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## Pain sensitivity among women with low estrogen levels

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### Abstract

The purpose of study is to investigate estrogen influence on sensitivity of pain among menopausal women with estrogen deficiency, suffering from low back pain (LBP). Patients (n=108) completed questionnaires to identify pain severity, anxiety and life satisfaction. The data collected included socio-demographic characteristics and plasma estrogen level (PEL) measurements, health and reproductive status. Significant differences were observed with severity of LBP between women with low estrogen and women with normal PEL. There was a significant, negative association between PEL and anxiety. A conclusion suggests that in women PEL as a hormonal and reproductive factor is associated with LBP.

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**Keywords:** Pain sensitivity, women, low back pain, estrogen, menopause.

### 1. Introduction

There are many evidences that estrogen have a significant role in modulating endogenous opioid neurotransmission and associated psychophysical responses to a pain stressor in humans (Smith et al., 2006). Estrogens seem to play an important role in inducing antinociception in animals in conditions of experiment (DawsonBasa & Gintzler, 1998). These analgesic effects can be related to the fact that estrogens regulate the transcriptional control of opioid synthesis and of delta and kappaopioid receptors in lamina II of the spinal cord (Amandusson & Blomqvist, 2001) On the other hand the present findings suggest that the decrease in pain sensitivity induced by estradiol could not be explained by its effect on opioid receptors. The previously reported effects of estradiol on brain levels of  $\beta$ -endorphin and met-enkephalin may contribute to the analgesic effect of this steroid (Gordon & Soliman, 1996). Administration of estrogen in women increases paininduced  $\mu$ -opioid receptor binding in the brain, suggesting that exogenous estrogen enhances functioning of the endogenous opioid system (Smith et al., 2006). In addition to their antinociception role, estrogens also seem to play a role in inducing hyperalgesia and pain (Dao & LeResche, 2000; Lanlua et al., 2001).

It has become increasingly apparent that women suffer a disproportionate amount of pain during their lifetime compared to men (Leveille et al., 2005; Craft, 2007). Women reported higher rates of chronic pain conditions and

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## Psychological assessment of cancer patients with chronic pain

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### Abstract

This study examined assessment of pain and psychological status in patients with cancer. Pain measure developed to determine psychological factors which make an impact on pain intensity among cancer patients. Methods: Pain intensity Questionnaire, Life Satisfaction scale, Anxiety Scale, Beck Depression Inventory, Anger Scale. The Pain Questionnaire was administered to 48 cancer patients with pain. To elucidate the relationship between pain and psychosocial variables, several domains have been identified: life satisfaction; anxiety, depression and anger. The occurrence of anger in cancer patients with chronic pain was assessed, and the association with socio-demographic variables, pain variables, and affective component was investigated. © 2010 Elsevier Ltd. All rights reserved.

*Keywords:* Depression; anger; anxiety; pain intensity; life satisfaction.

### 1. Introduction

Pain is said to be one of the most feared and distressing symptoms of cancer (Bruera & Kim, 2003; Foley, 1999). Pain is the end product of a complex process that may involve emotional, cognitive, and sensory components (Chapman, 1998). Gerbershagen et al. (2008) measured quality of life in prostate cancer patients with and without pain. They found that depressive symptoms are significantly more frequent in pain patients than in patient without pain. Another study compared patients with and without pain who were matched by site and progression of disease (Ahles et al. 1983). Patients with pain scored higher on measures of depression as well as anxiety, hostility, and somatization.

Cancer pain is best described as a multidimensional model. Pain, and especially cancer pain, is not only a physical experience, but involves affective, cognitive, behavioral, and socio-cultural dimensions. Cancer pain has characteristics of chronic and of acute pain. Acute cancer pain is directly associated with tissue damage. When cancer pain persists it can serve as a sign of the progression of disease, and can produce feelings of hopelessness and emotional distress, and might have a negative impact on coping techniques. The cognitive dimension refers to the way patients think of their pain and what the pain means for them, in terms of thoughts, beliefs, attitudes, and self-efficacy expectations. Beliefs and emotions about pain are assumed to play an important role in the process of coping by influencing both the initiation of coping strategies and a person's level of adjustment. The way a patient copes with pain is influenced by the thoughts about their pain and what the pain means for them. Although the role

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## P1-109

**Depression as a Possible Risk Factor for Cancer: A Systematic Review of Prospective Studies**Deepa Damodaran<sup>1</sup>, Varghese Paul<sup>2</sup><sup>1</sup>*Department of Psychology, Bharathiar University, Coimbatore, Tamilnadu, India,* <sup>2</sup>*Department of Psychology, Prajyoti Niketan College, Thrissur, Kerala, India*

**BACKGROUND:** Depression has been proposed as a predisposing factor for cancer as findings of various studies reveal a tendency among patients with depression toward a marginally significant association with the subsequent cancer risk. But results of prospective epidemiological studies have been inconsistent and inconclusive. Through this paper authors evaluated the evidence of depression as a possible factor influencing the development of cancer by reviewing prospective cohort studies. **METHOD:** Studies were identified by computerized searches of Medline and Embase with a sensitive search strategy using the keywords as well as manual searches of reference lists of selected publications. As per the protocol and the PRISMA 2009 recommendations articles were retrieved. After the relevance screen, further selection process was conducted based on inclusion criteria: prospective cohort design, population-based sample, structured measurement of depression, focus on depression as a potential risk factor for cancer and report of empirical data. Methodological quality was assessed with a validated checklist. Double-data extraction ensured accuracy. Analysis was by narrative synthesis. **RESULTS:** Out of 9 articles assessed for eligibility, 3 studies provided evidence of a relationship between depression and cancer risk. This overview of the evidence suggests a causal relationship between depression and cancer risk. Although chronic and severe depression is found to be associated with elevated cancer risk, results of studies investigating association between less severe depressive episodes and cancer risk were not conclusive of causal association, but suggestive due partly to methodological heterogeneity. **CONCLUSIONS:** Having mood disorders been prevalent and disabling in nature, these studies provide support to hypotheses about a common biological pathway between depression and cancer and highlight the need to identify the mechanisms to regulate it. It also emphasizes the deleterious effect that depression can have on lifestyle factors which in turn may predispose the individual to develop cancer. **RESEARCH IMPLICATIONS:** Depression may either have a long delayed effect on cancer risk, or it may play a role in combination with known risk factors to increase cancer risk. Future studies can focus on empirical studies to further examine the mechanisms through which emotions and psychological well-being affect our health.

**CLINICAL IMPLICATIONS:** As depression affects the immune and hormonal system clinicians must be aware about the psychobiological mechanisms under which it operates. Depression may increase the probability that the individual will engage in behaviors that indirectly increase the risk of developing cancer. This awareness should encourage better identification of those at risk and the development of effective interventions to protect them from developing cancer. **ACKNOWLEDGEMENT OF FUNDING:** None.

