Małgorzata Elżbieta Starczewska[1],A,C-F, Halina Raczewska[2],B-D, Kamila Rachubińska[3],A-C

ASSESSMENT OF COMPLIANCE WITH THERAPEUTIC RECOMMENDATIONS BY PATIENTS SUFFERING FROM BRONCHIAL ASTHMA AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

Ocena przestrzegania zaleceń terapeutycznych przez pacjentów chorujących na astmę oskrzelową i POCHP

[1]Zakład Pielęgniarstwa, Pomorski Uniwersytet Medyczny, Polska

[2]Studenckie Koło Naukowe przy Zakładzie Pielęgniarstwa, Pomorski Uniwersytet Medyczny w Szczecinie, Pomorski Uniwersytet Medyczny, Polska

[3]Doktorantka w Zakładzie Pielęgniarstwa, Pomorski Uniwersytet Medyczny w Szczecinie, Pomorski Uniwersytet Medyczny, Polska

A - Research concept and design, B - Collection and/or assembly of data, C - Data analysis and interpretation, D - Writing the article, E - Critical revision of the article, F - Final approval of article

Małgorzata Elżbieta Starczewska - ID 0000-0003-1365-5818

Abstract (in Polish):

Cel pracy

Celem pracy była ocena przestrzegania zaleceń terapeutycznych w grupie chorych na astmę oskrzelową oraz POCHP z uwzględnieniem czynników demograficznych i medycznych.

Materiał i metody

Materiał i metody. W przeprowadzonym badaniu uczestniczyło 136 respondentów. Badanie zostało przeprowadzone metodą sondażu diagnostycznego z wykorzystaniem narzędzi: autorskiego kwestionariusza ankiety, skali dostosowania do zaleceń farmakologicznych ARMS, skali Akceptacji choroby - AIS oraz Berlińskiej Skali Wsparcia Społecznego - BSSS.

Wyniki

Badanie wykazało, iż pacjenci pulmonologiczni uzyskali średnio 17,65 punktów kwestionariusza ARMS i 26,58 pkt. kwestionariusza AIS. Z kolei według BSSS średnie poziomy wszystkich rodzajów wsparcia

społecznego są wyższe niż poziomy neutralne.Na przestrzeganie przez pacjentów zaleceń terapeutycznych istotnie wpływają schorzenia, na które przewlekle chorują ankietowani (p<0,05).Spośród danych demograficznych znaczenie dla przestrzegania zaleceń miało jedynie miejsce zamieszkania respondentów (p<0,05).

Wnioski

Pacjenci chorujący przewlekle na astmę oskrzelową i POChP przestrzegali zaleceń terapeutycznych w stopniu zadowalającym. Chorzy mieszkający w dużych miastach, a także chorujący na astmę lepiej przestrzegali zaleceń terapeutycznych. Poziom akceptacji choroby pulmonologicznej w badanej populacji nie miał istotnego wpływu na przestrzeganie zaleceń terapeutycznych. Wsparcie osób najbliższych, rodziny, przyjaciół oraz społeczności udzielane choremu ma istotne znaczenie dla poziomu przestrzegania zaleceń terapeutycznych. Istotnym działaniem pracowników ochrony zdrowia powinno być zwrócenie uwagi i podjęcie działań w stosunku do osób dłużej chorujących, które nie wykazują aktywności w poszukiwaniu wsparcia społecznego.

Abstract (in English):

Aim

The aim of the study was to assess the compliance with therapeutic recommendations in the group of patients suffering from bronchial asthma and COPD; demographic and medical factors were also included.

Material and methods

The study comprised 136 respondents and was conducted by means of a diagnostic survey. The tools used in the survey included: authors' own questionnaire, the scale of adaptation to the pharmacological recommendations - ARMS, the scale of the disease acceptance - AIS and the Berlin Social Support Scale - BSSS.

