

# THE STATE OF PHYSICAL ACTIVITY AND ITS PERCEPTION IN ONCOLOGICAL PATIENTS

## STAN AKTYWNOŚCI FIZYCZNEJ I JEJ POSTRZEGANIE PRZEZ PACJENTÓW ONKOLOGICZNYCH

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### SUMMARY

**Background:** Malignant neoplasms constitute significant danger to humans on a global scale. However, the effects of oncological therapies continue to be unsatisfactory. In order to improve the treatment results, new or additional therapeutic and preventative methods are being researched. One of such methods is physical activity, carefully chosen and executed in safe conditions. Its values include: low cost, availability, safety and lack of side effects.

**Aim of the study:** Assessing the current state of physical activity and the knowledge of its effect on health among oncological patients.

**Material and methods:** The study was conducted on a population of 57 oncological patients using the diagnostic survey method with own questionnaire.

**Results:** In the study population, 55 patients (96.49%) did different types of physical activity. 43 (75.44%) patients had proper knowledge on the lack of counter indicators for physical activity. 50 (87.72%) patients felt very good and good after completing physical exercise. Doing a physical activity had positive effect on the attitude of oncological patients, strengthening their resolve in achieving goals, improving their quality of life, helping them feel positive emotions and improving their relations with others.

**Conclusions:** The studied oncological patients did different types of physical activity. They had positive attitude towards exercises, which in turn had positive effect on their social attitudes. Good mood after completing physical exercise stimulated them to continue being physically active.

**KEYWORDS:** oncological patients, physical activity, prophylaxis and health therapy

### STRESZCZENIE

**Wstęp:** Nowotwory złośliwe stanowią istotne zagrożenie dla człowieka w skali globalnej. Jednak wyniki terapii onkologicznej są nadal niezadowolające. W celu poprawy wyników leczenia poszukuje się nowych lub dodatkowych metod leczenia i prewencji chorób nowotworowych. Należy do nich prawidłowo dobrana i bezpiecznie realizowana

aktywność fizyczna. Jej istotnym walorem jest niski koszt, ogólna dostępność, bezpieczeństwo i brak skutków ubocznych.

**Cel pracy:** Zbadanie aktualnego stanu aktywności fizycznej i stopnia wiedzy o jej wpływie na zdrowie pacjentów onkologicznych.

**Materiał i metody:** Badania zostały przeprowadzone metodą sondażu diagnostycznego z wykorzystaniem autorskiego kwestionariusza ankiety w grupie 57 osób chorych onkologicznie.

**Wyniki:** Różne formy aktywności fizycznej uprawiało 55 chorych (96,49%). Właściwą wiedzą o braku przeciwwskazań do uprawiania wysiłku fizycznego dysponowało 43 chorych (75,44%). U 50 (87,72%) badanych samopoczucie po zakończeniu ćwiczeń fizycznych było bardzo dobre i dobre. Aktywność fizyczna korzystnie wpływała na właściwe postawy pacjentów chorych onkologicznie, wzmacniając ich dążenia do osiągnięcia celów, poprawiając jakość życia, wzmacniając odczuwanie pozytywnych emocji i poprawiając relacje międzyludzkie.

**Wnioski:** Badani pacjenci onkologiczni uprawiali różne formy aktywności fizycznej. Cechowało ich pozytywne nastawienie do ćwiczeń fizycznych, których wykonanie wywierało korzystny wpływ na ich postawy społeczne. Dobre samopoczucie po zakończeniu ćwiczeniach fizycznych stymulowało ich do dalszej aktywności fizycznej.

**SŁOWA KLUCZOWE:** chorzy onkologicznie, aktywność fizyczna, profilaktyka i terapia zdrowotna

## BACKGROUND

Each year, 14.1 million new cases of malignant neoplasms are diagnosed. According to the estimates, within the next 20 years this number will rise to 22 million [1]. In most cases, malignant neoplasms are caused by noxious exposure to, inter alia, harmful environmental factors, such as: tobacco combustion products, pollution, drugs and infections [2]. The oncogenic factors, which can stimulate carcinogenesis, include unhygienic lifestyle – eating low quality food, excessive consumption of alcohol, overweight and obesity [3-5], insufficient supply of certain microelements [6] and low physical activity or lack thereof [7]. Physical activity for oncological patients is usually a part of oncological physical therapy [8]. Such form of physical therapy usually comprises of: kinesiotherapy, incorporating physical exercises and kinesiotherapeutic methods; physical therapy, employing the therapeutic use of different types of energy; massage based on the use of mechanical energy for restoring physical fitness [9]. Oncological rehabilitation comprised of such components has the following goals: restoring physical fitness, preventing social isolation, maintaining social and family bonds, and enabling oncological patients to return to work. Furthermore, it was shown that many oncological patients during and post treatment consider mental and physical exertion as draining their body and therefore not recommended during the course of neoplastic disease and treatment. According to other sources, regular physical activity can constitute the primary neoplastic disease prevention [10]. However, the oncological rehabilitation programme and prescribed physical exercise should be individually tailored to the patient, taking into consideration: the type of the neoplasm, its placement, progression of the disease, general health of the patient, their age, concomitant diseases and needs and expectations.