## P1-110

**Pain and Social Activity in Colorectal Cancer Patients**

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**BACKGROUND:** Colorectal cancer is among the leading causes of cancer related deaths in men and women across the world. This investigation was carried out to examine whether pain is positively correlated to decreased social activity, anxiety and depression in colorectal cancer patients. The purpose of this study is to also compare pain intensity, anxiety, depression and social activity in two groups of pain patients - colorectal cancer patients and non-cancer patients. **METHOD:** Thirty two (32) patients were examined. The mean age of patients was 64.1 years (SD = 10.6), 56% were male, 52% did not know their cancer diagnosis which was related to colon (42%) and rectum (58%). The second research group consisted of twenty eight (28) patients with chronic low back pain. All patients were assessed based on clinical standards (physical examination, laboratory results, histological diagnosis and analysis of medical records). The methods used were Visual Analogue Scales (VAS), standardized interviews and self-questionnaires – Back Depression Inventory and State-Trait Anxiety Inventory for Adults. **RESULTS:** Twenty nine patients experienced pronounced anxiety because of their pain and 23 patients expressed depressive pain-associated symptoms. Anxiety and depression show significant correlation with pain intensity. There were no significant differences in pain-anxiety and pain-depression correlations between the 2 groups. Most patients reported a decreased activity because of pain. The patients' functioning was examined in the following areas: physical functioning, social functioning, emotional problems and their impact on accomplishments at work or other usual activities and mental functioning. We found significant differences between cancer and non-cancer groups in level of functional activity decreasing especially mental functioning and social activities. **CONCLUSIONS:** The results suggest that experience of pain produced marked levels of anxiety and depression in

both cancer and non-cancer groups. Nevertheless, these patients who had not been diagnosed with cancer had statistically significant higher activity in most areas of life. In the cancer group we found decreased and impaired functioning in every social activity listed in the structured interview (hobbies, seeing friends) and in most cases the decrease correlated significantly with the intensity of the pain. In non-cancer group functional impairment is significant only in respect of physical functioning; nevertheless, there were similar levels of pain intensity in both groups. **RESEARCH IMPLICATIONS:** Future research should investigate the correlation between chronic cancer pain, social support and coping mechanisms. Creation of reliable scales with good psychometric properties and involving more patients in similar research will improve the accuracy and dependability of the obtained results. **CLINICAL IMPLICATIONS:** Research on psychosocial factors related to cancer pain would serve as improved assessment of the subjective nature of pain. In addition research on correlations between cancer, pain and social functioning connected to cultural and economic factors as parts of quality of life will provide new insights into the bigger socio-economic scope. **ACKNOWLEDGEMENT OF FUNDING:** We thank the Trakia University, Faculty of Medicine for the financial support of this project. This study was supported by a scientific grant 7/2009.

**P1-111****Cognitive Control Deficit and Distress in Patients With Lymphoma**

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**BACKGROUND:** It is known that effortful cognitive control is necessary for coping with emotional distress. It's obvious that a new diagnosis of cancer and aggressive treatment contribute to the development of depressive and anxious feelings. The aim of this study was to identify the cognitive activity disturbances in association with analysis of the development of affective disorders in lymphoma patients. **METHOD:** Participants were asked to detect grammatical errors in neutral and stressful text fragments. Stressors fragments contained information on emerging lymphoma symptoms and side effects of chemotherapy, as well as related to cancer experience feelings of helplessness and hopelessness. If patients heard a sound signal, they should have reacted to it by pressing a certain button. The average time of the sensorimotor response to sound, the average time of errors searching time in the text was calculated. 20 healthy controls and 32 newly diagnosed patients with different forms of lymphoma participated in this study. **RESULTS:** Patient's search time of errors in stressful fragments was sig-

nificantly longer than in neutral fragments. The reaction time of patients with lymphoma to acoustical signal was also significantly longer than in healthy controls. Correlation analyses revealed an association of lower patient's distress and less fixation time on the stressor fragments. The level of mental rumination in patients and the number of occurred errors during the test "Signal" detected to be positively linked. **CONCLUSIONS:** Patients with lymphoma were found to experience the cognitive activity disturbances when had been exposed stressful information related to the disease. Thus, fixing the attention on the topic of disease is a predictor of the development of affective disorders, including clinical level. These findings suggest that the psychophysiological methods can be used in psychooncology as fast and reliable tools to identify patients with the highest risk of distress after the diagnosis of cancer. More detailed studies of the mechanisms of depression and anxiety in cancer patients are required. **ACKNOWLEDGEMENT OF FUNDING:** None.

**P1-112****Assessment of Psychiatric and Psychosocial Problems Among Newly Diagnosed Cancer Patients at the National Cancer Institute - Cairo University**Jafar Udwan, Nelly Mahgoub, Amal Sami  
*Cairo University, Cairo, Egypt*

**BACKGROUND:** This study aimed to assess psychiatric and psychosocial problems secondary to newly diagnosed cancer patients admitted to at the National Cancer Institute, Cairo University, Egypt. A randomized sample of 280 patients newly diagnosed of cancer in the Oncology Inpatient departments was selected. **METHOD:** A descriptive cross-sectional design was used for this study as a research methodology. Quantitative methods were used in this study through using three tools of data collection. The researcher developed the first two tools, while the last one was a ready standardized tool. These were: (1) the Patient Medical Psychosocial Demographic profile, (2) the Developed Mental Status Examination Inventory, and (3) Anxiety/Depression Scale. **RESULTS:** This study revealed that more than half of sample were males (58.7%), the highest percentage of the research sample aged (36–40) years and more than 55 years and the highest percentage of them between illiterate and secondary school graduated. Less than two thirds of the research sample were married (62.3%). Two fifths (41%) had psychiatric and psychosocial problems in different levels. In subscale result, 28.9% had mild depression, 8.2% had moderate condition of depression, 26.2% had mild anxiety, while for 14.7% it was moderate, and for only 7.5 it was sever. **CONCLUSIONS:** This study concluded that nearly two fifths of the study sample had psychiat-

actually under remission and free of anti cancer active treatment. Prevalent psychiatric diagnosis is Adjustment Disorders. Intervention bases on psychotropic drugs often conjugated with supportive psychotherapy; psychiatric follow-up continues at IPOLFG. Further data will be launched: (1) lag-time between request and 1st appointment; (2) correlations between individual oncologic and psychiatric data at 1st appointment; (3) evolution of psychiatric profile throughout time. **RESEARCH IMPLICATIONS:** In a few years we would like to re-evaluate IPOLFG Psychiatry Outpatient Clinic data looking for positive trends that might validate the ongoing Psycho-Oncology Program. Main variables to control would be: rate and accuracy of psychiatric referral, evolution of diagnosis and patients' outcome. **CLINICAL IMPLICATIONS:** The present characterization is fundamental to understand the standard of Psycho-Oncology care in IPOLFG and to improve its quality in the future, namely to adjust the Psychiatric intervention to the needs and profile of our patients. Upgrading the quality of psychiatric care will eventually increase patients' coping skills and quality of life. **ACKNOWLEDGEMENT OF FUNDING:** None.