Results

The study showed that pulmonary patients obtained an average of 17.65 points in ARMS questionnaire and 26.58 points in AIS questionnaire; according to BSSS, the average levels of all types of social support were higher than neutral levels.The patients' compliance with therapeutic recommendations is significantly influenced by the diseases for which the respondents chronically suffer (p<0.05).On the compliance with therapeutic recommendations; only the respondents' place of residence was of some significance (p<0.05).

Conclusions

Patients with chronic bronchial asthma and COPD followed the therapeutic recommendations satisfactorily. The level of acceptance of a pulmonary disease in the studied population did not have a significant impact on compliance with therapeutic recommendations.

The support provided to the patient by relatives, family, friends and community is vitally meaningful to the level of compliance with therapeutic recommendations.

Short title

Przestrzeganie zaleceń terapeutycznych przez pacjentów

Authors (short)

M. Starczewska, H. Raczewska, K. Rachubińska

Introduction

Pulmonary diseases are one of the main health problems of modern medicine. The incidence of bronchial asthma is still increasing, while chronic obstructive pulmonary disease (COPD) remains a condition characterized by high morbidity and mortality [1].

In recent years, the subject of compliance with therapeutic recommendations has been a problem often raised in both medical and popular science publications. Complicated medication regimens as well as a lack of understanding the need to comply with recommendations by patients and the people closest to them are the factors that negatively affect patients and are not conducive to the treatment of chronic diseases [2]. The economic status of patients and the costs of therapy also have an impact on the course of applied therapy, as do the patients' possible fears related to the treatment, the fear of addiction to pharmacotherapy or of its side effects, forgetfulness and lack of clear drug dosing schedules.

Patient's cooperation and involvement in the treatment process is very important and still remains an enormous challenge for healthcare professionals; they also constitute the factor that significantly affects changes in the final effect of therapy. Patient's cooperation and involvement is especially important in pulmonary diseases, such as asthma and COPD, where the lack of regularity in taking medications or following other recommendations regarding rehabilitation, diet and lifestyle changes significantly affects the result of therapeutic actions undertaken by medical personnel [4]. Low level of patient's compliance with therapeutic recommendations may be one of the reasons for failure in conducting therapy, the disease exacerbation or the need for hospitalization. COPD, in particular, generates significant costs in the healthcare system, all the more so when a patient requires hospital therapy. Systematic treatment, though determined by many variables, is essential, as it improves the course of the disease and reduces mortality [5].

The disease acceptance – one of the most important determinants of adaptation to the onerous life situation associated with chronic disease – constitutes an extremely important aspect of therapy that may affect compliance with therapeutic recommendations. Accepting the disease positively affects the patient's mood, allows them to gain control over their own life situation, feel a sense of relative security and reduce negative emotions; it may also be perceived as a symptom of patient's strength as it means that the patient comes to terms with the situation that is beyond their control. Being aware of limitations and abilities allows taking actions adequate to the patient's condition [6,7].

Social support is another important aspect which has many functions in the case of a chronic disease. Lack of support may be a risk factor for the disease developing, worsening or prolonging as well as for premature death [8]; it also plays an important role in maintaining good physical and mental condition of the patient. The support is defined as social rooting, a sense of closeness, and the possibility of establishing interpersonal relationships in difficult life situations [9].

Aim

The aim of the study was to assess the compliance with therapeutic recommendations in the group of patients suffering from bronchial asthma and COPD; demographic and medical factors were also included.

Material and methods

The study was conducted from July to October 2018 and comprised 136 respondents over 18 years of age chronically suffering from bronchial asthma or COPD. Patients included in the study were hospitalized in the pulmonology ward of the Multispecialist Provincial Hospital in Gorzów Wielkopolski or treated in the Provincial Pulmonological Outpatient Clinic. Each patient was familiarized with the subject and purpose of the study, and was also informed that filling out the questionnaire was voluntary and anonymous, and the data obtained would be used in accordance with the study purpose. The patients who agreed to participate in the study received questionnaires, which they completed themselves. If the content of the survey was incomprehensible or if there occurred doubts about the questions, the necessary explanations were provided on an ongoing basis. Diagnosed asthma or COPD, illness duration of over 6 months and the age of 18 constituted the criteria for including patients in the study group, whereas the inability (caused by cognitive impairment) to understand the questionnaire content or the patient's severe clinical condition that prevented them from completing the survey themselves excluded patients from the study group.