## AIM OF THE STUDY

The aim of this paper was to assess and establish the current level of physical activity and the awareness of its effect on health among oncological patients. The main goals were: to establish the views of oncological patients on physical activity and showing the positive and negative effects of physical activity and its lack, as well as assessing the state of the oncological patients' knowledge on the prophylactic and therapeutic effect of physical exercise.

## MATERIAL AND METHODS

The study population comprised of 62 patients diagnosed with neoplastic disease. The final number qualified for statistical analysis was 57 subjects, 46 women and 11 men. The study was conducted in Opole Oncological Center. The age of the study population was: 10 subjects between 30 and 40 years old, 17 subjects between 41 and 50 years old, 16 subjects between 51 and 60 years old, 13 subjects between 61 and 70 years old, one subject between 71 and 80 years old. The level of education of the study population was: 2 subjects with primary education, 15 subjects with occupational education, 15 subjects with secondary education, 25 subjects with higher education. The structure of residence, based on the size of the town or city, was: 12 subjects living in towns > 15,000 inhabitants, 17 subject living in towns between 15,000 and 50,000 inhabitants, 11 subjects living in cities between 50,000 and 100,000 inhabitants, and 17 subjects living in cities with over 100,000 inhabitants. Out of the study population, 42 subjects were professionally active, 10 were unemployed, 4 were retired and one subject did not provide information. The study was approved by the Research Bioethics Committee of the State Vocational Medical School in Opole.

The study was conducted using a diagnostic survey, with an own anonymous questionnaire containing 21 questions, 5 of which provided socio-demographic characterisation of the respondents. The remaining 16 questions concerned the subject of this paper: 4 concerned the location and character of the diagnosed neoplasm, duration of the condition and the patient's attitude towards it, 3 questions concerned any counter indications which occurred during the course of the disease, 2 concerned the physical activities of the patient and 7 concerned the effect of physical activity on the patient's body. The respondents filled out the questionnaires themselves, in the presence of an interviewer.

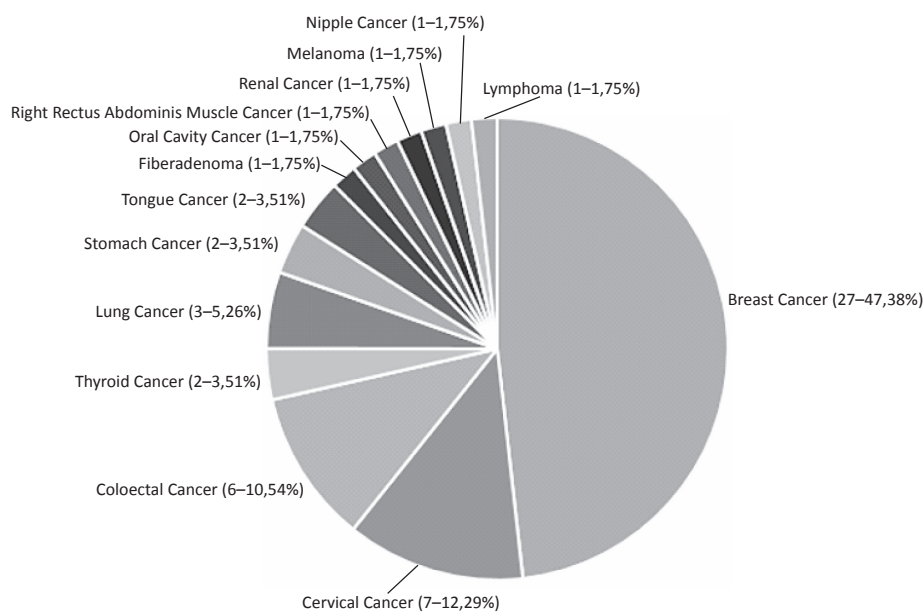
The obtained results were presented in numeric values and percentage points, and in the case of key questions they were also presented in a graphic form for easier analysis.

## RESULTS

The obtained results were grouped into 4 sections.

