

**Aim of the study:** The objective of the study was to evaluate mental adjustment to cancer in patients diagnosed with an oncologic disease through identification of the coping strategies they had adopted.

**Material and methods:** Seventy-four patients of the Clinic of Oncology and Haematology at the Central Clinical Hospital (CSK) of the Ministry of Interior (MSW) in Warsaw were included in the study. The degree of adaptation to cancer was evaluated with the use of the mini-Mental Adjustment to Cancer (mini-MAC) scale. The individual subscales, i.e. fighting spirit, positive redefinition, helplessness-hopelessness, and anxious preoccupation, were collated with socio-demographic characteristics.

**Results:** Study findings indicate that: 1) tumour patients typically manifest behaviour that allows one to identify their adjustment to cancer; 2) in malignant tumour patients constructive behaviour prevails over destructive behaviour; 3) the helplessness-hopelessness response is more pronounced in men than women; 4) metastatic patients manifest stronger helplessness-hopelessness response than patients with locally limited tumours; 5) pensioners more often than people of working age adopt the helplessness-hopelessness strategy; and 6) patients with the shortest disease period manifest the strongest fighting spirit.

**Conclusions:** Cancer patients employ various strategies of coping with disease depending on socio-demographic factors.

**Key words:** cancer, coping with stress, mental adjustment to neoplastic disease, psycho-oncology, mini Mental Adjustment to Cancer Scale (mini-MAC).

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# Use of the mini-MAC scale in the evaluation of mental adjustment to cancer

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## Introduction

Cancer is the second most common cause of death in Poland. It accounts for nearly 25% of all deaths in the population [1]. It is also one of the leading causes of premature deaths [2]. Therefore, it is an issue crucial to public health combining epidemiology with economic and social sciences. Cancer is a chronic disease that requires long-term treatment and rehabilitation. Unquestionably, it is one of the most stressful illnesses. Tumour patients experience physical, emotional, and social stress. According to R. Lazarus and S. Folkman, “stress is a general term describing a physiological and psychological reaction to a stimulus disrupting human equilibrium” [3]. Said stimulus is referred to as the stressor. It may be a situation or event, external or internal, which provokes an organism’s response, called a stress reaction (in other words, a fight or flight reaction). It involves certain changes occurring in the human body that one may find helpful when coping with the stressor [4]. When responding to stress, people undertake a particular activity that is termed “coping with stress”. It means “constantly changing cognitive and behavioural effort in order to overcome certain external and internal requirements, which the person sees as overloading or exceeding one’s resources” [5]. There are two essentially different strategies of coping with stress: task-oriented and emotion-oriented.

Adjustment to cancer is an issue of coping not only with the disease itself but also with its direct consequences: pain and malaise. In the long-term, it is also about coping with a variety of changes affecting quality of life [6]. Hence, adaptation involves two areas: coping with the consequences of disease and treatment, and with everyday life changes consequential to disease [7]. Adaptation is a time consuming process aimed at the elimination of mental and emotional discomfort and restoration of internal equilibrium in the face of a new life situation, i.e. serious neoplastic disease. It is expressed through the use of constructive strategies of coping with stress. Coping styles are subject to numerous factors, such as disease severity, the patient’s personality features and disposition, and finally the patient’s family and professional and financial situation. Adaptation to disease is also age-dependent.

Persistent mental load incidental to cancer may give rise to maladaptive response (depression, apathy, anxiety states) or neuropsychiatric disorders (dementia, behavioural disorders) [8]. Some patients may develop (often late-onset) posttraumatic stress disorder (PTSD) [9].

Cancer affects not only the physical, mental, and emotional condition of the patient but also family and friends. At various disease stages (i.e. diagnosis, start of treatment, end of treatment, recurrence, death), patients experience value and role crises, which involve the need to re-evaluate the family system. The presence of strong and negative emotions requires seeking new coping methods. The patient himself and his family members

must face pain, suffering, persistent stress, and the need to make difficult decisions. All negative emotions, stress, and mental burden affect the medical staff, too. Maladaptive strategies of coping with such difficult situations may lead, amongst other things, to burnout in physicians and nurses [10]. Thus, it is critical that all problems of tumour patients be considered and presented holistically, accounting for all entities involved in the disease and treatment processes [11].