#### P1-108

##### **Cancer and Non-Cancer Pain – Assessment and Consequences**

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**BACKGROUND:** Lately, studying the psychosocial factors of pain has been a topic of interest from researchers. Many investigators suggesting that regardless of its origin pain is perceived the same way by everyone. Still others claim that pain is perceived differently depending on different factors. The purpose of this study is to compare pain intensity, frequency and its impact on daily functioning in two groups of pain patients - colorectal cancer patients and non-cancer patients. **METHOD:** Thirty two (32) patients were examined (first group). The mean age of patients was 64.1 years (SD = 10.6), 56% were male, 52% did not know their cancer diagnosis which was related to colon (42%) and rectum (58%). The second research group consisted of twenty eight (28) patients with chronic low back pain. All patients were assessed based on clinical standards (physical examination, laboratory results, histological diagnosis and analysis of medical records). Semi structured interview was conducted with questions about coping strategies, frequency of pain episodes, emotional problems and daily activities. Pain intensity was assessed with VAS (Visual Analog Scale). **RESULTS:** There were no significant differences in subjective perception of pain between the two

groups. This result confirms the predominant researchers' idea that there is a similarity in subjective experience of pain in patients with different conditions including cancer. We found significant differences in the preferable coping strategies between the two groups of patients. The cancer patient group shows greater preference for using passive coping strategies, but non-cancer patient group displays mixed coping strategies – passive and active. Coping strategies had been explored considering coping to be a reflecting of motivation for different goals (e.g., pain relief vs. improved function). **CONCLUSIONS:** The data suggests that regardless of the similarity in experience of pain in different groups of patients, cancer shows greater negative effects on daily functioning than non-cancer chronic pain conditions. Non-cancer patients use variety of coping strategies including active but cancer patients prefer passive coping with pain. In addition, our results suggest that the use of active coping strategies may, through their association with acceptance, result in a better physical, psychological and emotional functioning. The use of passive coping strategies like avoidance, pain-contingent rest, and defensive behavior may result in an increased pain and disability over time. **RESEARCH IMPLICATIONS:** Future research should investigate a wider range of affective and behavioral consequences of chronic cancer pain. It is possible that arousing emotions are more effective inhibitors of pain than calm states of relaxation because active coping strategies are adaptive nevertheless intensity of pain. The differences in functional consequences of pain between cancer and non-cancer patients support the view that a cancer diagnosis is a uniquely traumatizing event, producing broad negative impact on survivor's psychosocial functioning. **CLINICAL IMPLICATIONS:** Clinically, the results of this study support the continued use of interventions that encourage adaptive coping (e.g., maintaining activity despite pain and acceptance) and that discourage maladaptive coping (e.g., defensive behavior) should be provided to patients who have not yet learned to adequately manage pain. Pain intensity and its behavioral and emotional consequences should be consistently assessed, and, when there are significant findings they have to be clinically elevated and treated appropriately. **ACKNOWLEDGEMENT OF FUNDING:** We thank the Trakia University, Faculty of Medicine for the financial support of this project. This study was supported by a scientific grant 7/2009.



*Original Contribution*

## DEPRESSIVE SYMPTOMS IN SCHIZOPHRENIA AMONG OLDER ADULTS

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### ABSTRACT

**OBJECTIVE:** The authors assessed the presence and severity of depressive symptoms, as well as their associations with other clinical measures, in a group of mid- to late-life patients with schizophrenia who were not in a major depressive episode or diagnosed with schizo-affective disorder. **METHOD:** Sixty outpatients with schizophrenia between the ages of 45 and 79 years and 60 normal comparison subjects without major neuropsychiatric disorders, proportionately matched for age and gender, were studied. Depressive symptoms were rated primarily with the Beck Depression Inventory. Standardized instruments were also used to measure global psychopathology, positive and negative symptoms, abnormalities of movement, and global cognitive status. **RESULTS:** Depressive symptoms were more frequent and more severe in schizophrenic patients than in normal comparison subjects; 20% of the women with schizophrenia had a Beck Depression scale score of 21 or more. Severity of depressive symptoms correlated with that of positive symptoms but not with age, gender, negative symptoms, extrapyramidal symptoms, or neuroleptic dose. **CONCLUSIONS:** Depressive symptoms are common in older patients with schizophrenia. They may be an independent, core component of the disorder or, alternatively, may be a by-product of severe psychotic symptoms.

**Key Words:** depression, positive symptoms of the schizophrenia, negative symptoms of the schizophrenia

### INTRODUCTION

According to data of American Psychiatric Association (APA) during the last 30 years the number of patients above 54 years old suffering from schizophrenia has risen by a factor of 2. That generation spends less time in the psychiatric institutions compared to the younger patients and has specific medical and social needs. MEDLINE and PsychInfo claim that only 1% of the articles on schizophrenia focuses on the older adults. Moreover, more than 85% of the patients with schizophrenia develop the disorder before their 45<sup>th</sup> year and age with it.

### Where can we find patients with schizophrenia?

According to epidemiological data the patients with schizophrenia are 3% of the population above 65 years old. The majority of them live in the community and this poses corresponding requirements in out-patient psychiatric care and the home care.

### How does the schizophrenia change the life cycle?

The interpretation of the literature on aging and schizophrenia requires taking into account the bio- psycho- social perspective. That implies that the changes that come during the life cycle of the people with schizophrenia should be integrated with the normal changes of aging (in the neuro- endocrine system, the cognitive abilities, the psychic health and the adaptation).

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## OBESITY AND LOW BACK PAIN IN POSTMENOPAUSAL WOMEN

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### Summary

Both low back pain (LBP) and obesity are common public health problems, yet the relationship between them remains controversial. Twice as many postmenopausal women suffer from LBP, as compared to pre-menopausal women. AIM: To investigate the association between body mass index (BMI) and the prevalence of LBP in postmenopausal women, aged 51-63 years who have sought help from their GPs in Pleven and the specialized clinics of the University Hospital Stara Zagora. METHODS: Chronic pain patients were divided into three weight categories, based on body mass index (BMI): normal (BMI < 25 kg/m<sup>2</sup>), overweight (BMI between 25 kg/m<sup>2</sup> and 30 kg/m<sup>2</sup>), and obese (BMI > or = 30 kg/m<sup>2</sup>). The data collected included socio-demographic characteristics, anthropometric measurements, LBP, medical and reproductive history, health status and menopausal status. The women completed questionnaires designed to measure pain severity. RESULTS: 23.7% of the investigated women reported chronic LBP and 73.5% of these women were obese and overweight. For menopausal women, among all weight-related factors, only waist circumference and waist-to-hip ratio were related to LBP. CONCLUSIONS: Obese postmenopausal women often suffer from LBP. We found that in a population of postmenopausal women the abdominal obesity might increase the risk of LBP.

**Key words:** obesity, low back pain, postmenopausal women, waist-hip ratio, body mass index

### Introduction

Low back pain (LBP) is one of the most common problems nowadays. Obesity, together with overweight, which means a higher body mass index (BMI), correlate with worsening of life-quality and muscle-skeleton functioning. Obese people often look for medical help in relation to their complaints of back muscle pains [1]. Based on such data, many authors draw the conclusion that there is a correlation between obesity and low back pain/overweight [1, 2, 3, 4]. This problem becomes even more pronounced in postmenopausal women [5, 6]. During this period of women's life, the likelihood of increasing the weight and manifestation of LBP increases due to the changes of

