

Anna Klak¹, Filip Raciborski¹, Edyta Krzych-Falta¹, Dagmara Opoczyńska-Świeżewska¹, Jakub Szymański¹, Agnieszka Lipiec¹, Barbara Piekarska¹, Adam Sybilski¹, Aneta Tomaszewska¹, Bolesław Samoliński^{1,2}

¹Department of Prevention of Environmental Hazards and Allergology, Medical University of Warsaw, Poland

²Head of Department of Prevention of Environmental Hazards and Allergology, Medical University of Warsaw, Poland

Persons with allergy symptoms use alternative medicine more often

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Abstract

Introduction: The aim of the study is to indicate the relation between the use of alternative medicine and the occurrence of allergic diseases in the Polish population of adults in the age of 20–44 years. Moreover the additional aim of the study is to define the relation between the sex, age and place of living and the use of alternative medicine.

Material and methods: The data from the project Epidemiology of Allergic Diseases in Poland (ECAP) has been used for analysis. This project was a continuation of the European Community Respiratory Health Survey II. The questions on alternative medicine were asked to the group of 4671 respondents in the age of 20–44 years. Additionally outpatient tests were performed in order to confirm the diagnosis of allergic diseases.

Results: The total of 22.2% of respondents that participated in the study have ever used alternative medicine ($n = 4621$). A statistically significant relation between the use of alternative medicine and declaration of allergic diseases and asthma symptoms has been demonstrated ($p < 0.001$). No statistically significant relation between the use of alternative medicine by persons diagnosed by a doctor with any form of asthma or seasonal allergic rhinitis ($p > 0.05$) has been demonstrated.

Conclusions: The occurrence of allergic diseases and asthma influences the frequency of alternative medicine use. However the frequency of alternative medicine use does not depend on allergic disease or asthma being confirmed by a doctor.

Key words: age, allergy, alternative medicine, asthma

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Introduction

Alternative medicine is increasingly used as a therapy supporting conventional methods. It can be also used as a standalone, individualised (depending on the symptoms declared at a given moment), holistic form of treatment. It is however a treatment programme that arouses numerous controversies. Alternative medicine is often based on folklore tradition, beliefs as well as shamanic rituals of different civilization circles. Unconventional medicine practices that are most often listed include: herbalism, homeopathy, energy

medicine, bioresonance, diets, megavitamin therapies, meditation and music therapy [1]. Their common denominator is the lack of invasiveness and potentially little harmfulness.

According to the survey carried out in the United States a significant increase in the number of patients using alternative medicine has been noted (from 33.8% in 1990 to 42.1% in 1997 ($p \leq 0.001$) [2]. In Germany on average 10% of males and as many as 20% of females in general population use homeopathic remedies [3]. American study showed that homeopathy is one of the most frequently used method of alternative

Address for correspondence: Anna Klak, Department of Prevention of Environmental Hazards and Allergology, Medical University of Warsaw, Banacha 1a, 02–097 Warsaw, Poland, Tel: +48 22 599 20 39, Fax: +48 22 599 20 42, e-mail: anna.klak@wum.edu.pl

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medicine for depression and otitis media, but also for bronchial asthma and allergic rhinitis. In these indications it is used more often than for hypertension or diabetes [4]. The authors of the document Allergic Rhinitis and Its Impact on Asthma (ARIA) do not recommend to use alternative/complementary medicine methods in the treatment of allergic rhinitis or bronchial asthma because of the low quality of scientific evidence that do not meet the standard of medicine based on facts (lack of: randomization, control group, blind experiment method or measurement of quantities) [5, 6].

According to the literature review carried out by Marlicz, these methods are not scientifically justified and their actual therapeutic effects have not been ascertained [1]. Most of the available scientific reports on unconventional medicine refer to the use of a specific alternative method of treatment for a given disease [7–9].

Both for allergic patients and general population in Poland and in the world, scientific reports on the use of alternative medicine are diverse in relation to the age, sex, level of education. Some indicate the relation between the age, sex, education as well as income and the use of unconventional medicine. Other, however, indicate the lack of such relation [1, 10–12]. Moreover the number of persons that use other types of methods which are non-recognized or unknown to modern science and therefore not used in medical practice, is still increasing. This phenomenon raises the question about motives or factors that compel patients to undergo treatment with the use of methods that are not scientifically justified.