The study was conducted by means of a diagnostic survey. The tools used in the survey included: authors' own questionnaire, Adherence to Refills and Medication Scale (ARMS), Acceptance of Illness Scale (AIS) and Berlin Social Support Scale (BSSS).

The authors' own questionnaire concerned such information as: sex, age, education, place of residence, marital status, type of illness, duration of illness, occurrence of concurrent illnesses, sense of limitation in the patient's life resulting from the illness.

The ARMS scale is a tool for assessing patients' compliance with pharmacological recommendations and the principles of the applied therapy. It consists of twelve points, where the first eight items assess the level of drug intake by patients, and the remaining four relate to the realization of prescriptions. This scale does not have norms determining whether the level of patient compliance remains low or high, but the results that range between 12 - 48 points and the increase in the number of points are associated with worse compliance [10].

The AIS scale enables the assessment of the patient's acceptance of the disease. The questionnaire contains eight statements indicating the negative consequences of deteriorating health. Each statement has a five-point scale; the patient determines his current state of health by ticking the appropriate number: 1 – I strongly agree, 2 – I agree, 3 – I do not know, 4 – I do not agree, 5 – I strongly disagree. The level of the disease acceptance is defined by the number of all points and is in the range of 8 to 40 points. There can be distinguished three levels of disease acceptance: the low level, i.e. lack of acceptance, is within the range of 8 – 18 points, points the average level – 19 – 29 and the high level – 30 – 40 [11].

The BSSS scale consists of five scales and allows to define the cognitive and behavioral dimensions of social support that a person may experience. The scales can be used together or separately and each of the scales has a different point range: perceived available support (8 – 32 points), the need for support (8 – 32 points), seeking support (5 – 20 points), currently received support (5 – 20 points) and buffer--protection support (5 – 20 points). The scales cannot be compared with one another other and thus it cannot be determined which type of support is most strongly marked. However, a neutral point for each of the scales can be established, i.e. the number of points representing the balance between positive and

negative responses. The neutral points of the questionnaire are determined as follows: perceived available support – 20 points, the need for support – 10 points, seeking support – 12.5 points, currently received support – 37.5 points, buffer-protection support – 15 points. The results higher than these levels mean that the positive answers prevail and indicate that a given type of support rather occurs; the results lower than these levels mean that the negative answers prevail and indicate that a given type of support does not occur. The assessment of the level of available assistance possibly obtained from other people is a measure of the support available, while the support received is associated with perceived and provided external assistance. The need for support appears most often in patients in difficult life situations that are accompanied by high stress and helplessness. The frequency of seeking help from other people and its scope is defined as the support sought. The scales also determine the level of protective support, defined as protecting close people by not revealing bad information to them [12].

Statistical analysis was performed by analyzing quantitative and qualitative variables. The comparison of quantitative variable values in two groups was analyzed by means of Mann-Whitney's test; in three or more groups – Kruskal-Wallis' test. When statistically significant differences had been detected, a post-hoc analysis by means of Dunn's test was performed. Correlations between quantitative variables were analyzed by means of the Spearman correlation coefficient. The significance level of 0.05 was adopted in the analysis. The questionnaire data analysis was performed in the R program, version 3.5.1.

The research was carried out in accordance with the Helsinki Declaration and received a positive opinion from the Bioethics Committee of the Pomeranian Medical University of Szczecin.

Results

The study covered 136 people with bronchial asthma (50% of respondents) and COPD (50% of respondents); 50,7% of the group were males. The average age of patients was 64 years ± 12.38. Most of the patients were married (61.8%) and lived in a city of over 100,000 residents (63.2%). Of the respondents, 64% were retired, 47.1% had secondary education, and 76.5% lived with their families.

