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Use of complementary and alternative medicine in patients with cancer and their relationship with health behaviours – Cross-sectional study

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Abstract

Introduction and objective. Although the use of complementary and alternative medicine (CAM) is common with Polish cancer patients, little is known about cancer patients' methods of using CAM and how it correlates with their health behaviour. The aim of the study was to determine the scope of application of complementary and alternative medicine methods among patients treated by oncology and to compare the health behaviours of patients who use alternative medicine with those who do not use these methods.

Materials and method. The studies were conducted from August 2019 – January 2020 in an Oncology Centre in south-eastern Poland. A cross-sectional study was conducted in a group of 208 oncological patients. The authors' own questionnaire and the standardized Health Behaviour Inventory were used.

Results. Most of the patients (85.09%) declared that they used complementary and alternative medicine methods. 45.19% of the respondents had a high rate of health behaviours. It was observed that there was no communication related to the use of CAM among the patients and healthcare staff. Patients using CAM demonstrated more positive health behaviours than those who were not using these methods ($p<0.001$).

Conclusions. The majority of the surveyed patients suffering from cancer used complementary and alternative medicine and declared that it was very or slightly effective in strengthening the immune system and helpful in fighting cancer. The patients who used CAM exhibited a higher level of health behaviours than those who did not use these methods.

Key words

cancer, alternative medicine, complementary medicine, health behaviours

INTRODUCTION

The search for methods of treatment other than conventional might be caused by a fear of symptoms resulting from the progress of the disease and systematic anticancer therapy, high mortality, and the great determination of patients and their families who strive for remission of the disease [1]. An increasing number of patients with cancer decide to use complementary and alternative medicine as an active way of coping with the physical, psychological and spiritual consequences associated with the disease [2, 3, 4].

Complementary and Alternative Medicine (CAM) includes medical products and practices that do not constitute a part of standard hale been studied thoroughly and their safety and effectiveness confirmed. Other terapie, however, were found to be ineffective and potentially harmful [5]. Information on numerous therapies carried out as part of alternative and complementary medicine is limited and the studies take a lot of time [6]. Many cancer patients are looking for CAM therapies to relive the symptoms or side-effects of chemotherapy or radiotherapy [7, 8].

Biological products can often have biomedical effects that affect health, and it is imperative that clinicians/nurses are aware of all products that their patients are taking. The process of mutual communication between doctors and patients regarding the use of CAM is extremely important [9]. In addition, it would be beneficial to increase training opportunities for healthcare professionals who wish to learn more about CAM and educate patients about potential interactions with conventional treatments.

Active participation of patients in the treatment of cancer should be associated with a high level of patient's knowledge about the disease and behaviours supporting the recovery, cooperation with the therapeutic team s well as alternative methods of treatment. Health behaviours, as a factor strongly related to health or disease, could be a health determinant that helps in recovery, but also with predominance of anti-

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health activities, they might also be the cause of cancer [10, 11].

Health behaviors are all human behaviors that are related to health and disease. Health behaviours are part of everyday life and affect health. They are the activities of applying knowledge about health and disease. Health behaviors are factors over which humans have the greatest control [12]. Kasl and Cobb distinguish as correct health behaviors, among others, proper nutrition, the ability to deal with stress, regular physical activity, taking preventive measures, e.g., preventive vaccinations and screening tests. The negative health behaviors include, among others, smoking, alcohol and drug abuse, the use of other addictive substances and a tendency to risky behaviour. Positive health behaviors after cancer diagnosis most often include the cessation of smoking and drinking, healthy eating and increased physical activity, and their importance in maintaining health is scientifically proven [13]. CAM methods can represent an extended range of health behaviours used by cancer patients.

In Poland, there is no reliable data on the use of CAM by oncological patients, and since 2017, there has been an educational website launched by the Polish League to Fight Cancer *(Polska Liga Walki z Rakiem*) devoted to alternative and complementary methods used by patients suffering from cancer [14].