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## PERSONALITY FACTORS IN OBESITY AND CHRONIC PAIN

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### Summary

Objective: To evaluate obesity and some personality factors (optimism, pessimism, gelotophobia) as markers for increased pain severity and psychological distress in mixed chronic pain patients. Seventy-two chronic pain patients were divided into two weight categories, based on body mass index (BMI): normal (BMI < 25 kg/m<sup>2</sup>) and overweight and obese (BMI ≥ 25 kg/m<sup>2</sup>). The patients completed questionnaires to identify pain severity, anxiety, optimism, pessimism, gelotophobia and life satisfaction. Pain severity and days per week with pain were similar in the weight groups. Gelotophobia is defined as the pathological fear to appear as an object of ridicule to social partners. Gelotophobia at its extreme involves a more or less pronounced paranoid tendency, a marked sensitivity to offence, and social withdrawal. Gelotophobia was related to increasing weight, and increased BMI was associated with more days per week with reduced activity. Anxiety scores also correlated to the weight category, with an average Spielberger Anxiety Inventory score of 31.62 ± 5.25 in normal, and of 43.78 ± 11.04 in overweight and obese patients. Optimism and pessimism are general expectancies for the occurrence of positive or negative events in the future or an explanatory style, attributing positive or negative events to internal, stable, and global causes. Optimism was also reduced in relation to weight. Weight is associated with anxiety, gelotophobia and reduced life satisfaction in chronic pain patients. This study found that pessimism may positively or negatively influence efforts to increase health-promoting behaviors. Calculation of the BMI should become a routine part of the screening evaluation for chronic pain patients, with an additional screening for personality and psychologic distress in patients with elevated BMIs.

**Key words:** personality, anxiety, gelotophobia, life satisfaction, chronic pain

### Introduction

Obesity has significant consequences for health and is a leading cause of a number of chronic illnesses [1] such as diabetes, hypertension and coronary disease. There are an increasing number of researches showing that there is a correlation between obesity and pain [2]. The correlation between obesity and lower back pain is not direct. There are factors that

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# PREDICTORS OF PAIN INTENSITY AND LIFE SATISFACTION IN CHRONIC PAIN PATIENTS

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**Abstract.** *The relationship between anxiety, depression and pain intensity among patients with different levels of life satisfaction was examined. Previous studies have supported the idea that anxiety and depression play a significant role in chronic pain, but the relationship between anxiety, depression and pain intensity in connection to patient's life satisfaction has not been adequately explored. The sample was 82 patients with chronic pain who were dividing into two groups – with high and with low levels of life satisfaction. Data were collected through individual interviews, using an 7-point numerical pain rating scale, Spielberger Anxiety Scale, Beck Depression Inventory and Life Satisfaction Scale. In addition, demographic data were identified from the medical records. The average anxiety and depression levels of the participants were 41.46 (SD 9.02) and 13.89 (SD 7.12) – higher than the normal levels. The levels of anxiety and depression were significantly positively correlated with pain intensity ( $r = 0.471, p < 0.0005$ ) and was also a significant predictor of pain intensity. There were finding significant differences between groups with high and low life satisfaction. The results showed that anxiety and depression are not only associated with pain intensity but that they also predict it and decrease patient's life satisfaction.*

**Keywords:** *pain intensity, anxiety, depression, life satisfaction, chronic pain*

## INTRODUCTION

The improvements in the medical treatment and care of individuals with chronic pain in recent decades has prolonged the lifespan of these individuals. Since the basic, hard-core medical issues for long-term survival have been brought

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## EFFECTS OF COLD STRESS ON SPONTANEOUS BEHAVIOR OF RATS

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### ABSTRACT

**PURPOSE:** Activation of the hypothalamic–pituitary–adrenal axis by stress is thought to promote physiological and behavioral changes so that an organism can deal with stress. A number of studies have revealed that various stressors produce differential effects, which are frequently referred to as stressor specific response. The purpose of our study was to investigate the effects of cold stress on spontaneous behavior of male Wistar rats using an open field test.

**METHODS:** Stress procedure includes 1 hour cold exposure (4°C) in refrigerating chamber. The behavioural responses were assessed during a 5-min observation in open field test which enables the determination of spontaneous motor activity and may allow the interpretation of the registered motor patterns in terms of exploratory motivation and emotional reaction.

**RESULTS:** The obtained results show that low temperature as inescapable physical stressor significantly reduced ambulation and rearing of rats and significantly increased their freezing behavior compared to the control group.

**CONCLUSIONS:** One hour cold stress procedure showed well expressed inhibitory effect on spontaneous behavior of male Wistar rats in the open field test.

**Key words:** physical stress, open field, locomotor activity, immobility

### INTRODUCTION

Stress can be described as an organism's response to any influence exerted by environmental or endogenous factors that disrupt homeostatic mechanisms within the organism (1). An integral mediator of the stress response is a set of structures in the brain and peripheral nervous system known as hypothalamic–pituitary–adrenal (HPA) axis. It promotes physiological and behavioral changes so that an organism can deal with stress (2).

Individual differences in the responsiveness of the stress pathways including the sympathetic nervous system and HPA axis have been studied in animals and humans (3-6). The animal's response to stress (and the individual variation it displays) depends not only upon the state and conditions of the animal but also

upon the nature (or type) of the stressor itself (3, 7). Stressors can be physical (immobilization, cold or hot exposure) or psychological (emotional) in nature, and have wide-ranging effects on neuroendocrine, autonomic, immune, and hormonal function (8, 9).

A wide variety of animal stress models can be used to understand still unknown mechanism of stress-induced behavioral changes. It is known that temperature fluctuation induced stress. Acute change in temperature leads to stressful conditions by activation of temperature regulatory centre in the hypothalamus and subsequently HPA axis. It leads to acute release of adrenocortical hormones in the blood stream responsible for acute stress. A sharp decrease in temperature using either cold water or freezer has been used frequently to induce acute stress (9).

Taking into account all this background, the aim of the present study was to investigate the effect of cold stress (low temperature

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## EFFECTS OF ESTROGEN ON PAIN-INDUCED BEHAVIORAL RESPONSES IN OVARIECTOMIZED RATS

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### ABSTRACT

**PURPOSE.** To evaluate the effect of estrogen in the response by female rats to nociceptive stimulation, we measured the effects on formalin-induced responses in ovariectomized rats. **METHOD.** Two groups of female rats were subjected to ovariectomy and sham surgery. The persistent pain in all the animals was induced by a subcutaneous injection of dilute formalin (50  $\mu$ L, 10%) in the dorsal hind paw. The formalin-induced responses (licking duration, flinching frequency and flexing duration of the injected paw) were recorded for 60 min. **RESULTS.** Estradiol absence resulted in significantly longer duration of formalin-induced licking in ovariectomized rats than in nontreated intact rats. **CONCLUSIONS.** The depletion of estrogen in female rats modulates the pain-induced behavioral responses related to supraspinal neural circuits (licking of the injected paw) rather than more spinally mediated responses such as formalin-induced flinching.

**Key words:** estradiol, pain, ovariectomy

Experimental and clinical data have reported a clear antinociceptive role of estrogens (1, 2). For instance, in experiments using female and male rats subjected to phasic painful stimulation (i.e. thermal pain), it was demonstrated that estrogens have acute antinociceptive effects when administered i.p. or s.c. (3, 4). It is well known that in humans, menopause causes depletion of estrogens, while in experimental animals ovariectomy is a common method to deplete animals of their gonadal hormones (4). Ceccarelli et al. (2003) used the method to induce tonic, long-lasting pain, a formalin test, to record different behavioral responses mediated at different levels of the CNS (i.e. flinching, a phasic short contraction of the leg, present also in spinalized animals; flexing, a tonic contraction of the injected paw; licking, mediated at higher supraspinal levels) (5).