To help the patient and other persons involved in treatment, a new science has emerged: psycho-oncology. It addresses three major areas: promotion of health (propagation of pro-health, preventive behaviour for early tumour diagnosis), techniques of psychological support provided to patients and their families and friends at every disease stage in order to reduce its psychological consequences (support, psycho-education, psychotherapy), and medical personnel education with regards to proper patient communication, providing support and showing empathy [12]. All psycho-oncological actions are necessary for the tumour patient treatment process to run properly.

## Material and methods

Psychological adjustment to neoplastic disease is often measured with the MAC (Mental Adjustment to Cancer) scale developed by M. Watson *et al.* in the years 1988 to 1989. Since MAC is extensive (it comprises 40 questions) and features low reliability of one of the studied strategies (denial), its novel version termed mini-MAC was developed [13], the Polish version of which was applied to this study. The mini-MAC questionnaire includes 29 statements allowing the identification and evaluation of four types of strategies of coping with disease considered equivalent to the ways of adjustment to cancer.

- **Anxious preoccupation** – expresses anxiety resulting from becoming ill. Disease is perceived as a source of anxiety the patient cannot control. Each change is seen as a symptom of deterioration of the patient's condition.
- **Fighting spirit** – motivates the patient to take up various actions aimed at overcoming the disease that is viewed as a personal challenge.
- **Helplessness-hopelessness** – indication of being lost, a sense of impotence, giving in to illness.
- **Positive redefinition** – problem related to the presence of disease is re-evaluated so as to find hope and derive satisfaction from all the years the patient has lived so far, while being aware of the gravity of one's situation.

The mini-MAC scale is a self-descriptive tool. The respondent on his/her own evaluates, using a four-point scale, to what extent a given statement applies to him/her at present. As responses are presented in words (in the original version there is a numerical scale from 1 to 4), it is much easier to conduct the test in very ill patients. It takes about 10 minutes to complete the questionnaire.

Results are calculated for each of the examined strategies. Each strategy includes seven relevant statements. Every analysed subscale result range may be from 7 to 28.

The higher the score, the stronger the behaviour typical for a given strategy of coping with cancer.

In the study involving the mini-MAC scale we can observe a positive correlation between anxious preoccupation and helplessness-hopelessness strategies and between fighting spirit and positive redefinition strategies. Conversely, a negative correlation is found between the anxious preoccupation and helplessness-hopelessness strategies and the fighting spirit and positive redefinition strategy [14]. The recorded inter-correlation patterns indicate that there are two styles of coping with disease:

- constructive (strategies: fighting spirit and positive redefinition),
- destructive (strategies: helplessness-hopelessness and anxious preoccupation).

Both methods of struggling with disease (passive and active) are compared in the interpretation of the findings of research applying said tool.

The study included patients of the Clinic of Oncology and Haematology at the Central Clinical Hospital (CSK) of the Ministry of Interior (MSW) at Warsaw. The study was performed between February and April 2014 on a group of 74 patients diagnosed with cancer.

The results obtained were further processed by means of SPSS statistical analysis. Statistical significance for all calculations was assumed at  $< 0.05$ .

## Results

Even though the study included 74 participants, statistical calculations were performed on less numerous groups because some answers were missing in several questions. There were 72 valid responses in the anxious preoccupation subscale, 70 in the fighting spirit subscale, 71 in the helplessness-hopelessness subscale, and 73 in the positive redefinition subscale. The number of points calculated on the basis of patient answers ranges from 7 to 28 for each subscale. Higher arithmetic means were calculated for constructive subscales: fighting spirit (ca. 24) and positive redefinition (ca. 22); whereas lower means were recorded for destructive subscales: helplessness-hopelessness (ca. 15) and anxious preoccupation [11]. Higher scores indicate that there is an escalation of behaviour characteristic of a given style of coping with disease. Many patients use more than one model of coping with cancer. Pursuant to the analysis of arithmetic means we may conclude that patients are more prone to constructive than destructive behaviour. The mean raw score for constructive strategies was 47 and fitted in the 7th sten, whereas the mean raw score for destructive strategies was 28, which is equivalent to the 4th sten. Above scores are considered high for the active style and low for the passive style.