Analyzing the published studies conducted in Australia, Canada, Europe and the United States on the use of complementary and alternative medicine, Horneber et al. noticed an increase in the use of CAM among patients with diagnosed cancer, from 25% in 1970–1980 to 32% in the 1990s. and 49% after 2000 [2]. The available Polish and English source literature do not provide any reports on studies related to the relationships between the use of complementary and alternative medicine and health behaviours of oncological patients.

The use of CAM has grown in popularity and this has been the subject of much scientific research; however, robust evidence on the effectiveness of most CAMs or their potential to interfere with or interact with conventional treatments is still limited [15].

In a large cohort study involving 1,901,815 patients with curable cancers, the use of CAM differentiates the group according to several factors associated with refusal to use conventional cancer treatment and with a twice higher risk of death, compared to the patients who did not use CAM [16]. This evidence may be a reason for the negative opinion of the medical community regarding the use of CAM by patients.

However, effective CAM methods used to alleviate the side-effects of disease or treatment include, e.g. ginger, turmeric, cannabis, yoga, and acupuncture. Ginger has long been used as a natural antiemetic and anti-nausea. Studies show that adding ginger to standard antiemetic therapy in patients receiving chemotherapy reduces the incidence of delayed vomiting [17]. The use of turmeric affects the delay and reduction of the severity of oral mucositis in patients with head and neck cancer undergoing radiotherapy by gargling with turmeric solution [18]. Studies have shown that cannabidiol contained in cannabis reduces nausea, pain and inhibits the growth of certain cancers (glioblastoma, breast, lung, colon, and prostate cancer) [19].

Yoga is an ancient practice that connects the mind and body. Breathing exercises, stretching exercises, and yoga meditation can help alleviate many ailments associated with the cancer process and the side-effects of treatment such as depression, pain, nausea, and fatigue [20]. Acupuncture is the stimulation of specific points on the body (acupuncture points) with needles, heat or pressure to control / reduce symptoms such as pain, nausea and vomiting. Acupuncture has been studied to relieve cancer pain. It has been shown that acupuncture used alone was not more effective than pharmacotherapy, but combination therapy results in faster pain relief, longer remission and improved quality of life [21]. Most of the methods of complementary and alternative medicine help to eliminate only selected symptoms of the disease in individual disease entities. The use of additional dietary supplements or herbs may not only be ineffective but also additionally burden the body or evenbe harmful. The biggest risk is the abandonment of systemic treatment in favour of alternative medicine.

OBJECTIVE

What is the status of the use of complementary and alternative medicine methods and is there a relationship between their use and health behaviors among cancer patients?

MATERIALS AND METHOD

Design. The cross-sectional study using the diagnostic survey method were conducted from August – January 2020 in an Oncology Centre in the south-eastern Poland. Moreover, a survey was placed on Internet forums and social networking sites (Facebook, zwrotnikraka.pl, forumonkologiczne.pl) related to cancer and unconventional treatment. A total of 280 questionnaires were distributed, 189 of which were returnem (67.5% response). Due to the fact that some questionnaires were not fully completed, 29 persons were excluded from the study. 48 responses were also received from the online form. Altogether, 208 patients took part in the study.

Method. Our CAM use questionnaire was developed after a search of literature about complementary and alternative medicine use in cancer patients. CAM methods included in the questionnaire ware based on National Centre for Complementary and Integrative Health. The CAMs were divided into 3 categories, each containing several candidates:

- Natural products, such as Vitamin C, green tea, vitamin D or turmeric.
- Body and mind practises, such as prayer, special diet, relaxation, meditation or yoga.
- Other Alternative medical systems, such as Traditional Chinese Medicine or homeopaty.

In order to measure the use of complementary and alternative medicine, the authors' own questionnaire was used which contains 9 closed and open questions, single and multiple choice. The open-ended responses were optional and allowed the participants to report any other CAM practices that were not included in the survey. The questions concerned socio-demographic data, type of cancer, time passed since diagnosis of the disease, type of past and present treatment, knowledge and use of selected methods of complementary medicine, reasons why patients decided to use or not to use complementary medicine, benefits perceived while using

CAM, and sources of knowledge and consultations with a doctor on using complementary and alternative medicine. In order to measure health behaviours, a standardized tool – Zygfryd Juczyński's the Health Behaviour Inventory, HBI *(Inwentarz Zachowań Zdrowotnych m- IZZ)* This makes it possible to assess the intensity of health-promoting behaviours (HP), as well as to assess the intensity indicator in 4 categories of health-related behaviours: PH1 – proper eating habits, a type of food eaten, PB – preventive behaviours, adherence to health recommendations, obtaining information about health and disease, PA2 – positive mental attitude, avoiding too strong emotions, stress and depressing situations, and HP – health practices, daily habits, sleep, rest, and physical activity.