The aim of the study was to compare intact female rats to OVX ones to determine if long-term hormonal depletion could significantly modify the behavioral responses to persistent nociceptive stimuli.

### MATERIAL AND METHODS

#### Subjects

Twenty-two adult female Wistar rats, weighing 280–320 g on arrival, were used. The animals were housed in a temperature- and humidity-controlled room with a light-dark cycle (lights on at 19.00 h, off at 07.00 h) and with free access to food and water. In all experiments, we strongly observed the rules of the European Communities Council Directive (86/609/EEC) and the Ethical Guidelines for investigation of experimental pain in conscious animals issued by the ad-hoc Committee of the International Association for the Study of Pain (6).

#### Surgery

One week after their arrival, half of the rats (n=11) were bilaterally ovariectomized (OVX) under pentobarbital anesthesia (40 mg/kg, i.p.) by removal of the ovaries with a dorsal incision. The other rats were sham

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## PAIN PERCEPTION TO THE COLD PRESSOR TEST IN REPRODUCTIVE-AGE WOMEN: RELATION TO MENSTRUAL PHASE AND COMPARISON WITH MEN

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### ABSTRACT

**PURPOSE.** To evaluate the response to cold pressor pain in normally menstruating women during the two phases of the menstrual cycle and in comparison to men. **METHOD.** 60 volunteers, separated in two groups of women (in follicular phase - gr. 1, n = 18; and in luteal phase - gr. 2, n = 21) and men - gr.3 (n = 21), were subjected to cold pressor test. Latency to first feel pain (pain threshold) and latency to withdraw the arm from the icy water (pain tolerance) were recorded. Participants completed questionnaires assessed health, anger and stress state. **RESULTS.** The data revealed statistically significant differences ( $F = 8.12, p < 0.001$ ) between women in two groups, and men, in pain tolerance. Women reported significantly more pain symptoms than did men. Women in follicular phase displayed longer pain tolerance than did women - in luteal. **CONCLUSIONS.** 1. Men tolerated more pain than women. Moreover, attitudes and role expectations are likely to play key roles in this difference, since no gender difference was found for pain threshold. 2. The menstrual phase difference assessed seems to be dependent on the serum concentration of estrogen as far as possible that this hormone level is high in follicular phase.

**Key words:** cold pressor test, pain tolerance, pain threshold, sex differences, menstrual phase

### INTRODUCTION

The most current human findings regarding sex differences in experimental pain indicate greater pain sensitivity among females compared with males for most pain modalities (1). Compared with men, women display enhanced sensitivity to most forms of experimentally induced pain.

The majority of studies show that women are more sensitive than men to experimentally induced cold pain as evidenced by lower pain tolerance (2, 3).

The aim of the study was to compare perception of pain, induced by the cold pressor test in women and men and women's response to cold

nociceptive irritant in dependence of menstrual cycle. We decided to examine and compare our data with these of Hellström & Lundberg (4) and several other investigators (5, 3).

### METHODS

**Subjects.** Sixty healthy volunteers: 39 female - students, aged between 19 and 37 years, with regular menstrual cycle ( $28 \pm 4$  days), without hormonal treatment during the past 12 months, separated in two groups: gr.1. - in follicular phase and gr. 2. - in luteal phase and 21 men, aged 27 (SD = 4) years) were included. Exclusion criteria were use analgesics, and for women not taken oral contraceptives. In all the study, we strongly observed the rules of the local ethical committee at Trakia University and the principles of the Declaration of Helsinki (1964). An informed consent was obtained from all participants before initiation of the experimental procedures. They were informed

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## PSYCHOLOGICAL FACTORS OF CORRELATION BETWEEN PAIN TOLERANCE, PAIN THRESHOLD AND OBESITY

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### ABSTRACT

The obesity is a significant social and medical problem for children and adults. Many recent studies suggests that genetic, physiological, environmental and behavioral factors contribute to it. In addition many articles support the idea that there is a strong relationship between obesity and pain. **PURPOSE:** The purpose of this study is to explore relationship between pain tolerance, pain threshold and obesity. **METHODS:** The present study was carried out on 60 volunteers of which 19 subjects with BMI>30kg/m<sup>2</sup> and 41 subjects with BMI<30kg/m<sup>2</sup> (non-obese). **RESULTS:** Pain detection and pain tolerance thresholds to cold were determined. The influence of gender age, BMI, bodily symptoms of stress, anger and optimism were analyzed. **CONCLUSIONS:** The study results suggests the presence of correlation between pain tolerance and obesity which is affected by behavioral and personality factors.

**Key words:** optimism, cold pressure test, acute pain, stress

Overweight and obesity are chronic conditions with great social and economic importance. They both are a consequence of an energy imbalance over a period of time. The cause of this energy imbalance can be a result from combination of several different factors and varies from one person to another. Environmental factors, individual behaviors, and genetics contribute to the complexity of the obesity nowadays. An *energy imbalance* arises when the number of calories consumed is *not equal* to the number of calories used by the body. *Weight gain* when the people consuming too many calories and not expending enough through physical activity. Excess energy is stored in fat cells, which enlarge or multiply. Enlargement of fat cells is known as *hypertrophy*, whereas multiplication of fat cells is known as *hyperplasia*. During kind of period of time the excesses in energy storage lead to obesity. Body mass index (BMI) is a (kg)/ height squared (m<sup>2</sup>). It is used to describe an individual's relative weight for height, and is mathematical ratio which is calculated as weight

significantly correlated with total body fat content. Obesity is associated with significantly impaired quality of life. Higher BMI values are associated with greater health risk for the any individual. There are several differences between man and women in the medical and especially social consequences of obesity. For example, obese women appear to be at a greater risk for psychological dysfunctions. This may be due to the social impact on women to be thin. On the other hand the weight loss has been consistently associated with improved quality of life among both women and man. Obese patients who lost more than 30 kg through gastric bypass demonstrated improved quality of life scores to such an extent that their post-weight loss scores were equal to or even better than population norms (1).

A number of studies have positively correlated the experience of pain with an increase in body mass index (BMI) (2, 3). The causal relationship between the two remains unclear: It is not known whether obesity causes chronic pain, chronic pain causes obesity or some other factor causes both concurrently. Obesity is hypothesized to lead to pain because of excess mechanical stresses and its pro inflammatory state. Chronic

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## THE EFFECT OF ANGER ON EXPERIMENTALLY INDUCED PAIN

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### ABSTRACT

The purpose of the present research is to find out the effect of anger on experimentally induced pain. Persons examined: 60 volunteers at the Trakia University, age between 19 and 61 years. Man – 21, female - 39. Methods: State-Trait Anger Expression Inventory (Spielberger); Cold Pressor Test. The results show that a reverse correlation exists between the anger as a personality trait and the pain tolerance ( $r = -0,341$ ;  $p = 0,03 < 0,05$ ). The anger as a behavior appears more to men and to individuals over 50 years old. Higher results of the anger as a personality trait imply less tolerance to experimentally induced pain.