### DESCRIPTION OF THE DISEASE

An analysis of the percentage values of the 57 study subjects showed that the most common form of neoplastic disease was breast cancer (27 subjects, 47.38%), cervical cancer (7 subjects, 12.29%), and colorectal cancer (6 subjects, 10.54%). Detailed data are presented on Figure 1. The results also showed that the current form of neoplasm was malignant in 48 (84.21%) cases and benign in 9 (15.79%) cases.



Source: Own study.

**Figure 1.** The types of neoplastic disease diagnosed in the study group

The diagnosed duration of the disease is presented in Table 1. The analysis of the data shows that out of

the study population, the duration in the biggest subgroup was between 7 and 12 months.

**Table 1.** Duration of the disease

Duration [months]	Number of patients [n]	Number of patients [%]
< 3	12	21.05
3-6	13	22.81
7-12	21	36.84
13-24	5	8.77
> 24	6	10.53

Source: Own study.

Furthermore, the analysis showed that 19 (33.33%) subjects had positive attitude towards their disease, 14 (24.56%) had negative attitude, 18 (31.58%) had ambivalent attitude and 6 subjects (10.53%) did not answer the question.

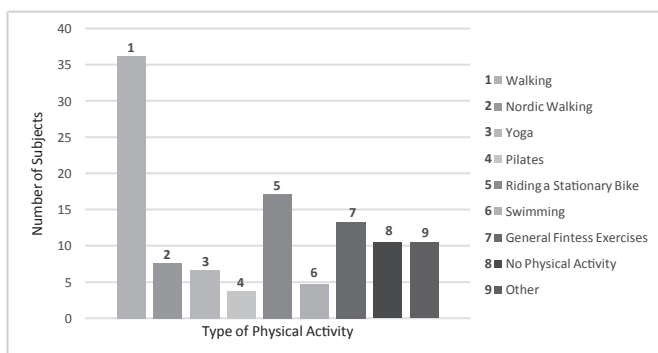
### COUNTER INDICATIONS WHICH OCCURRED DURING THE COURSE OF THE DISEASE

The study showed that 8 subjects (14.04%) had counter indications to doing physical activity, 41 subjects (71.93%) did not have any counter indications, and 8 (14.04%) subjects did not answer the question. Among the significant counter indications to physical activity 6 subjects (10.54%) listed general pain, 1 subject (1.75%) listed leg wounds and another one (1.75%) listed a removed muscle. The results of the analysis of the answers to survey question of whether the subjects

considered neoplastic disease as a counter indication to physical activity showed that 9 subjects (15.79%) considered neoplastic disease a counter indication, 43 subjects (75.44%) did not and 5 subjects (8.77%) did not have an opinion.

### PERFORMED PHYSICAL ACTIVITY AND ITS FORMS

The majority of subjects (55 patients, 96.49%) was physically active and 2 subjects (3.51%) did not perform any type of physical activity. The 105 answers to a multiple choice question listed such types of physical activity as: walks (38 subjects, 36.19%), nordic walking (8 subjects, 7.62%), yoga (7 subjects, 6.67%), pilates (4 subjects, 3.81%), riding a stationary bike (18 subjects, 17.14%), swimming (5 subjects, 4.76%), general fitness exercises (14 subjects, 13.33%), other (11 subjects, 10.48%) (Figure. 2).

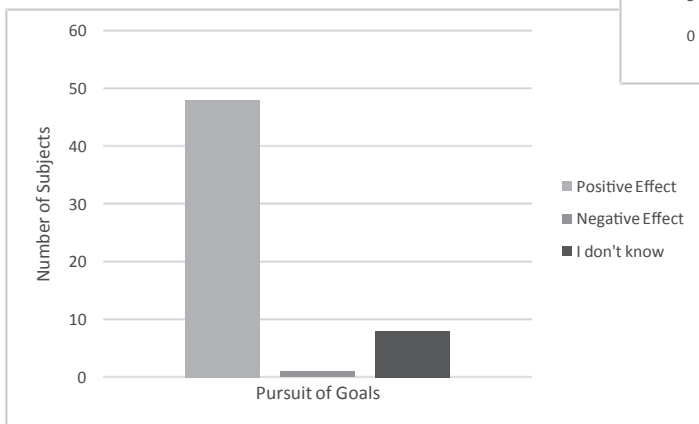


Source: Own study.

**Figure 2.** Types of performed physical activity

**THE EFFECT OF PHYSICAL ACTIVITY ON THE PATIENT’S BODY**

The analysis showed that 47 subjects (82.46%) had positive attitude towards starting doing physical exercises, 1 subject (1.75%) had negative attitude and 9 subjects (15.79%) had neutral attitude. On the next question, “How does your attitude towards physical exercise affect pursuing your goals?”, the patients answered: positively (48 subjects, 84.21%), negatively (1 subject, 1.75%), I don’t know (8 subjects, 14.04%) (Figure 3).