The value of the overall HBI indicator ranges from 24–120 points. The higher the result, the higher the intensity of the declared pro-health behaviours. After conversion into standardized units, this indicator is subject to interpretation in sten scores [22].

Statistical analysis. The results obtained were coded in the Microsoft Office 2010 Excel database prepared for the purpose of the study and their statistical analysis conducted using Statistica 9.1. The values of the measurable parameters analyzed were presented using the mean value and standard deviation, and for the unmeasurable – using numbers and percentages. In order to examine the differences in measurable parameters between the 2 groups, the Shapiro-Wilk, Student's t-test and Mann-Whitney's U test were applied. The Shapiro-Wilk (S-W) test was used to check the normality of the distribution of a random variable. In the case of the significance level for the S-W test lower than 0.05, the hypothesis assuming that the distribution of the examined feature is a normal distribution was rejected. In this situation, non-parametric tests were used. If the null hypothesis was not rejected ($p>0.05$), parametric tests were used (the distribution of the examined feature is a normal distribution).

The level of significance of $p<0.05$ was adopted, indicating the existence of statistically significant differences and dependencies.

Ethics. This research was carried out in accordance with the principles of the Helsinki Declaration and approved by the Bioethics Committee of the Medical University (N. KE-0254/128/2018). The survey was conducted after obtaining the consent of the Director of the healthcare centre. Participation in the study was voluntary and anonymous. Each patient was informed about the purpose of the study and how to complete the questionnaire, after which consent to take part in the study was obtained.

RESULTS

53.85% of 208 surveyed patients were male. The largest age group (33.17%) were patients in the 60–69 age group. Most of the respondents (62.98%) declared that they lived in a city/town. The most common type of cancer that the respondents were suffering from was colorectal cancer (19.71%) and lung cancer (12.02%). More than half of the surveyed group (53.85%) were persons with less than a year after the disease had been diagnosed (Tab. 1).

Table 1. Characteristics of the group participating in the survey

Variable		n	%
Age [years]	18–39	21	10.1 %
	40–49	39	18.75 %
	50–59	51	24.52 %
	60–69	69	33.17 %
	70–80	28	13.46 %
Gender	Female	96	45.16%
	Male	112	53.85%
Education	Elementary	15	7.21 %
	Vocational	58	27.88 %
	Secondary	70	33.65 %
	Higher	65	31.25 %
Professional status	Employed	81	38.94%
	Unemployed	12	5.77 %
	Retired with a disability pension	37	17.79%
	Retired	78	37.5%
Place of living	Village	77	37.02 %
	City/town	131	62.98 %
Marital status	Married	165	79.33 %
	Single	26	12.5 %
	Widowed	17	8.17 %
Type of cancer	Colorectal	41	19.71%
	Lung	25	12.02%
	Breast	20	9.62%
	Gynaecological	19	9.13%
	Prostate	18	8.65%
	Genito-urinary	14	6.73%
	Digestive system	14	6.73%
	Oral cavity	13	6.25%
	ENT	12	5.77%
	Brain	10	4.81%
	Lymphoma	10	4.81%
	Other	12	5.77%
Time since the disease started	0-1 year	112	53.85%
	1-2 years	45	21.63%
	More than 3 years	51	24.52%

More than half of the respondents knew the definition of complementary medicine (46.15%), 28.37% confused complementary medicine with alternative medicine, whereas 25.48% of the respondents believed that complementary medicine involved additional medicines prescribed by a doctor.

The use complementary and alternative medicine was declared by 177 out of 208 patients (85.09%), of whom 10.58% of the respondents declared using alternative medicine exclusively.

Among the respondents using CAM, the most popular were Vitamin C, prayer and green tea (Tab. 2).