**Key words:** cold pressor test, pain threshold, pain tolerance, anger-in, anger-out

### INTRODUCTION

The term anger is used to designate an emotion which varies in its intensity from annoyance to rage. The anger is characterized with a physiological excitement, a typical facial expression and an impulse to aggression. It is generally accepted as a transitional state occurring in response to an attitude or damage perceived to be unfair. The reactions of anger could be adaptive, especially when expressed in a constructive manner, but the chronic ones are often non-adaptive because they result in interpersonal conflicts and chronic sympathetic excitement (1).

The two main strategies for regulating the emotions are suppression or direct expression (2). In the context of the emotion anger, these two regulating strategies are specified as: outwardly expressed anger and held-in anger (3). The expressed anger represents the trend to regulate anger through direct verbal or physical act and in more extreme cases it could include verbal aggression, sarcasm, dispute, physical act such as shutting or slamming doors and

generally “to lose your temper” (3). The outwardly expressed anger is related to the sensitivity of the person to severe and chronic pain (4).

When exploring pain, various authors point out that it is related to the emotional states, including depression, anxiety, fear and anger. The studies in most cases have found out that the higher levels of negative emotions are connected with more intensive, severe and chronic pain (10-12). The way to deal with anger is related to severe and chronic pain at the same time (13). Recent studies suggest that the way to deal with the outwardly expressed anger may influence the sensation of severe pain and that effect could be strongly seen with provoked anger (13).

During the review of the bibliography, it turned out that the trend to deal with anger through direct verbal or physical expression (outwardly expressed anger trait) is related to increased sensitivity to severe and chronic pain (14).

The effects of outwardly expressed anger trait on experimentally induced pain on healthy people were studied in few publications. The high results were related to the considerably lower pain tolerance during cold pressor test (15). In other studies, the examined people were not

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## CORRELATION BETWEEN OPTIMISM AND EXPERIMENTALLY INDUCED PAIN

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### ABSTRACT

**Purpose:** The purpose of the present study is to estimate the connection between optimism and negative expectations with the pain threshold and the pain tolerance toward experimentally induced pain. **Subjects:** Sixty healthy individuals participated in the study. **Methods:** Cold pressor test, Optimism and negative expectations Inventory and Subjective health assessment scale have been used. **Results:** Positive and significant correlation between optimism and the level of stress, as well as between optimism and stress symptoms have been found. No correlation between optimism and pain tolerance threshold have been found. No significant differences in pain threshold and pain tolerance between optimist and negative expectation groups have been found. **Conclusions:** Age influences on optimism, stress and pain tolerance. Pain tolerance increases with age. Optimism supposes better adjustment toward stress.

**Key words:** cold pressor test, pain tolerance, pain threshold, optimism and negative expectations

### INTRODUCTION

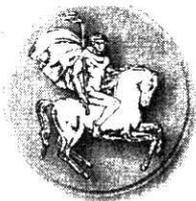
The sensitivity of pain is completely individual and severely modified by psychological factors. In the scientific literature it has been suggested that optimism may positively influence the course and experience of pain. A number of clinical trials show that the optimism suggests better adjustment towards the chronic pain (1-8). Researches on optimism and chronic pain among heterogeneous groups of patients show that optimists usually report about less pain and react toward the treatment better. For example, optimism is associated with lower intensity of the pain, reported from patients with different types of cancer (2, 9, 10) and musculoskeletal pain (11-13). There is data that optimists recover more successfully and declare about less postoperative pain in comparison with patients who have negative expectations (14). These findings lead to increase researches on influence of optimism but not only among patients with acute and chronic pain but as well as experimentally induced pain and healthy people.

Results from cold pressor test with healthy volunteers show the optimists have lower intensity of pain in comparison with the people with negative expectations as well as lower cardio-vascular reactivity and they feel less distress as a result of the experiment (15). Another research proves that the optimism is associated with lower grades of intensity of the pain in answer to the cold pressor test among healthy people (16). An experiment to reveal the character of the connection between optimism and pain is induction of optimism before the test and it leads to lower intensity of pain in the experimental group in comparison with the control group. This is the first research which proves experimentally cause-and-effect relationship of optimism and reactions to the pain (17). But all researches don't prove these results, for example Snyder et al. don't recover influence of individual differences in optimism over pain threshold and pain tolerance (18).

The purpose of the present study is to estimate the connection between optimism and negative expectations with pain threshold and tolerance toward experimentally induced pain.

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## HEALTH LOCUS OF CONTROL AND PAIN TOLERANCE AMONG GROUPS WITH DIFFERENT SOCIO-CULTURAL CHARACTERISTICS

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### ABSTRACT

A number of studies have positively correlated the experience of pain with socio-cultural factors. These studies are a part of a not enough developed area of researcher's demands to identify factors that might contribute to the individual's pain experience. These could include somatic (physical) and psychological factors, as well as contextual factors, such as situational and cultural considerations. These articles have discussed several socio-cultural factors that contribute to individual differences in pain perception, including ethnicity, sex and psychological variables (health locus of control). These factors have been discussed in the context of the biopsychosocial model of pain, which posits that pain perception is influenced by interactions among biological, psychosocial, and socio-cultural factors. 62 students were involved in this investigation as volunteers. 30 students self defined their ethnicity as Turkish and 32 self defined their ethnicity as Bulgarian. Cold pressure test and Health locus of control questionnaire were used. Cold pressure test was used to identify pain tolerance toward experimentally induced pain. The result of investigation suggests that health locus of control correlated with ethnicity. In addition, pain tolerance ranged within different socio-cultural groups. Finally, the scientific implications of individual differences in pain are discussed.

**Key words:** health locus of control, pain tolerance, ethnicity

### INTRODUCTION

Ethnicity designates a group of people who share same social environment, distinguished by behavior, culture, history, beliefs and traditions. According to some authors, combination of biological, psychological and socio-cultural factors is associated with differences in pain perception (1-4). As ethnicity refers to biological, social, psychological and cultural characteristics of the individual, it may be a factor contributing to differences in pain perception (5).

Several studies explore the relation between ethnicity and perception of experimentally induced pain. Walsh and colleagues (1989) found out that pain tolerance to cold pressor test in the groups of African-Americans and Hispanic-Americans is lower, compared to

non-Hispanic White Americans (6). Other studies examined cold pain threshold and pain tolerance of Americans from different ethnic backgrounds (7-10) or explore tolerance only (11-12).

Results of these studies indicate moderate differences in threshold and significant differences in tolerance to experimentally induced pain between ethnic groups. In all studies African Americans show lower thresholds and tolerance to cold pain, compared to Latinos or non-Hispanic Whites. Another study found a lower threshold and tolerance to experimentally induced pain in Asian-Americans than European Americans (13). Annie Y. Hsieh (2010) explored cold-pressor pain experience of Chinese and European Canadian students (14). The study found differences in pain tolerance, as Chinese Canadians have lower tolerance to cold pain, compared to their European colleagues. In general, studies find significant differences in tolerance and none or moderate differences in

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## ВЛИЯНИЕ НА ТРЕВОЖНОСТТА ВЪРХУ ПЕРЦЕПЦИЯТА НА ХРОНИЧНАТА БОЛКА

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## IMPACT OF THE ANXIETY AMONG CHRONIC PAIN PERCEPTION

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**Abstract.** *Objective.* To determine the impact of anxiety among chronic pain perception. *Methods.* Data on 32 chronic pain patients (20 women and 12 men) were gathered from a survey. Statistical analyses were conducted on a range of clinical and psychological variables: physical disability, disease duration, pain, depression, helplessness, and anxiety. Pain was measured with the pain subscale, and anxiety was measured with the Spilberger Anxiety Scale. *Results.* A series of multiple regression analyses revealed that the anxiety is one of the strong predictors of pain perception. *Conclusion:* The results of this study have implications for the overall management of chronic pain conditions.