Reliability is critical to psychometric testing. It is understood as a psychological test feature describing accuracy of measurement. The most popular method of estimating reliability of the scales is Cronbach's  $\alpha$  test. It is a reliability coefficient determining cohesion of items included in the composition of a particular scale. It provides information on the degree of similarity in the ways of responding to questions within a given scale. The reliability of this study

is lower than that of a comparable study carried out by Z. Juczyński [15]. This is partly a consequence of a less numerous sample. However, Cronbach's alpha reliability coefficient at the level above 0.7 is considered satisfactory. The reliability coefficient meets the above requirement in the case of three subscales. Nevertheless, the positive redefinition subscale's reliability coefficient is strikingly low, at just 0.3. Such a low value indicates that the test does not fulfil its function, i.e. individual questions in the field are not related.

Each of the four subscales: fighting spirit, positive redefinition, helplessness-hopelessness, and anxious preoccupation, were collated with socio-demographic characteristics (sex, age, marital status, education, professional status, place of residence, income, disease period, metastases). Four relationships proved statistically significant:

1. **The fact of diagnosing or not diagnosing metastases in the respondent differentiates the scores in the helplessness-hopelessness subscale of the mini-MAC.** Among 32 metastatic patients, the point average for the strategy was 13.7; while in the case of 37 patients with no metastases the result average was lower and was recorded at 11.3. Thus, the presence of metastases causes resignation, a sense of helplessness and hopelessness. Aggravation of disease due to metastases evokes depression, despair of ever being cured, giving in, and giving up the fight. The patient frequently assumes a passive attitude. He or she may be tired of continuous treatment to no effect. In extreme cases, there is a risk of developing depression. The physical, psychological, social, and emotional quality of life significantly decreases.
2. **The sex of respondents differentiates the scores obtained in the helplessness-hopelessness subscale of the mini-MAC.** The point average obtained in the subscale by 27 women participating in the study was 10.9, whereas for 44 men it was 13.4. It is indicative of the presence of stronger helplessness-hopelessness strategy behaviours in males than females. Malignant tumour male patients are more often confronted with resignation, despair, and depression. Men more often than women give in, lose their fighting spirit, and assume a passive attitude.
3. **The status of an active worker or a pensioner differentiates the scores obtained in the helplessness-hopelessness subscale of the mini-MAC.** Twenty-nine active workers had a point average of 10.9 in the subscale, whereas the point average of pensioners was 13.6. Therefore, the retired more frequently behave in a way that is typical of the helplessness-hopelessness subscale than the employed. The prevalence of a sense of helplessness, hopelessness, and resignation may result from the fact that pensioners stay in an environment that is completely different from that of working people. In addition, the retired typically have more time to think about their disease, and sometimes pensioners are lonely people who are provided no proper mental support by family or friends, which would make way to constructive strategies.

4. **The period from the time of cancer diagnosis differentiates the scores obtained in the fighting spirit subscale of the mini-MAC.** Amongst 39 patients struggling with cancer for a year, the average score for the fighting spirit subscale was 25.2. For 16 patients having cancer for more than a year but less than two years the average was 23.9. Finally, in the case of 17 patients diagnosed more than two years before the same average was 22.8 points. As we can see, the strongest fighting spirit behaviours are manifested in patients with the shortest disease period. They regard their disease as a personal challenge and undertake various actions to overcome it. With time, exhaustion appears and the willingness to fight it decreases.

## Discussion

Malignant tumours, and serious and chronic diseases, bring about multiple adaptation issues regarding both the external and internal requirements found when faced with a challenging situation. The objective of adjusting to disease is the ability to cope with the stress that accompanies the disease itself and the treatment process, and the effects of disease which take the form of changes in the everyday patient life. Therefore, mental adjustment is one of the factors affecting the patient's quality of life.

Medical science employs the idea of Health-Related Quality of Life (HRQL), which is considered to be both the direct and indirect functional effects of disease and treatment process that the patient experiences and which affect him/her. The above approach to quality of life demonstrates that the condition of health has a significant influence on the patient's subjective feelings about his/her life and functioning. There are four major spheres of human functioning:

- physical well-being, physical fitness, and somatic sensations,
- mental and emotional well-being,
- social situation,
- economic factors [16].