The most common reasons that encouraged the patients to use CAM were increased chances of recovery (67.80%), an improvement in general condition of the body and immunity (66.67%) and a reduction of treatment side effects (33.33%). The factors that discouraged them from

Table 2. Methods and frequency of the use of CAM by the respondents

CAM methods	n	%
Natural products		
Vitamin C	117	66.10%
Green tea	93	52.54%
Vitamin D	89	50.28%
Curcuma	86	48.59%
Multivitamins	81	45.76%
Herbs	80	45.20%
Ginger	76	42.94%
Probiotics	74	41.81%
Minerals	64	36.16%
B17	50	28.25%
Marijuana	33	18.64%
Body and mind practices		
Prayer	128	72.32%
Special diet	52	29.38%
Relaxation	37	20.90%
Massage	32	18.08%
Meditation	22	12.43%
Yoga	12	6.78%
Aromatherapy	10	5.65%
Other		
Homeopathy	14	7.91%
Traditional healers	11	6.21%
Traditional Chinese Medicine	10	5.65%
Frequency of use		
Every day	91	51.48%
A few times per week	51	28.81%
Less frequently	28	19.77%

Table 3. Factors determining an increase in the frequency of using CAM

Variable analyzed	Use of alternative and complementary medicine method		Chi^2 p
	using	not using	
Time since disease diagnosis			
0–1 year	89 79.46%	23 20.54%	
1–2 years	39 86.67%	6 13.33%	$Chi^2 = 7.739$ $p = 0.021$
Over 2 years	49 96.08%	2 3.92%	
Gender			
Males	89 92.71%	7 7.29%	$Chi^2 = 8.146$ $p = 0.004$
Females	88 78.57%	24 21.47%	
Education			
Primary/ vocational	56 76.71%	17 23.29%	
Secondary	60 85.71%	10 14.29%	$Chi^2 = 7.991$ $p = 0.018$
Higher	61 93.85%	4 6.15%	
Place of residence			
City/town	60 77.92%	17 22.08%	$Chi^2 = 4.961$ $p = 0.026$
Village	117 89.31%	14 10.69%	
Age			
Up to 50 years	60 92.31%	5 7.69%	
51-65 years	68 80.00%	17 20.0%	$Chi^2 = 4.423$ $p = 0.110$
Over 65 years	49 84.48%	9 15.52%	
Marital status			
Married	139 84.24%	26 15.76%	$Chi^2_Y = 0.191$ $p = 0.662$
Single/widowed	38 88.37%	5 11.63%	

Chi^2_Y – Chi-square test with Yates correction

using CAM included lack of knowledge about the methods (39.9%) and a fear of unknown methods (19.23%). Over half of the patients (51.41%) declared that they used alternative medicine methods every day and 28.81% a few times per week. According to the subjective assessment of almost half of the respondents (46.33%), the use of CAM was very helpful for them, for 42.37% – slightly helpful. The patients declared that the methods of alternative medicine were helpful in boosting the immune system (54.2%), helpful in fighting cancer (38.42%) and improving the quality of life (34.46%). For almost half (46.15%) of the respondents, the source of information on CAM was the Internet, then family (37.02%) and friends (35.1%). As many as 71.19% of the patients did not inform their oncologist about the use of complementary and alternative medicine. 32 out of 51 persons (62.75%) who informed their doctor about using CAM gained his/her approval.

CAM was used more often by the patients with more than 2 years after the diagnosis and by male persons with higher education, living in a village (Tab. 3).

Almost half of the patients (46.15%) exhibited a high rate of health behaviours, whereas 40.39% – an average rate, the remaining patients – a low rate, i.e. 13.46%. The higher rate of health behaviours was exhibited more often by persons with more than 2 years after the disease diagnosis, and by males over 65 years old, with higher education, living in a village (Tab. 4).

A statistically significant dependence was found between the health behaviour indicator and the use of complementary and alternative medicine (p=0.001); the patients using CAM exhibited a higher level of health behaviours in comparison to the patients who did not use these methods. In the case of the analysis of individual HBI categories, in relation to using or not using complementary and alternative medicine, significant statistical results were obtained for the health behaviour indicator (sten) p<0.001, correct eating habits p<0.001 and positive mental attitudes (p=0.002). Higher results were obtained by the patients using complementary and alternative medicine methods (Tab. 5).