**Key words:** chronic pain, anxiety, depression, helplessness, physical disability

На болката са посветени огромен брой страници научна литература. Интересът към тези проучвания според повечето изследователи е продиктуван от мястото и в човешката патология.

- Beck, A.T. *Depression: Clinical, experimental and theoretical aspects*. New York: Harper and Row (1967).
- Da Silva, J. A. & Hall, G. M. The effects of gender and sex hormones on outcome in rheumatoid arthritis. *Baillieres Clinical Rheumatology* 6 (1992) 196-219.
- Edwards, L. C., Pearce, S. A., Turner-Stokes, L. & Jones, A. The pain beliefs questionnaire: an investigation of beliefs in the causes and consequences of pain. *Pain* 51 (1992) 267-272.
- Farbey, J.D., & Ben-Porath, Y.S. Computerized adaptive personality testing: A review and illustration with the MMPI-2 Computerized Adaptive Version. *Psychological Assessment.*, 19 (2007) 14-24.
- Gatchel, R.J., Polatin, P.B., & Mayer, T.G. The dominant role of psychosocial risk factors in the development of chronic low back pain disability. *Spine*, 20, (1995) 2702-2709.
- Jordan, K.D., Mayer, T.G., & Gatchel, R.J.. Should extended disability be an exclusion criterion for primary rehabilitation? Socioeconomic outcomes of early versus late functional restoration in compensation spinal disorders. *Spine*, 23, (1998) 2110-2116.
- Kaffe, F. J. & Dunsmore, J. Pain behavior: concepts and controversies. *APS Journal* 1 (1992a) 92-100.
- Klapow, J.C., Slade, P.D., Stanley, I.M., et al. An empirical evaluation of multidimensional clinical outcome in chronic low back pain patients. *Pain*, 55, (1993) 107-118.
- Koni, S.H., Miller, R.P., & Todd, D.D. Kinesiophobia: A new view of chronic pain behavior. *Pain Management*, 3, (1990) 35-43.
- Melzack R, Wall PD. Pain mechanisms: a new theory. *Science* 1965; 150: 971-79.
- Spielberger, C.D.. Theory and research on anxiety. In C.D. Spielberger (Ed.). *Anxiety and Behavior*. New York: Academic Press ( 1966 )
- Van Vlieland TPM, Buitenhuis NA, van Zeben D, Vandenbroucke JP, Breedveld FC, Hazes JMW. Sociodemographic factors and the outcome of rheumatoid arthritis in young women. *Ann Rheum Dis* 1994; 53:803-6

## ГЕЛОТОФОБИЯ – СТРАХ ОТ ОСМИВАНЕ

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## GELOTOPHOBIA - THE FEAR OF BEING LAUGHED

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The present paper outlines the phenomenology and behavioral manifestations of Gelotophobia - the fear of being laughed at. Gelotophobia is defined as the pathological fear to appear to social partners as a ridiculous object. The structure of the concept is examined empirically (N = 192 clinical and non-clinical participants). Statistical analysis demonstrates that Gelotophobia depends on sex, age, chronic illness and educational status. Overall, it can be concluded that Gelotophobia is a distinct new concept.

**Keywords:** Gelotophobia, laughter, ridicule, mobbing, bullying

В историята на човечеството има много примери за това как хората са се присмивали на по-слабите. Например, преди няколко века е било прието хората да се развличат през уикенда като посетители на места, в които са били затворени психично болни, за да ги гледат и да им се смеят. Днес деформирани хора са били показвани като атракция от пътуващи циркови трупи. Днес в чистата им форма могат лесно да се забележат на много места – в училищния двор, в театралния в предавания като скрита камера и др.

## ГНЯВ, ДЕПРЕСИЯ И БОЛКА ПРИ ПАЦИЕНТИ С ОНКОЛОГИЧНИ ЗАБОЛЯВАНИЯ

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*Резюме: Цел на настоящото изследване е да бъдат оценени гнева и депресията при пациенти с онкологични заболявания, както и влиянието им върху интензивността на болката. Методика на изследването: State-Trait Anger scale и Beck depression inventory. Изследвани са 63 пациенти. Средните равнища на гнева при изследваната група пациенти с онкологични заболявания са 31.6 (SD = 7.5), а на депресията – 9.9 (SD = 3.6). Общо при 37.2% от изследваните пациенти бяха измерени високи равнища на двата фактора – гняв и депресия. За сравнение беше включена и група пациенти с болка, които не страдат от онкологични заболявания. Сравнението между двете групи показва, че при пациентите с болка и онкологични заболявания се установяват значимо по-високи равнища на гняв в сравнение група пациентите с болка, които не страдат от онкологични заболявания. Беше установено и наличие на по-висок риск от интензивна болката при наличие на гневна предиспозиция.*

*Abstract: The aim of investigation was to examine anger and depression in pain patients – cancer and non-cancer and to investigate whether the anger and depression affect their pain intensity. Anger and depression were measured using the State-Trait Anger scale and Beck depression inventory. 63 patients were studied. The mean anger score was 31.6 (SD = 7.5) and for the depression this was 9.9 (SD = 3.6). Overall 37.2% of patients scored high on both anger and depression. In comparison to cancer patients investigation was involved a second group – non-cancer patients with pain. Cancer patients with pain showed a significant higher degree of anger mean. It was found a greater risk in pain intensity in the presence of anger.*

### ВЪВЕДЕНИЕ

Онкологичните заболявания оказват значимо влияние върху соматичното и емоционалното функциониране както на пациентите, така и на техните семейства. Въпреки сериозния биомедицински прогрес в лечението на това заболяване, ракът все още в съзнанието на много хора е синоним на смърт, болка и страдание [25]. Наред с това, ракът не е просто отделно събитие с несъмнен край, а едно перманентно състояние, характеризиращо се с растяща несигурност, късни последици както от болестта, така и от нейното лечение, и не на последно място – сериозни психологични резултати [36]. Редица изследвания доказват наличието на повишена заболеваемост от психични разстройства при пациенти с рак [1,12]. В изследвания, които изучават депресията и тревожността при пациенти с гастроинтестинален рак се показва, че 17% от тях страдат тревожност, а 21% – от депресия. Освен това, оказва се, че пациентите с рак на стомаха са по-уязвими от психологичния дистрес, свързан с диагнозата в сравнение с пациентите, страдащи от колоректален рак [18,19]. Тези изследвания показват, че в хода на времето пациентите демонстрират много малки промени в равнищата си на емоционално благополучие [20]. Важно е да се отбележи също, че удовлетвореността от живота се влияе значимо от равнищата на тревожност и депресия при изследваните пациенти [21]. По-съвременните изследвания показват, че тревожността е по-често срещана при по-младите пациенти, а депресията – при тези, които са имали дълги хоспитализации [16].