The average illness duration of the subjects was 8 years, and the typical duration of pulmonary diseases in the studied group was from 3 to 10 years. Additionally, the patients (51.5% of them) also suffered from hypertension, and 48.5% of the respondents indicated other diseases requiring chronic therapy. 66.9% of patients participating in the study declared that they followed the doctor's instructions and took the recommended medications regularly. However, some respondents (16.9%) take medication only during periods of the disease exacerbation, 9.6% of people occasionally forget to take medicine and a small percentage of patients admitted they did not take medicine at all. 77.2% of the respondents attended regular follow-up visits at the dates set by their doctors, 18.4% of the respondents reported to a doctor in the event of illness or health deterioration, whereas 4.4% said they did not attend visits at all. According to 52.2% of the patients, the chronic disease that affected them significantly limits their daily lives. Some patients (25.7%) do not have this feeling, while 22.1% have no opinion on this subject.

The ARMS scores obtained in the examined group of pulmonary patients ranged from 12 to 31 which means that there were the respondents who declared their strict compliance with all medical recommendations. The best possible minimum score was obtained by 2 respondents, while no one gained the maximum score that would suggest a total failure to comply with the recommendations. The average scores in the ARMS questionnaire was 17.65, hence it can be assumed that patients tried to follow medical recommendations quite well.

Tab. 1. Results of the ARMS and AIS scale in the studied group of patients

Scales [score] (N=136)	M±SD	Me	Min-Max	Q₁-Q₃
ARMS	17.65 ± 3.94	16	12 – 3 1	15 – 19
AIS	26.58 ± 9.87	27	8 – 40	19 – 35.25

M – arithmetic average; SD – standard deviation; Me – median; Min. – minimum; Max. – maximum; Q1 – bottom quartile; Q3 – top quartile;

In turn, the range of results in the AIS questionnaire was in the range of 8 – 40 points; the average result was 26.58 points. The largest group of patients accepted their disease to a moderate extent (Table 1).

The patients' compliance with therapeutic recommendations is significantly influenced by the diseases for which the respondents chronically suffer (p<0.05). The patients with chronic obstructive pulmonary disease follow their instructions less well than the patients struggling with bronchial asthma (Table 2).

According to the ARMS scale, the analysis does not show statistically significant differences (p>0.05) in the impact of demographic factors, i.e. age, gender, marital status, professional activity, education, living alone or with a family, on the compliance with therapeutic recommendations; only the respondents' place of residence was of some significance (p<0.05). It was shown that people living in cities of fewer than 100,000 inhabitants residents were less likely to follow recommendations than respondents living in large cities of over 100,000 people.

Tab. 2. Analysis of the relationship between compliance with therapeutic recommendations, the type of disease and the place of residence

Variables		ARMS scale [score]				
		N	M±SD	Me	Q₁-Q₃	p
Type of disease	Asthma	68	17.03 ± 3.73	16	15 - 18	0.033*
	COPD	68	18.27 ± 4.09	17	15 - 20.5	
Place of residence	Village	30	18.17 ± 3.71	17	16 - 19.75	0.046**
	A city below 100,000 inhabitants.	20	19.12 ± 4.47	18,5	15.75 - 21.25	
	A city of over 100,000 inhabitants.	86	17.13 ± 3.82	16	15 - 18	

M – arithmetic average; SD – standard deviation; Me – median; Min. – minimum; Max. – maximum; Q1 – bottom quartile; Q3 – top quartile; *Mann-Whitney test; **Kruskal-Wallis test + post-hoc analysis results (Dunn test);   p – level of statistical significance

When considering the analysis of the medical data contained in the own questionnaire and the ARMS scale results, it can be seen that such variables as the disease duration, the con-occurrence of other diseases and a sense of the due-to-disease limitation in the patient's life do not significantly affect the

compliance of therapeutic recommendations in the study group (p > 0.05).