Table 4. Factors determining positive health behaviours (HBI)

Variable analyzed	Level of health behaviour indicator			Chi² p
	low	average	high	
Time since disease diagnosis				
0–1 year	17 15.18%	52 46.43%	43 38.39%	Chi² = 9.898 p = 0.041
1–2 years	6 13.33%	19 42.22%	20 44.44%	
Over 2 years	5 9.80%	13 25.49%	33 64.71%	
Gender				
Males	8 8.33%	32 33.33%	56 58.33%	Chi² = 11.408 p = 0.003
Females	20 17.86%	52 46.43%	40 35.71%	

PB	Independent variable analyzed									Type of test	p	intergroup differences
Age												
	up to 50 years			51–65 years			over 65 years					
	M	Me	SD	M	Me	SD	M	Me	SD	H		
HBI (sten)	6.43	6.00	1.83	6.42	6.00	1.78	6.24	6.00	1.84	0.112[B]	0.945	–
HP	3.58	3.50	0.74	3.69	3.67	0.70	3.96	4.00	0.63	9.315	**0.010**	**1<3**
PH1	3.68	3.67	0.67	3.63	3.50	0.76	3.44	3.58	0.71	2.627[B]	0.269	–
PB	3.61	3.67	0.71	3.67	3.67	0.61	3.62	3.75	0.72	0.202[A]	0.817	–
PA2	3.76	3.83	0.62	3.82	3.83	0.69	3.73	3.83	0.67	0.529[B]	0.768	–
Education												
	primary/vocational			secondary			higher					
	M	Me	SD	M	Me	SD	M	Me	SD	F/ H		
HBI (sten)	5.89	6.00	1.89	6.64	7.00	1.62	6.63	6.00	1.81	6.922[H]	**0.031**	~1<2
PH1	3.31	3.33	0.74	3.65	3.67	0.69	3.84	3.83	0.62	10.700[F]	**<0.001**	1<2. 1<3
PB	3.62	3.67	0.73	3.73	3.75	0.61	3.55	3.50	0.67	1.268[A]	0.283	**–**
PA2	3.70	3.83	0.69	3.80	3.83	0.58	3.85	3.83	0.71	1.881 [A]	0.391	**–**
HP	3.70	3.83	0.74	3.78	3.83	0.66	3.71	3.67	0.72	0.418	0.811	**–**
Sex												
	Males			Females								
	M	Me	SD	M	Me	SD				t / Z		
HBI (sten)	6.93	7.00	1.67	5.90	6.00	1.79				4.105[Z]	**<0.001**	
PH1	3.80	3.83	0.68	3.41	3.42	0.71				4.046[t]	**<0.001**	
PB	3.71	3.67	0.63	3.58	3.58	0.71				1.371[t]	0.172	
PA2	3.73	3.83	0.71	3.82	3.83	0.61				-0.969[Z]	0.332	
HP	3.73	3.83	0.69	3.73	3.83	0.73				-0.151[Z]	0.880	
Place of residence												
	City/Town			Village								
	M	Me	SD	M	Me	SD				Z		
HBI (sten)	5.96	6.00	1.87	6.62	6.00	1.73				-2.188	**0.029**	
PH1	3.37	3.50	0.76	3.72	3.83	0.66				-3.078	**0.002**	
PB	3.55	3.67	0.66	3.69	3.67	0.68				-1.345	0.179	
PA2	3.70	3.83	0.70	3.82	3.83	0.64				-1.098	0,.272	
HP	3.69	3.67	0.72	3.75	3.83	0.70				-0.615	0.539	

M – mean; Me – median; SD **–** standard deviation; F – analysis of variance ANOVA; H – Kruskal-Wallis H test;
T – Student's t-test; Z – Mann-Whitney U test; p – significance level