Objective

To demonstrate how often unconventional methods of treatment of allergic diseases are being used and to evaluate whether there is a relation between sex, place of living and the use of alternative medicine in the Polish population of adults in the age of 20–44 years.

Material and methods

The Study has been carried out based on the results collected within the project Epidemiology of Allergic Diseases in Poland (ECAP). The questionnaire survey was completed with outpatient part. The project was based on the European Community Respiratory Health Survey II (ECRHS II) programme. The study areas (8 urban areas and 1 rural) were selected on purpose (non-probability sampling), whereas the respondents within

the areas were selected at random basis (from the collection of PESEL — national identification number) with the use of a cluster sampling. As a result representative sample for selected populations has been obtained. The interviews were carried out at the place of living of the respondents. A series of questions related to the specificity of the Polish project has been added to the combined questionnaire (ECRHS II questionnaire validated to Polish conditions) [13]. Additional questions referred to, among others, economic status, the use of alternative medicine, housing conditions, participation in voluntary vaccinations, etc. The questions on the use of alternative medicine were asked to 4 671 respondents in the age of 20–44 years. They have been asked only in 6 out of 9 study areas. The full content of the questions was the following:

1. Have you ever used alternative medicine, i.e. homeopathy, acupuncture, bioresonance, yoga or herbalism?

1.1. Have you ever used HOMEOPATHY?

1.1.2. Do you consider this therapy effective?

The questions on acupuncture, bioresonance, yoga or herbalism were composed according to the same pattern. The study referred only to urban population. Rural area (Zamojszczyzna) was not included in the analysis intentionally due to fact, that 1938 of 2055 respondents from that study area hadn't been asked about alternative medicine. As many as 4621 respondents were included in the analysis. Statistical analysis was carried out with the use of odds ratio and chi-squared test. P value less than 0.05 was considered statistically significant.

Table 1 presents the study group, specified by sex and study area (in the age of 20–44 years).

Results

Table 2 presents the participation of ECAP respondents in the age of 20–44 years that use alternative medicine, taking into account the study area and the sex. Total of 22.2% of all respondents participating in the study have ever used alternative medicine ($n = 4621$). The respondents living in Warsaw (35.8%) declared most frequent use of alternative medicine. The inhabitants of Poznań use alternative medicine significantly less often (11%) in comparison to the inhabitants of other study areas (Table 2).

In the group of persons that use alternative medicine to the question: “How many times have you used this type of practice within the last 12 months”, which was asked and in the case

Table 1. Characteristics of the study group

		Study area (test site)					Total	
		Cracow	Wroclaw	Gdańsk	Warsaw	Poznań		Białystok
Women		56.6%	61.0%	59.3%	57.6%	54.7%	59.5%	58.4%
Men		43.4%	39.0%	40.7%	42.4%	45.3%	40.5%	41.6%
Total	Number	770	559	796	349	574	1573	4621
	%	100	100	100	100	100	100	100

Table 2. The participation of person that have so far used alternative medicine in the study group

		Cracow (n = 770)	Wroclaw (n = 559)	Gdańsk (n = 796)	Warsaw (n = 349)	Poznań (n = 574)	Białystok (n = 1573)	Total (4621)
Women		21.1%	28.7%	26.9%	36.8%	13.4%	28.1%	25.81%
Men		13.8%	14.2%	17.9%	34.5%	8.1%	19.3%	17.2%
Total	Number	138	129	185	125	63	386	1026
	%	18.0%	23.1%	23.2%	35.8%	11.0%	24.6%	22.2%

Table 3. Percentage of answers to the question: “How many times have you used this type of practice within the last 12 months”

The frequency of alternative medicine use within the last 12 months	Types of alternative medicine				
	Homeopathy	Bioresonance	Acupuncture	Yoga	Herbalism
n	717	90	102	121	663
	%				
Respondent have not used within the last 12 months	47.3	63.3	68.6	35.5	25.2
1	20.6	7.8	14.7	5.0	11.9
2	9.9	5.6	3.9	3.3	9.7
3	7.0	2.2	ND	5.0	7.4
4	3.9	2.2	ND	5.8	5.3
5	3.6	ND	ND	1.7	5.6
6 and more (summed up values)	4.5	7.8	5.9	38.8	29.1

ND — no data

of homeopathy, bioresonance, acupuncture and herbalism, “once” was the most frequent answer (20.6%; 7.8%; 14.7%; 11.9% respectively). In the case of yoga “4 times” was the most common answer (5.8%) (Table 3).