The data obtained in the survey show that the average levels of all types of social support are higher than neutral levels, which proves that respondents can therefore count on each of these types of support; however, the buffer-protection support, for which the average is almost equal to the neutral level, seems to be an exception.

Tab. 3. Summary of social support levels

Skala BSSS (N = 136)	M±SD	Me	Min-Max	Q₁-Q₃
Perceived available support	27.54 ± 5.21	29	10-32	26-31
The need for support	11.49 ± 2.7	12	4-16	9-13
Seeking support	14.21 ± 3.72	15	5-20	12-17
Currently received support	50.96 ± 9.08	55	26-60	46-58
Buffer-protection support	14.71 ± 4.48	15	6-24	11-18

M – arithmetic average; SD – standard deviation; Me – median; Min. – minimum; Max. – maximum; Q1 – bottom quartile; Q3 – top quartile;

The analysis the buffer-protection support showed statistically significant differences dependent on the type of chronic disease (p <0.05). it also showed that people suffering from bronchial asthma can count on more support of this type than patients with COPD.

Tab. 4. Type of disease and social support according to the BSSS scale

BSSS scale	Type of disease	Scale BSSS [score]				
		N	M±SD	Me	Q₁-Q₃	p*
Perceived available support	Asthma	68	27.46 ± 5.71	29	26-32	0.51
	COPD	68	27.55 ± 4.71	29	26-31	
The need for support	Asthma	68	11.59 ± 2.55	12	9-13	0.970
	COPD	68	11.36 ± 2.86	12	10-13	
Seeking support	Asthma	68	14.13 ± 3.77	14,5	11.75-17	0.76
	COPD	68	14.27 ± 3.72	15	12-17	
Currently received support	Asthma	68	50.84 ± 9.26	55	46-58	0.95
	COPD	68	51.21 ± 8.98	55	46,5-57	
Buffer-protection support	Asthma	68	15.38 ± 4.67	16	12-18	0.05
	COPD	68	13.94 ± 4.15	13	10-17	

*Mann-Whitney test; p – level of statistical significance

The conducted statistical research showed the existence of a relationship between compliance with therapeutic recommendations and support received according to the BSSS social support scale. Compliance with recommendations significantly correlates negatively with the currently received support (p <0.05).

Tab.5. Correlation of compliance with recommendations and social support according to the BSSS scale

BSSS scale	Correlation with ARMS Correlation coefficient	p*	Dependency direction	Dependency strength
Perceived available support	-0.081	0.348	-	-
The need for support	0.045	0.599	-	-
Seeking support	0.032	0.712	-	-
Currently received support	-0.249	0.004	negative	very weak
Buffer-protection support	-0.078	0.368	-	-

* Spearman's correlation coefficient; p – level of statistical significance

The analysis showed that the respondents' illness duration of significantly correlated negatively with seeking social support (p <0.05).

Tab. 6. Correlation of illness duration and social support according to the BSSS scale

BSSS scale	Correlation with illness duration Correlation coefficient	p*	Dependency direction	Dependency strength
Perceived available support	0.007	0.938	-	-
The need for support	-0.070	0.420	-	-
Seeking support	-0.173	0.044	negative	very weak
Currently received support	-0.082	0.341	-	-
Buffer-protection support	-0.057	0.506	-	-

* Spearman's correlation coefficient; p-level of statistical significance

Discussion

In the own study, the respondents declared a fairly good level of compliance with therapeutic recommendations, although there were also people who followed the instructions to a meager extent. In the studied group of patients, the level of compliance was not affected either by demographic factors such as the patients' age, sex, marital status and professional activity or their education or living alone or with a family. The illness duration, the con-occurrence of other diseases and a sense of the due-to-disease limitation in the patient's life did not significantly affect the compliance of therapeutic recommendations.