The above areas may be extended to include a multi-dimensional perception of the influence of the disease on life quality. General assessment of the quality of life reflects the current state a given person is in, his or her situation in a given time period. Thanks to studies regarding the effect of disease on the quality of life, one may discover the consequences of the disease he/she suffers from, the patients' abilities, limitations, and needs. These factors are the grounds for undertaking actions and medical, mental, occupational, and social rehabilitation programmes. The objective of the listed actions is to improve patient quality of life.

The data collected and processed in the course of this study allowed partial evaluation of mental adjustment to cancer through the identification of adopted strategies of coping with it and the analysis of relationships between said strategies and demographic & socio-economic factors. Oncological patients largely manifest behaviours that allow one to identify the type of adopted coping strategies. Moreover, constructive behaviours presented

by malignant tumour patients are stronger than destructive ones. Malignant tumour male patients are more often confronted with resignation, despair, and depression. Men more often than women lose the fighting spirit and assume a passive attitude. The presence of metastases may intensify the sense of confusion, hopelessness, and helplessness in cancer patients. Depression, despair of ever being cured, giving in, and losing the fighting spirit occur. The patient frequently assumes a passive attitude. Retired patients also manifest strong hopelessness and helplessness behaviours. This may be a result of the varied characteristics of the environments in which both groups operate. Pensioners are frequently lonely persons who are provided with insufficient psychological support. Active, task-oriented attitudes are usually features of patients with the shortest disease period, who treat it as a personal challenge. With time, exhaustion appears and the willingness to fight it decreases.

In addition to professional care, the key element of medical staff-patient interactions should be good communication. The ability to talk to the patient and establish a rapport under such difficult circumstances is absolutely vital. If this proves insufficient, patients should be provided with special care of psycho-oncologists and clinical psychologists so that suitable psychological support is guaranteed. Metastatic patients need faith and hope that they will be cured and return to health. To achieve this, their enthusiasm for fighting the disease needs to be raised. As the ratio of psycho-oncologists to those in need is still low, their role may be limited to that of coaches for medical personnel. It opens up an opportunity to teach, counsel, and verify different types of support of psychological nature offered to patients by medical staff.

Research shows that men may require more mental and emotional help than women. Support should be provided not only by family and friends, but also by psychologists, support groups, and oncological societies. Furthermore, we need to pay attention to the fact that men typically do not show their feelings and emotions, and that is why the idea of "reaching out" to the patient and providing the help he needs is even more important. Individual psycho-therapist sessions with male malignant tumour patients who require additional help and support involving the application of specific therapeutic techniques may be of great significance.

As the majority of tumour cases affect people above the age of 60 years (70% of cases in men and 60% in women) [17], it is requisite that the senior group is provided psycho-oncological support both on an individual and a systemic basis. A quite helpful solution in the senior group environment might be group psychotherapies, at which problems shared by the majority of participants can be discussed and analysed. The therapy uses the positive effect the participants have on one another. Establishing a rapport and positive relations between group members are emphasised, which helps them achieve emotional and mental equilibrium.

The relation between the loss of the fighting spirit and the time of disease, as evidenced by the study, makes it necessary for long-term patients to be provided with spe-

cial psychological support. The best solution would be to provide psycho-oncological care immediately after diagnosis and to continue it, uninterrupted, throughout the treatment process. It would help maintain the patient's fighting spirit, faith, and hope in the possibility of being cured, and it would systematically encourage the patient to overcome the disease. A specialist would be able to offer any necessary professional help to the patient in the most critical moments.