Females use alternative medicine significantly more often in comparison with males (25.8%; 17.2% respectively; $p < 0.001$). Homeopathy was the most popular among all respondents. Statistically significant relation between the sex of the respondent and the use of homeopathy, yoga and herbalism has been demonstrated. Such relation has not been demonstrated for bioresonance and acupuncture (Table 4).

Statistically significant relation between the use of alternative medicine (up to now) and the older age of respondents ($p < 0.001$) has been demonstrated in the group of females. In the case of males such relation has not been observed ($p = 0.132$). The highest percentage of declarations of the alternative medicine use was observed in the case of homeopathy (69.4%). The highest effectiveness was assigned to herbalism (69.8% of respondents considered this method effective) (Table 5).

Statistically significant relation between the use of alternative medicine at any time and higher level of education of the study group has been demonstrated ($p < 0.001$). The percentage of

Table 4. Percentage of persons using homeopathy, bioresonance, yoga and herbalism (n = 4621)

Respondent until now used:	Sex		Total (%)	Significance
	Woman (%)	Man (%)		
Homeopathy	19.6	9.6	15.4	p < 0.001
Bioresonance (bicom)	1.7	1.9	1.8	p = 0.577
Acupuncture	2.1	2.1	2.1	p = 1.000
Yoga	3.3	1.4	2.5	p < 0.001
Herbalism	17.1	10.4	14.3	p < 0.001

Table 5. ECAP* respondents using particular methods of alternative medicine among persons following this type of treatment

Respondent until now used:	Percentage of persons using alternative medicine		Respondents who considered a given method of alternative medicine effective
	%	n	%
Homeopathy	69.4	713	59.2
Bioresonance (bicom)	8.1	83	41.1
Acupuncture	9.4	97	48.0
Yoga	11.3	116	64.5
Herbalism	64.3	660	69.8

*Epidemiology of Allergic Diseases in Poland

persons that use alternative medicine in individual education categories amounted respectively to: basic — 8%, lower-secondary — 8%, upper secondary — 19.8%, higher — 32.4%. Statistically significant relation between the use of alternative medicine at any time and higher monthly net income in a household declared by the respondents has been demonstrated (p < 0.001). Of the 4621 respondents, up 36.9% declared that they had a problem with sneezing, running or congested nose when they did not had a cold, fever or a flu. As many as 22.40% declared that they suffered from nasal allergies, including, nasal congestion caused by an allergy to pollen of plants (allergic rhinitis). Only 4% said that he has asthma. But 13.6% of respondents declared that they had experienced wheezes or whistles in the chest at any time during the last 12 months. Statistically significant relation between the use of different methods of alternative medicine at any time and the declaration of allergic symptoms has been demonstrated p < 0.001 (Table 6).

Outpatient tests have been carried out in the group of 1090 persons — 9.3% of the patients were diagnosed with asthma and over 29% with seasonal allergic rhinitis. Contrary to the questionnaire survey no statistically significant

relation has been demonstrated between the use of alternative medicine among the persons diagnosed by doctors with any type of asthma or seasonal allergic rhinitis (p > 0.05).

Discussion

Limitations

The basic limitation of the study is its questionnaire character. The data about alternative medicine obtained come from respondents' declarations and not from the direct observation of their behaviour. Secondly, alternative medicine was one of many topics analyzed in the ECAP study, and therefore the number of questions on this particular subject was limited. Thirdly, the question of the understanding of terms such as homeopathy, bioresonance, yoga can be a problem, especially among less educated people.

Comparison with prior studies

Torres-Llenz's team analysed in 2010 the use of complementary and alternative medicine in the case of children suffering from asthma. Two-dimensional analysis has demonstrated significant differences in the age group, ethnic origin, phenotype and asthma control between the group using

Table 6. The use of alternative medicine and declared symptoms of allergic diseases: asthma, wheezes and whistles in the chest, nasal allergic diseases