The attempts to find connections between the patients' sex or age and their compliance with recommendations were also made in the studies conducted by Ágh et al. where no such relationship was established [5]. In some groups of respondents, the elderly cooperated better with their doctors, which was also pointed out by Ágh [5]; however, this was not confirmed in another study by George et al. concerning the patient population with COPD [13]. The better educated patients aware of the consequences

and the need for therapy would have been expected to follow the medical recommendations more closely. However, research conducted by Wiśniewski did not confirm any connections with the profession or education, place of residence or family situation [14]. The patients ill with COPD often suffer from other con-current chronic diseases; this requires applying more drugs and using different dosing schedules, which, in turn, leads to the patients' conscious modifications to the medical recommendations. The studies conducted by Restrepo et al. showed that there exists a negative relationship between a large number of drugs combined with a complicated dosage regimen and compliance with recommendations [15]. This kind of a relationship was also confirmed in the reports of Ágh et al. [5]; however, there are studies in which such a relationship was not found, which is confirmed by the analysis made by George et al. [13].

The conducted study showed that, out of the demographic data, the respondents' place of residence is significant to compliance with therapeutic recommendations. Similar research results were obtained by Pyrcza et al., where it was shown that the therapeutic recommendations scheme was neglected mainly by rural residents [16]. However, in another work carried out by Celczyńska et al. regarding compliance with medical recommendations by patients of family doctors in the city and in the countryside, no significant differences were found [17].

The level of disease acceptance can significantly affect the patient's adaptation to therapeutic recommendations. The patients participating in the own study mostly accepted their condition to a moderate extent. However, there were also patients who did not accept their disease, as well as those for whom the acceptance of their health problems was not a problem. The results obtained in the study conducted by Kupcewicz and Abramowicz among 96 patients with COPD were similar and the mean value of the study also showed an average level of acceptance in the group of pulmonary patients [18].

The studies by Olek et al., which covered patients with COPD, demonstrated that the increase in the level of disease acceptance significantly affected all aspects of life [19]. The own project showed that, in the studied group, the level of compliance with therapeutic recommendations was not significantly dependent on the disease acceptance. Martynow et al., however, obtained different results when conducting a study among patients with atrial fibrillation [20]. He proved that the disease acceptance had a positive effect on compliance with the recommendations, whereas the lack of such acceptance results in a lower level of compliance with therapeutic recommendations.

Studies show that social ties also have a positive impact on human health because they help a sick person retain health and prescribed therapy. Maintaining close or warm relationships with other people helps in adapting to negative life events and weakens the impact of stress, which makes it easier to deal with difficult situations [21,22]. It is pointed out that there are various types of support, but also sources of support, ex. people from the patient's immediate surroundings, i.e. family, friends, acquaintances, or social groups [21]. However, it is the family that is indicated as the primary source of support, especially in the case of chronic illness or disability [21,23].

The conducted own study shows that the average levels of all types of social support were higher than the neutral levels determined by the BSSS scale; this may indicate that the patients participating in the study could count on each of the possible types of support. Similar results were obtained by Guzińska et al. who examined patients with coronary heart disease in terms of the level of social support; the only scales used in the study were: perceived available support, the need for support and seeking social support [24].

The own research showed that there exists a relationship between the level of compliance with therapeutic recommendations and the amount of support received. The ARMS score correlates significantly with the support currently received by patients, thus this being a variable that affects compliance with therapeutic recommendations. Given the relationship obtained, it can be concluded that the more

support is received, the lower the ARMS score is and, thus, the better compliance with therapeutic recommendations in the studied group of patients. The research on social support among patients with chronic obstructive pulmonary disease was also conducted in the United States by Chen et al. [25]. The results of the study indicate that having a supportive person, guardian or spouse has a positive effect on physical activity, increased involvement in treatment or quitting smoking. However, no significant relationship between social support and regular use of medicines was demonstrated. Similarly, the research conducted by Khdour et al. proved that both marital status and living conditions were not associated with compliance with recommendations in the case of COPD [26]. In another study, however, married participants used the prescribed medication more often than single people [27]. A similar dependence was also shown by Trivedi et al. who found that caregivers, especially spouses, contributed to better compliance with therapeutic recommendations in patients with COPD when compared to patients left unattended [28].