Adaptation to cancer arouses more and more interest in oncological and psycho-oncological circles around the world. The relations between mental adjustment to disease and different variables are subject to analysis, interpretation, and evaluation. The following studies may serve as an example:

- 1) The relation between negative mental adjustment to cancer and the level of distress in thyroid cancer patients [18]. The study demonstrated that the adoption of the helplessness-hopelessness and anxious preoccupation strategy is associated with a feeling of distress in thyroid cancer patients.
- 2) Mental adjustment to cancer and the quality of life is determined by the health condition of cancer patients [7]. The results obtained in the study show that the more intense the constructive attitude of the patient, the better his/her physical, emotional, and cognitive condition in social relations and the higher the quality of life; on the other hand, the stronger the destructive strategies, the worse his/her physical, emotional, and cognitive condition in interpersonal relations, and the lower life quality.
- 3) The influence of ethnic differences on the occurrence of depressive symptoms and the application of destructive strategies of coping with disease amongst cancer patients of European origins and South-Asian origins [19]. The study proved that South-Asian patients revealed higher indices of depressive symptoms, used destructive strategies more often, and observed more physical symptoms when compared to patients of European origin.
- 4) The analysis of factors affecting mental adjustment to cancer in cancer patients under palliative care [20]. The study shows that ensuring social support is positively correlated with acceptance and positive attitudes in patients, which in turn results in a decrease in the proportion of patients wishing for premature death.
- 5) The effect of Internet support groups on psychosocial adjustment to cancer [21]. Patients assigned to the study and control groups were evaluated in terms of adjustment to disease: at the start of the study (baseline scores) and after 3, 6, and 12 months (deviations from baseline). The results indicate that there is a transient difference between the study group and the control group at six-months follow-up. In the group of patients who availed of the assistance of Internet support groups, there was a larger decrease in the scores in the following: anxious preoccupation, helplessness, confusion, and depression, when compared to the control group. What is more, it was found that using Internet peer-support groups required further confirmation of long-lasting psychological effects.

The association of depression and adopted coping behaviours and cognitive errors in breast cancer patients undergoing oncological treatment [22]. In the non-depression group, the underlying style of coping was a fighting spirit, whereas helplessness-hopelessness, anxious preoccupation, and fatalism were major strategies observed in women who suffered from depression. In addition, a higher index of cognitive errors was noted in patients with depression. No relation between depression and socio-demographic variables (apart from the level of education) were recorded in the study.

Evaluation of the level of mental adjustment is difficult because it depends on subjective feelings, which may differ depending on patient mood on a given day, disease stage, or support on the part of family and friends. Studies demonstrated that adaptation to disease is a sum of numerous variables of greater or smaller impact. Amongst them, there are the following factors: demographic, socio-economic, social, physiological, and psychological. Study findings indicate that the provision of adequate mental support, which would allow patients to adopt constructive strategies of coping with stress associated with disease at every stage, is of great importance in the process of treatment and rehabilitation of cancer patients.

Neoplastic disease should be presented and interpreted not only in a strictly medical context, but also from a psychological perspective. Patients are notified about various negative effects of anticancer therapies (malaise, decrease in immunity, hair loss, gastrointestinal symptoms), but not many of them are given information regarding the neurotoxicity of anticancer treatment, i.e. post-cancer treatment cognitive impairment causing concentration difficulties, slow thinking, extended reaction time, memory weakening, and confusion. The phenomenon has been recognised in literature and is commonly known as *chemobrain*, a term becoming increasingly popular not only amongst scientists, but also amongst doctors and patients [23]. Due to the popularisation of facts about cognitive impairments in cancer, patients can increasingly count on professional psychological support.

Psychological knowledge ought to be used in patient-doctor relations. The way information regarding one's health condition is communicated to the patient is important, and so is the removal of any interference causing patient noncompliance. Another important area is the relation with the patient's family and its development. Undoubtedly, families suffer the consequences of one of their members' illness, but they also have a tremendous impact on the behaviour and mental attitude of the patient [24]. They are "natural environments" for the patient, whereas proper relations within the family restore mental and emotional balance of the sick and stimulate their motivation to fight disease. However, when family members cannot cope with a given situation and feel helpless or confused, they appear to be a large mental burden for the patients, who become severely affected with stress.

The support offered helps satisfy patients' new needs associated with cancer. Often, in view of such a difficult situation, the former methods of coping and inner resources of a person prove to be ineffective and insufficient, and

assistance from the outside world becomes a necessity. Knowledge regarding adaptation to neoplastic disease should facilitate detailed diagnosis and allow a patient's mental, emotional, and social condition to be evaluated. Subsequently, suitable intervention measures can be taken and the quality of life of cancer patients may be improved.

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