Respondent that has ever used:	Had asthma		Experienced wheezes or whistles in the chest at any time during last 12 months		Suffers from any nasal allergic diseases, including nasal congestion caused by the allergy to pollen of the plants (allergic rhinitis)		Experienced at any time problems with sneezing, running or congested nose while not having a cold, fever or a flu	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Alternative medicine, i.e.: homeopathy, acupuncture, bioresonance, yoga or herbalism	1.538	1.118–2.115	1.436	1.187–1.736	1.696	1.450–1.985	1.872	1.627–2.154
Homeopathy	1.649	1.162–2.340	1.238	0.992–1.545	1.815	1.522–2.164	2.030	1.728–2.385
Bioresonance	2.936	1.447–5.958	2.188	1.324–3.615	1.724	1.082–2.748	1.708	1.106–2.368
Acupuncture	3.458	1.855–6.447	1.893	1.168–3.067	1.816	1.186–2.780	1.842	1.230–2.758
Yoga	1.285	0.558–2.961	0.797	0.445–1.427	1.148	0.744–1.769	1.592	1.101–2.302
Herbalism	1.371	0.941–1.998	1.485	1.193–1.849	1.650	1.374–1.982	1.737	1.472–2.050

OR — odds ratio; CI — confidence interval

alternative medicine and the group that did not use this type of therapy. Multi-variable logistic regression has shown positive relation between the use of alternative medicine and young age, Asian origin, episodic and poorly controlled asthma [11]. In the present study statistically significant relation has been demonstrated between the declared symptoms of bronchial asthma and the use of unconventional treatment methods. Such relation has not been demonstrated for persons diagnosed with asthma. It should be however noted that the results of the ECAP study have shown that in the group of persons that have been diagnosed with asthma during outpatient tests (n = 505) as many as 66.9% (n = 338) were not aware of the disease. No significant difference between the lack of asthma diagnosis in urban and rural areas was found [14].

American studies show that the frequent use of alternative medicine by adolescent patients suffering from asthma influences better quality of life [15]. In the view of Turkish report herbalism is the most frequently used unconventional therapy in the group of patients suffering from asthma and chronic obstructive pulmonary disease (COPD) (46% and 28% in both groups)[16]. According to our study homeopathy is the most frequently used. The results have also demonstrated the dependency between the use of alternative medicine and the younger age of asthma patients and higher income of COPD patients. In the case of most patients' friends and relatives were the source of information on alternative medicine [16].

Shafel et al. implemented homeopathic treatment as a method supporting conventional therapy in the group of 30 children diagnosed with bronchial asthma. After 6 weeks of treatment a significant increase by 13% of FEV₁ in spirometry has been noted [17]. The results of the studies indicate that homeopathic immunotherapy has been increasingly recognized, particularly in the group of patients diagnosed with seasonal allergic rhinitis or bronchial asthma. Aabell et al. used homeopathic medicine *Betula 30c* during 20 days in the group of patients diagnosed with birch pollen allergy, in a double-blind randomized placebo controlled study and demonstrated that the symptoms were definitely more perceptible than in the placebo group [18]. Lewith et al. carried out studies in the group of 28 patients with bronchial asthma that have been treated with a highly diluted medicine (without active compound) during 12 weeks and observed clear difference between the group that received the medicine vs. placebo group [19]. Roll et al. reported a multicentre, randomized blind study carried out in the group of 135 children with the use of SCORAD (Scoring Atopic Dermatitis). The scoring compared with the group treated with conventional methods did not improve. Additionally after the pharmacoeconomic analysis the increase in financial expenditure by the patients has been noted for the treatment with homeopathic medicine [20].

Marlicz quotes the results of a German study carried out among 1001 adults with average age of 48 years. As many as 79.6% of the respon-

dents complained of health problems. Females prevailed in the study group using alternative medicine, amounting to 72.8%; (OR: 2.32; CI: 1.74–3.08), together with persons with higher education (OR: 3.25; CI: 1.35–7.81). Main health problems for which alternative medicine has been used included: chronic pain (36.3%), cold without complications (16.9%) and the willingness to improve general health status (14.7%). Acupuncture (34.5%) and homeopathy (27.3%) were the most frequently used [1]. In the present study most frequently used methods were homeopathy and herbalism. In other German study indicated significant differences between males and females with regards to the use of alternative medicine [12], confirmed also by the results of the present study. Cizmesija presented similar results. In the group of 941 Croatian respondents herbalism (38%), homeopathy (15.6%) and acupuncture (13.1%) were among the most frequently used [21]. As many as 53.5% of respondents used alternative medicine to complement conventional treatment. Dietary supplements, natural therapeutic products and homeopathic medicine were used by 80.1% of respondents. The patients decided to use alternative medicine because they were convinced that this method will help them recover (27%). More than half of the patients consulted the use of alternative medicine with their physician (59.6%), whereas the majority of respondents (81.7%) would like to consult it with their physician. Cizmesija confirmed also statistically significant relation between more frequent use of alternative medicine and older age of respondents and their higher education [21].