The duration of a chronic disease significantly correlates negatively with seeking support. Therefore, the longer the patient experiences the disease and at the same time gets older, the more he limits the search for social support. Contrary to the own study results, those obtained by Kurpas et al. showed greater support gained by older respondents and increased expectations for various types of support as the body ages [29].

Conclusions

1. Patients with chronic bronchial asthma and COPD followed the therapeutic recommendations satisfactorily.
2. Patients living in large cities, as well as those suffering from asthma better adhered to therapeutic recommendations.
3. The level of acceptance of a pulmonary disease in the studied population did not have a significant impact on compliance with therapeutic recommendations.
4. The support provided to the patient by relatives, family, friends and community is vitally meaningful to the level of compliance with therapeutic recommendations.
5. It should be important for healthcare professionals to pay attention and take action in relation to people who are ill for a longer period of time and who are not active in seeking social support.

References

1. Price DB, Yawn BP, Jones RC. Improving the differential diagnosis of chronic obstructive pulmonary disease in primary care. Mayo Clin Proc. 2010; 85(12): 1122-1129.
2. Morisky DE, Di Matteo MR. Improving the measurement of self-reported medication nonadherence: Final response. J Clin Epidem 2011; 64: 258-263.
3. Garkina SV, Vavilova TV, Lebedev DS. Compliance and adherence to oral anticoagulation therapy in elderly patients with atrial fibrillation in the era of direct oral anticoagulants. J Geriatr Cardiol. 2016; 13(9): 807-810.
4. Kardas P. Przestrzeganie zaleceń terapeutycznych przez pacjentów podstawowej opieki zdrowotnej. Zdr Publ Zarz 2014; 12(4): 331-337.
5. Ágh T, Inotai A, Mészáros Á. Factors associated with medication adherence in patients with chronic obstructive pulmonary disease. Respiration 2011; 82(4): 328-334.
6. Król J, Szcześniak M, Koziarska D, et al. Akceptacja choroby i przestrzeganie czasu u osób leczonych immunomodulacyjnie z rzutowo-remisyjną postacią stwardnienia rozsianego (RR-SM).

Psychatr Pol 2015; 49(5): 911-920.

7. Kozieł P, Lomper K, Uchmanowicz B, et al. Związek akceptacji choroby oraz lęku i depresji z ocena jakości życia pacjentek z chorobą nowotworową gruczołu piersiowego. Med Paliat Prakt 2016; 10(1): 28-36.

8. Weldam SWM., Lammers JWJ., Decates RL, et al. Daily activities and health-related quality of life in patients with chronic obstructive pulmonary disease: psychological determinants: a cross-sectional study. Health Qual Life Outcomes 2013; 11: 190. Dostępny w Internecie: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4228311/ Dostęp: 15.01.2020.

9. Kaleta K, Mróz J. Percepcja relacji interpersonalnych a pozytywne zachowania zdrowotne dorosłych. Probl Hig Epidemiol 2012; 93(4): 779-784.

10. Lomper K, Chabowski M, Chudiak A, et. al. Psychometric evaluation of the Polish version of the Adherence to Refills and Medications Scale (ARMS) in adults with hypertension. Patient Prefer Adherence 2018; 12: 2661-2670.

11. Juczyński Z. Narzędzia pomiaru w promocji i psychoonkologii zdrowia. Wyd. 2. Warszawa: Pracownia Testów Psychologicznych 2009: 162-166.

12. Łuszczyńska A, Mazurkiewicz M, Kowalska M, et al. Berlińskie skale wsparcia społecznego (BSSS). Wyniki wstępnych badań nad rzetelnością i trafnością. Stud Psychol 2006; 44(3): 17-27.