Source: Own study.

**Figure 3.** Subjective assessment of the effect of physical activity on the pursuit of goals

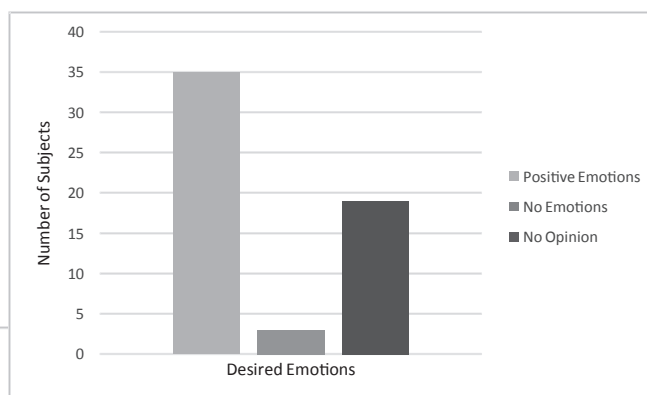
The assessment of the effect of the attitude towards physical activity on the health and life of patients yielded the following results: 40 subjects (70.18%) reported clear improvement, 12 subjects (21.05%) reported negative reaction and 5 subjects (8.77%) reported no effect (neutral) (Table 2).

**Table 2.** The features of the effect of the type of attitude towards physical activity on health and life

Type of influence	Number of patients [n]	Number of patients [%]
Positive	40	70.18
Negative	12	21.05
Neutral	5	8.77

Source: Own study.

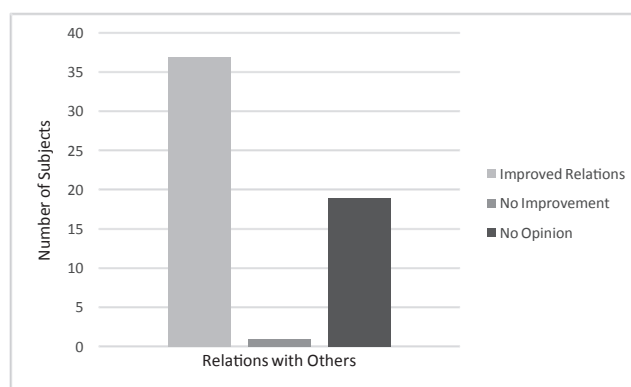
The analysis of the effect of the attitude towards physical activity on the experienced emotions showed that in 35 cases (61.40%) the effect was positive, in 3 cases (5.26%) there was no effect and 19 subjects (33.34%) did not give their opinion (Figure 4).



Source: Own study.

**Figure 4.** Subjective assessment of the effect of physical activity on the desired emotions

An assessment of the effect of the attitude towards physical exercises on relations with other people showed that 37 subjects (64.91%) reported improvement, one subject (1.75%) reported no improvement and 19 subjects (33.34%) did not give their opinion (Figure 5).



Source: Own study.

**Figure 5.** Subjective assessment of the effect of physical activity on the relations with others

Furthermore, the results showed that the well-being of the patients was: very good in 18 cases (31.58%), good in 32 cases (56.14%), moderate in 6 cases (10.53%) and the same in one case (1.75%).

Moreover, the results showed that in 55 cases (96.49%) physical exercises had positive effect on motivation to further taking up physical activity, and negative effect in only 2 cases (3.51%).

## DISCUSSION

Out of 57 participants of the study, 15.78% were diagnosed with benign tumours and 84.22% with malignant tumours, which constitute 13% of causes of death around the world [1]. Thus, the study population comprised of subjects with serious medical conditions and whose knowledge of pro-health lifestyle should be better than average and oncogenic factors eliminated from their lives as much as possible. Pro-health behaviours should be exhibited daily and as many as possible, as Puchalska et al. reported that a large number of respondents in the study believed their disease limited their activity [11]. Most of the study population in the present study were women, therefore the most common types of neoplasm among the participants were breast cancer and cervical cancer. If we assume physical activity is one of prophylactic and therapeutic factors in neoplastic disease, the study population showed good pro-health behaviours, as 82.46% had positive attitude towards physical activity and 96.49% did some kind of physical exercise. This paper did not analyse why so many patients had such positive attitude towards physical exercise. However, we did establish that the most common type of physical activity was walking (38 subjects, 36.19% of 105 responses). Walking is the easiest and the most available form of physical activity for people whose mobility is not impaired. It is relatively safe in changing and different weather conditions, in different areas and with different intensity, individual for each patient. Other discussed forms of physical activity have limiting factors, especially for the infirm and therefore were not as common. A high percentage of physically active patients constitutes proof of pro-health behaviours and assisting in oncological treatment, especially as only 33.34% of the subjects had positive attitude towards their disease, which could have been motivated by the chronic character of the neoplastic disease. Pro-health behaviours among patients were also recorded by Skinner et al. who showed that properly executed physical activity had positive effect on improving muscle strength, elasticity, function and well-being of oncological patients [12]. Similar results, corroborating the positive effect of physical exercise on health of oncological patients, were reported by Diggins et al. [13] and Zopf et al. [14]. Furthermore, Drageset et al. [15] also corroborated these findings and showed that positive mindset, physical activity, hobbies and work can help oncological patients function day to day and return to health. Moreover, the positive effect of