Caliskaner carried out a study with 395 patients (154 males and 241 females) suffering from respiratory system diseases as well as dermatitis (atopic and non-atopic) [22]. The average age of the respondents amounted to 33.50 ± 12.14 years (9 to 80 years). The study indicated that 64.3% of the respondents use herbalism. Statistically significant relation between the use of herbal products and female sex has been confirmed ($p = 0.043$) as well as between the age of over 30 ($p = 0.024$). No statistically significant relation between the use of alternative medicine and positive skin prick tests was confirmed [22]. The results of the present study do not confirm the relation between allergic disease diagnosis and the use of alternative medicine either.

Marino analysed the data of Behavioral Risk Factor Surveillance System (BRFSS) 2006 from the subset of 25 countries [23]. According to the results the frequency of alternative medicine use

among adults diagnosed with asthma amounted to 39.6% (95% CI: 36.9–42.3). Statistically significant relation between the use of alternative medicine and financial issues related to the treatment of asthma was demonstrated (OR = 2.8; 95% CI: 1.9–4.1), as well as emergency visits caused by asthma symptoms (OR = 1.7; 95% CI: 1.1–2.6). Different results were presented by Metcalfe et al. in 2010 – positive correlation between the use of alternative medicine and higher education as well as higher income was observed [24]. It may be concluded from Metcalfe's study that persons suffering from asthma and migraine, used alternative medicine more often in the past than general population: (OR = 1.29; 95% CI: 1.23–1.36) and (OR = 1.78; 95% CI: 1.71–1.86) respectively. Most often used therapies of alternative medicine include: acupuncture (OR = 18.3; 95% CI: 17.7–18.4), homeopathy (OR = 18.2; 95% CI: 17.7–18.8), chiropractic (OR = 11.3; 95% CI: 11.1–11.4), herbalism (OR = 5.2; 95% CI: 4.9–5.6).

Comparison of the results of the present statistical analysis with the results obtained by other researchers indicates that persons with higher education tend to use alternative medicine methods more often than less educated [1, 21–26]. It is possible that this is related to the understanding of respondents' definition of "alternative medicine" or "income level". People with lower levels of education may not know what it is, for example homeopathy, bioresonance, acupuncture. These treatments are not funded by the National Health Fund. So potentially better access to them is restricted to people with higher incomes who can afford to "experiments". On the other hand, these results are contrary to our intuition, because we assume that the level of knowledge will be negatively correlated with the use of alternative medicine. In Poland, this is a complex issue, an example of which is the creation of the post-graduate studies on homeopathy in one of the medical universities. There is a need to carry out further studies on unconventional treatment methods. This issue is particularly significant for public health because of high percentage of patients using this type of therapy.

Conclusions

1. The study has demonstrated significant relation between the symptoms of allergic diseases and asthma declared by the respondents and the frequency of alternative medicine use.
2. Clinical diagnosis of allergic disease or asthma does not influence the frequency of alternative medicine use.

3. The use of alternative medicine is more frequent among females.
4. In the group of females there is additional relation between the age and the use of alternative medicine at any time.
5. The research centre has minor influence on the frequency of alternative medicine use.

Conflict of interest

The authors declare no conflict of interest.

References:

