reči:** aleksitimija, astma, srčane bolesti, psihosomatika