physical activity on well-being, motivation and everyday functioning of oncological patients was observed [8, 16]. Stec, referring to the results of Yoga Biomedical Trust studies, established that in 90% of cases doing yoga had positive effect on the health of oncological patients [17]. In the present study only 6.67% of subjects did yoga, which constitutes a small percentage of the population, however reports from the USA showed that yoga is popular among oncological patients and cancer survivors [18]. No cause was established as to why 3.51% of the study population did not perform any type of physical exercise.

The study population began physical exercises with positive attitude, which was reported by 82.46% of the participants. According to Kaczmarek-Borowska et al., women more frequently than men show positive attitude towards physical exercise during oncological treatment [19]. Due to the small size of the study population, we did not assess the difference between the sexes in relation to the attitude towards physical exercise. However, the obtained results indirectly suggest that the study group had high awareness of the positive, therapeutic effect of physical exercises on fighting cancer and wanted to actively participate in the process, alongside healthcare professionals. Only 1.75% of the study population reported negative attitude towards physical exercise, which according to Mayer can be attributed to depression arresting the patient's psychomotor activity [20]. According to Mazurkiewicz, as much as 25% of women experience neoplastic disease as a traumatic experience resulting in loss of interest in physical activity, however in the present study adverse behaviours and reaction like that were limited to the minimum [21].

Moreover, it is noteworthy that as much as 21.05% of the study population had significant counter indications for doing physical exercises, however, none of the subjects indicated that it was physical activity, rather 75.44% of the subjects had sufficient knowledge that physical exertion is not a counter indication for oncological patients. Positive attitude towards physical activity and proper content-related knowledge on the lack of counter indications in case of oncological patients affected other volitional features. The obtained data showed that it was positive attitude towards physical exercises and probably doing different types of exercises which had in case of the majority of the study population positive effect on the pursuit of goals (82.46% of the subjects), attempting to improve quality of life and health (70.18% of the subjects), strengthening positive emotions (61.40% of the subjects) and improving relations with other people (64.91% of the subjects). These results can be summed up by a statement by Pietrzyk and Lizińczyk that positive thoughts in patients help soothe a difficult situation, i.e. a neoplastic disease, and constitute a foundation maintaining the meaning of life and pursuit of one's goals [22]. Also Woźniwski stated that physical activity in oncological patients has a positive effect on the somatic and mental aspect of an

ill organism, which would have also been observed in the present study. Moreover, Woźniewski showed that physical activity decreases the risk of relapse of the neoplasm by even 40% [23].

Despite different circumstances and difficulties, mainly personal, the patients participated in different types of activities organised in the hospital. They organized their own physical exercises and performed them in safe conditions [24]. This involvement of oncological patients shows their determination and participation in the process of actively fighting against cancer both in terms of somatic and mental impact.

The results of the present study show that after completing physical exercises, 87.72% of subjects felt very good, which means the exercise was not detrimental to the organism. Moreover, 96.49% of the subjects, regardless of how they felt after exercise, believed that physical exercise stimulated them to further activity, which is a sign of determination in seeking out pro-health behaviours. These data show that thanks to the physical activity and positive attitude towards it, the participants of the study can employ a more positive attitude towards life and the process will intensify once they notice the therapeutic benefits [10]. The results of this study show that the patients' attitude towards motivation, willingness and doing different types of physical exercise during oncological treatment is positive.

## CONCLUSIONS

1. The positive attitude of the study population towards physical activity translated into actively doing physical exercise in everyday life, despite negative and ambivalent attitude towards the disease.

2. The positive attitude of oncological patients during execution of physical exercise had pro-health effect on their well-being and at the same time stimulated to further exercise.

3. The positive attitude of oncological patients to executing physical exercise helped promote their pro-health life style and helped build positive social attitudes.

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