13. George J, Kong DC, Thoman R, et al. Factors associated with medication nonadherence in patients with COPD. Chest 2005; 128(5): 3198–3204.

14. Wiśniewski D, Porzezińska M, Gruchała-Niedoszytko M, et al. Czynniki wpływające na stosowanie się chorych na POChP do zaleceń lekarskich i ich związek z występowaniem zaostrzeń choroby. Pneumonol Alergol Pol 2014; 82: 96–104.

15. Restrepo RD, Alvarez MT, Wittnebel LD. et al. Medication adherence issues in patients treated for COPD. Int J Chron Obstruct Pulmon Dis 2008; 3(3): 371–384.

16. 16.   Pyrcz P, Przysada G, Kędra M, et al. Realizacja zaleceń lekarskich przez pacjentów wypisanych z oddziałów rehabilitacji. Przegląd Medyczny Uniwersytetu Rzeszowskiego 2009; 3: 269-275.

17. Celczyńska-Bajew L, Ignaszak-Szczepaniak M, Posadzy-Małaczyńska A, et al. Przestrzeganie zaleceń lekarskich - czy istnieją różnice między pacjentami praktyk lekarzy rodzinnych w mieście i na wsi? Forum Med Rodz 2016; 10(2): 79–83.

18. Kupcewicz E, Abramowicz A. Wpływ wybranych czynników socjodemograficznych na stopień akceptacji choroby i poziom satysfakcji z życia u pacjentów leczonych z powodu przewlekłej obturacyjnej choroby płuc. Hygeia Public Health 2015; 50(1): 142-148.

19. Olek D, Uchmanowicz I, Chudiak A, et al. Wpływ akceptacji choroby na jakość życia chorych w przewlekłej obturacyjnej chorobie płuc. Probl Pieleg 2014; 22(4): 471-476.

20. Martynow A, Lefek K, Wierzbicka B, et al. Wpływ akceptacji choroby na dostosowanie się do zaleceń terapeutycznych chorych z migotaniem przedsionków. Journal of Education, Health and Sport 2017; 7(5): 154-170.

21. Knoll N, Schwarzer R. «Prawdziwych przyjaciół...» Wsparcie społeczne, stres, choroba i umieranie. [w:] Sęk Helena, Cieślak Roman (red.) Wsparcie społeczne, stres i zdrowie. Warszawa: Wyd. Naukowe PWN; 2011: 29-48.

22. Smoktunowicz E, Cieślak R, Żukowska K. Rola wsparcia społecznego w kontekście

23. Mirczak A. Determinanty wsparcia społecznego wśród starszych mieszkańców wsi. Labor et Educatio 2014; 4: 189-203.

24. Guzińska D, Kupc A, Borys B. Zasoby odporności na stres w procesie zdrowienia u pacjentów

z choroba niedokrwienną serca. Psychiatria 2007; 4(4): 144-152.

25. Chen Z, Fan SF, Belza B, et al. Association between Social Support and Self-Care Behaviors in Adults with Chronic Obstructive Pulmonary Disease. Ann Am Thorac Soc. 2017; 14(9): 1419–1427.

26. Khdour M, Hawwa A, Kidney J, et al. Potential risk factors for medication non-adherence in patients with chronic obstructive pulmonary disease (COPD). Eur J Clin Pharmacol 2012; 68: 1365–1373.

27. Rand C, Nides M, Cowles M, et al. The Lung Health Study Research Group. Long-term metered-dose inhaler adherence in a clinical trial. Am J Respir Crit Care Med 1995; 152: 580–588.

28. Trivedi R, Bryson C, Udris E. The influence of informal caregivers on adherence in COPD patients. Ann Behav Med 2012; 44: 66–72.

29. Kurpas D, Piotrowski P, Marciniak D, et al. Wsparcie społeczne a wybrane wskaźniki stanu zdrowia pacjentów podstawowej opieki zdrowotnej. Psychiatr Pol 2014; 48(5): 941–960.