Table 5. Health behaviours according to HBI and use of CAM

Level of health behaviour indicator	Use of complementary and alternative medicine methods						Chi^2 p	
	using			not using				
low	19			9				
	67.86%			32.14%				
average	68			16			$Chi^2 = 13.367$ p = 0.001	
	80.95%			19.05%				
high	90			6				
	93.75%			6.25%				
Variable analyzed	Use of complementary and alternative medicine methods							
	using			not using			Z	p
	M	Me	SD	M	Me	SD		
HBI (sten)	6.59	7.00	1.74	5.16	5.00	1.68	3.917	**<0.001**
PH1	3.70	3.83	0.67	2.97	3.00	0.67	4.959	**<0.001**
PB	3.67	3.67	0.67	3.46	3.33	0.64	1.758	0.079
PA2	3.84	3.83	0.65	3.45	3.33	0.65	3.158	**0.002**
HP	3.75	3.83	0.72	3.62	3.67	0.62	0.901	0.367

M – mean; Me – median; SD – standard deviation; Z – Mann - Whitney U test; p – significance level

DISCUSSION

Contemporary clinical medicine has various methods of treating cancer at its disposal, nevertheless, numerous side-effects are still common. In spite of using standard methods of cancer treatment, a great number of patients are looking for other alternative methods. Easy access to many sources of information encourages patients to gain knowledge onthe methods of complementary and alternative medicine and health behaviours. In own studies, most of the patients (85.09%) declared that they use methods of complementary and alternative medicine. According to the studies conducted by Hierl et al., Stan et al., Nilsson et al., and Teng et al., the frequency of use ranged from 7.9% – 93.41% [23, 24, 25, 26]; whereas the studies carried out among Polish patients by Stanisz et al., Augustyniuk et al., Bielesz et al., Woźniak-Holecka et al. and Grabińska et al., showed that the percentage of patients who declared using complementary and alternative medicine ranged from 16% – 55.5% [1, 27, 28, 29, 30]. The high variability in the percentage of people using complementary and alternative medicine methods is partly justified by the inconsistent definition of CAM, since some authors include only herbal medicines while others also consider dietary supplements and alternative medical practices (massages, acupuncture).

In own studies, from the numerous methods of complementary and alternative medicine the patients most often choose to use natural products, as many as 95.48% of patients using CAM, decided to choose natural products. Most often, the patients chose vitamin C, green tea, vitamin D and curcuma. Similar results were obtained in the studies carried out by Stanisz et al., Stan et al. Kwon et al., Kessel et al., Sárváryi et al. and King et al. [8, 24, 27, 31, 32, 33].

According to own studies, prayer constituted the highest percentage of body and mind practices – declared by 72.32% of the patients. According to the studies conducted by Kang et al., Demir et al., and Amirmoezi et al., prayer is the most frequently used CAM method with respect to body and mind practices, regardless of the religion practised (89.6% – 92.2%) [34, 35, 36].

Own studies, aimed to determine the socio-demographic characteristics of oncological patients using CAM, showed that the patients were more often male residents of villages, with higher education, whereas age and marital status did not affect the use of complementary and alternative medicine by the respondents. Higher education as a factor determining a higher percentage of patients using CAM was shown in the studies conducted by Jang et al., Wode et al., Bauml et al., Nissen et al., Garland et al., and Hunter et al. [37, 38, 39, 40, 41, 42].

According to the studies conducted by Stanisz et al., and Wode et al., the complementary and alternative medicine is more often used by younger patients, below the age 45 [27,38], while Bauml et al., Garland et al.,and Ali-Shtayeh et al., report that the age of 65 or below determined a higher frequency of using CAM [39, 41, 43]. Amirmoezi et al., Wode et al., Nissen et al., and Sárváry et al., report that residents of towns or cities use complementary medicine more often than the residents of villages (89.8% and 76.5%, respectively) [32, 36, 38, 40].

Gender is an essential determinant in making decisions about the use of CAM. In contrast to own studies, those conducted by Hierl et al., Wode et al., Demir et al., Dogu et al., Garland et al., and Stanisz et al., prove that women decide to use CAM more often than men [23, 27, 35, 38, 41, 44]. Studies carried out by Dhanoa et al. related to the use of CAM, showed no impact of gender, marital status, education or employment status [45].