1. Marlicz K. Alternative medicine in the contemporary clinical oncology. *Gastroenterol Pol* 2003; 10: 277–279.
2. Eisenberg DM, Davis RB, Ettner SL et al. Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA* 1998; 280: 1569–1575.
3. Härtel U, Volger E. Inanspruchnahme und Akzeptanz von klassischen Naturheilverfahren und alternativen Heilmethoden in Deutschland. Ergebnisse einer repräsentativen Bevölkerungsstudie. *Das Gesundheitswesen* 2003; 65: A35. German.
4. Witt CM, Lüdtke R, Baur R et al. Homeopathic medical practice: Long-term results of a cohort study with 3981 patients. *BMC Public Health* 2005; 3: 115.
5. Bousquet J, Khalataev N, Cruz AA et al. Allergic Rhinitis and its Impact on Asthma (ARIA) 2008. *Alergia Astma Immunologia Kliniczna* 2008; 13: 3–39.
6. Brożek JL, Bousquet CE, Baena-Cagnani CE et al. Wytuczne postępowania w alergicznym nieżycie nosa — ARIA 2010. *Medycyna praktyczna* 2010; 4: 15–19.
7. Glińska A, Siczka J, Tarnowska C et al. Selected issues regarding implementing alternative medicine with special reference to the patients with laryngological problems. *Pol Merkur Lekarski* 2009; 26: 239–244.
8. Kruszewski J. Diagnosis of allergic diseases. *Pol Merkur Lekarski* 2003; 14: 541–544.
9. Rutkowski R, Rutkowski K. Vocal cord dysfunction or bronchial asthma? *Pol Merkur Lekarski* 2005; 18: 715–719.
10. Wolański L, Stanisławek A, Kachaniuk H. Knowledge of the term and methods of alternative medicine in the example of the patients of one bioresonance practice. *Pol Merkur Lekarski* 2007; 23: 430–434.
11. Torres-Llenza V, Bhogal S, Davis M et al. Use of complementary and alternative medicine in children with asthma. *Can Respir J* 2010; 17: 183–189.
12. Büssing A, Ostermann T, Heusser P et al. Usage of alternative medical systems, acupuncture, homeopathy and anthroposophic medicine, by older German adults. *Zhong Xi Yi Jie He Xue Bao* 2011; 9: 847–856.
13. Samoliński B. Report of Epidemiology of Allergic Diseases in Poland; <http://www.ecap.pl/>; 2.12.2016.
14. Komorowski J. Epidemiology of asthma in Poland based on the results of the ECAP. Warsaw: Medical University of Warsaw 2012.
15. Luberto CM, Yi MS, Tsevat J et al. Complementary and alternative medicine use and psychosocial outcomes among urban adolescents with asthma. *J Asthma* 2012; 49: 409–415.
16. Argüder E, Bavbek S, Sen E et al. Is there any difference in the use of complementary and alternative therapies in patients asthma and COPD? A cross-sectional survey. *J Asthma* 2009; 46: 252–258.
17. Shafei HF, AbdelDayem SM, Mohamed NH. Individualized homeopathy in a group of Egyptian asthmatic children. *Homeopathy* 2012; 101: 224–230.
18. Aabel S. Prophylactic and acute treatment with the homeopathic medicine *Betula 30c* for birch pollen allergy: a double-blind, randomized, placebocontrolled study of consistency of VAS responses. *British Homeopathic Journal* 2001; 90: 73–78.
19. Lewith GT. Use of ultramolecular potencies of allergen to treat asthmatic people allergic to house dust mite: double blind randomised controlled clinical trial. *BMJ* 2002; 324: 520.
20. Roll S, Reinhold T, Pach D et al. Comparative effectiveness of homoeopathic vs. conventional therapy in usual care of atopic eczema in children: long-term medical and economic outcomes. *PLoS One* 2013; 8: e54973.
21. Cizmesija T, Bergman- Marković B. Use of complementary and alternative medicine among the patients in primary health care. *Acta Med Croatica* 2008; 62: 15–22.
22. Galiskaner Z, Kartal Z, Gulec O et al. Awareness of allergy patients about herbal remedies: a cross-sectional study of residents of Ankara, Turkey. *Allergol Immunopathol* 2010; 38: 78–82.
23. Marino LA, Shen J. Characteristics of complementary and alternative medicine use among adults with current asthma 2006. *J Asthma* 2010; 47: 521–525.
24. Metcalfe A, Williams J, McChesney J et al. Use of complementary and alternative medicine by those with a chronic disease and the general population — results of a national population based survey. *BMC Complementary and Alternative Medicine* 2010; 10: 58–60.
25. Marshik PL, Kharat AA, Jakeman B et al. Complementary and Alternative Medicine and Therapy Use in a Diverse New Mexican Population. *J Altern Complement Med.* 2016; 22: 45–51.
26. D’Arena G, Laurenti L, Coscia M et al. Complementary and alternative medicine use in patients with chronic lymphocytic leukemia: an Italian multicentric survey. *Leuk Lymphoma* 2014; 55: 841–847.