In own studies, most of the patients reported highly effective (46%), or slightly helpful effects of CAM. A high effectiveness of the therapies applied was also declared by the patients surveyed by Wode et al. and Chang et al. [38, 46]. According to the subjective opinions of the patients in own studies, complementary medicine is effective in such areas as strengthening the immune system, helping to fight cancers and improving the quality and comfort of life. This hypothesis was confirmed by the studies conducted by Wode et al. [38]. In spite of using alternative medicine methods different from those used in Western culture, the Saudi Arabian patients surveyed by Abuelgasim reported similar

positive effects – improving well-being and strengthening the immune system [47]. A relatively high (54%) percentage of adverse effects was reported by the Nigerian patients surveyed by Aliyu et al. [48]. Despite the fact that complementary and alternative medicine, according to the patients' subjective opinion, is usually helpful in the treatment of cancer, the studies carried out by Skyler et al. showed that the use of CAM doubled the risk of death in comparison to the patients who did not use alternative medicine [16].

In own studies, the patients reported obtaining information about CAM from the Internet (46.15%), from family members (37.02%), from friends (35.10%), from a doctor (11.54%) and from a nurse (5.77%). Similar results were obtained in the studies regarding the source of information on the use of CAM conducted by Buckner et al., Lopez et al., Bielesz et al., and Hunter et al. [29, 42, 49, 50]. Different results were obtained from German patients surveyed by Hierl et al. who showed that doctors were most often mentioned (29%) as a source of information about CAM, whereas family/friends constituted 24% of all answers, and the Internet – merely 11% [23].

Own studies showed that as many as 71.19% of the patients did not inform their oncologists about the use of complementary and alternative medicine. This proves the lack of communication between the healthcare staff and patients with diagnosed cancer, as well as the fear that oncologists will not accept CAM. In the USA, Stan et al. report that as many as 96% of their patients informed their oncologists about the use of complementary and alternative medicine [24]. Similar results, i.e., 98%, which also concerned American patients, were reported by McDermott [51]. According to the studies conducted by Berretta et al. in Italy, a slightly smaller percentage of patients (85%) declared that they informed their oncologists about the use of CAM [52]. It is probable that cultural factors and the type of the health system play a role in the patients' willingness to disclose information about the use of complementary and alternative medicine to their physicians.

Own studies also involved the health behaviours of patients treated oncologically. The patients assessed with the Health Behaviour Inventory on the grounds of the sten scores usually obtained a high rate of health behaviours (46.15%).

In the studies conducted by Bojakowska et al., 52.9% of the female patients obtained high results, 30% – average and 17.1% – low results [53]. Own studies showed that persons with higher education exhibited higher indicators of proper eating habits, whereas the studies carried out by Muszalik et al. in patients over the age of 60 with secondary and higher education, demonstrated a higher rate with respect to healthy practices than those with primary and vocational education [54]. Own studies demonstrated that a higher rate of health behaviours was most common in males over the age of 65, with higher education, and living in a village.

Limitations. The study was cross-sectional and therefore does not show any cause-effect or time-effect relationships between CAM and the clinical condition of the patients. The study was conducted mainly in one Centre in Poland; therefore, it does not constitute a full representation for all oncological patients in the country. A relatively small sample and a small number of participants in the study may hale determined the preliminary results and it is worth continuing them on a larger number of cancer patients**.**

CONCLUSIONS

It was observed that the majority of the surveyed patients suffering from cancer used complementary and alternative medicine, and declared that it was very or slightly effective in strengthening the immune system and helpful in fighting cancer. A relationship was also demonstrated between health behaviours and the use of complementary and alternative medicine. The patients who used CAM exhibited a higher level of health behaviours than those who did not use these methods.

Due to the constantly growing interest of patients in complementary and alternative medicine, it is necessary to promote among patients educational activities in the field of CAM, and to systematically recognize the use of unconventional treatment in patients at the stage of a standard medical interview. Taking into consideration patients' reluctance to disclose information on unconventional therapies to their doctors, healthcare staff, particularly including nurses, must be active in discussing CAM with patients and indicating also the necessity to undergo conventional treatment.

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