Колоректалният карцином представлява вторият по честота карцином при мъжа (след белодробния и преди стомашния) и третият при жената (след карцинома на млечната жлеза и матката). Честотата му непрекъснато нараства. 90% от болните с рак на дебелото черво са над 50 години. Заболеваемостта е най-висока в САЩ, Канада, Австралия, Нова Зеландия. В африка и Югоизточна Азия тя е най-малка. Според данни на СЗО заболеваемостта е повече от 940 000 новооткрити случая на година, а смъртността е над 500 000 случая. Честотата е еднаква при мъже и жени [29].

Официалните статистически данни у нас показват, че колоректален карцином е най-честото злокачествено заболяване на гастроинтестиналния тракт. През 2002 г. в България са регистрирани 252,2/100 000 случая, от които 49,1/100 000 са новооткрити. През 2003 г. броят на регистрираните случаи нараства на 269,0/100 000 случая, като новооткритите са 48,3/100 000 случая. Увеличението на новооткритите случаи се наблюдава както за рака на колона, така и за рака на ректума и ануса. Това определя значимостта и социалните щети, които търпи обществото от това заболяване.

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*Мирослава Петкова, Валери Николов, Цвета Станилова*

### Резюме

Цел на настоящото изследване беше да се определи влиянието на копинг-стила върху перцепцията на хроничната болка. Изследвани бяха 86 болни от ревматоиден артрит с хронична болка (48 жени и 38 мъже). На статистически анализ бяха подложени клинични и психологични променливи: степен на физически увреждания, продължителност на болестта, болка, депресия, безпомощност, пасивен и активен копинг. Приложеният регресионен анализ разкри като значими предиктори на болката при изследваните пациенти физическото безсилие и пасивният копинг стил, които обясняват 40 % от вариациите (промените), свързани с болката. Изводи: Резултатите от изследването имат отношение към цялостното лечение на хроничната болка. В допълнение към медицинското лечение, хроничната болка очевидно изисква прилагането на интервенции, които да бъдат насочени към подобряването на стратегиите на пациентите за справяне със стреса.

**Ключови думи:** хронична болка, пасивен копинг, физическо безсилие, депресия, безпомощност

## PASSIVE COPING STYLE AND CHRONIC PAIN

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### Abstract

The object of the investigation is to determine the ability of coping to predict pain. 86 chronic pain patients (48 women and 38 men) with rheumatoid arthritis were investigated. Statistical analyses were conducted on a range of clinical and psychological variables: physical disability, disease duration, pain, depression, helplessness, and passive and active coping. A series of multiple regression analyses revealed that the optimal predictors of pain among chronic pain patients were physical disability and passive coping, which accounted for

## МУСКУЛНА ДИСФУНКЦИЯ ПРИ СТАРЕЕНЕ

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## AGE-RELATED MUSCLE DYSFUNCTION

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### SUMMARY

In recent years a rapid evolution in the development of ideas for changes in muscle aging occurred. In an effort to be accurate and comprehensive, scientists use different definitions for the status of muscle dysfunction in the elderly in order to reach the most appropriate diagnostic arrangement according to the rules of traditional medicine. This overview presents the chronology of the main concepts, their nature and role, contributing to the diagnosis of muscle disorders in aging.

**Keywords:** *muscle dysfunction, aging, definitions*

Старенето на мускулите е процес, който се предизвиква от физиологични и патологични механизми(3,25). Стареещите мускули се характеризират с намаляване на броя, атрофия и постепенно увеличаване на разкъсаните напречноабраздени и цитохром С-оксидазонегативните влакна. Наблюдава се генерализирана загуба на мускулна тъкан и увеличаване на вътремускулните мазнини. Степента на тези промени много варира индивидуално и не винаги ясно може да се отдиференцира нормалната възрастовопредизвикана слабост от клинично значимо мускулно заболяване(6). Мускулната маса е строго свързана с възрастта, като физиологично между 20 и 80 годишна възраст човек губи до 50% от нея.

**Саркопенията** (на гръцки термин *Sarx* - тяло, плът + *Penia* - намаление) е синдром на прогресивна и генерализирана загуба на мускулна маса, който води до инвалидност, лошо качество на живот и последваща смърт(2,4). Дължи се на намалена синтеза на мускулни белтъци, поради ниската физическа активност и намаления внос на аминокиселини. Саркопенията е състояние, което се приема като нормален белег на промените в мускулите при възрастни. Тя е част от естественото стареене на организма(17,24). Нейното началото е около 65 годишна възраст. Патофизиологията на саркопенията и включването на неврологични и мускулни промени са резултат от множество фактори(4,5). Саркопенията не включва кахексия и промените в мускулите в резултат на периферносъдови болести. Изследва се с денситометър тип двойноенергийна абсорбциметрия на цяло тяло, биоелектричен импеданс, магнитнорезонансен метод, компютърна томография, изследване обиколката на крайниците(горен и/или долен), ултразвуково изследване(16).

**Скрининг на саркопенията:** Включва Всички лица над 60-годишна възраст, които:

1. Често падат
2. Чувстват намалена скорост на ходене
3. Имат чести хоспитализации
4. Залежават
5. Имат проблеми със ставането от стол

## СТУДОВИЯТ ПРЕСОРЕН ТЕСТ КАТО МОДЕЛ ЗА ЕКСПЕРИМЕНТАЛНО ИЗУЧАВАНЕ НА БОЛКАТА

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## THE COLD PRESSOR TEST AS A MODEL OF EXPERIMENTAL PAIN INVESTIGATION

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### ABSTRACT

Experimental pain models offer the possibility to explore the pain system under controlled settings. Standardized stimuli of different modalities (i.e., mechanical, thermal, electrical) which applied to the skin used for a differentiated and comprehensive assessment of various pain pathways and mechanisms. Human experimental pain models are essential in understanding the pain mechanisms and appear to be ideally suited to test analgesic compounds. The value of human experimental pain models is to link animal and clinical pain studies, providing new possibilities for designing successful clinical trials. The purpose of the present paper is to review the literature on the cold pressor test (CPT) and to discuss the ways in which these investigations have pointed toward a model of experimental pain. The CPT is a cardiovascular test performed by immersing the hand into an ice water container and measuring changes in blood pressure and heart rate. Other measures can also be obtained from the CPT such as pain threshold and pain tolerance. The research employing the CPT as pain model includes studies of psychosomatic illness, psychological factors influencing pain response, the relationship between psycho-social, demographic, constitutional factors and pain responsivity. Knowledge obtained from this review can help design experimental pain studies and clinical practice to assess the effectiveness of interventions for pain.

*Key words:* Cold pressor test, experimental pain.

### ВЪВЕДЕНИЕ

Болката е сред най-честите причини пациентите да търсят медицинска помощ. По литературни данни 9 от 10 американци на възраст над 18 години страдат от болка поне веднъж месечно (Watkins et al., 2008), а 42% от тях изпитват болка ежедневно (Blay et al., 2007). По данни на Американския институт по медицина от хронична болка са засегнати повече от 110 милиона американци (2011).

Международната асоциация за изследване на болката (IASP) я дефинира като: „Неприятно сензорно и емоционално възприятие, свързано със съществуваща или потенциална увреда на тъканите” (Bonica, 1979). Тази дефиниция поставя болката в човешкото битие като значимо житейско събитие включващо интерпретирането на болковото усещане като сигнал за увреждащо събитие и въздействащо върху емоциите, възприятията, паметта, взаимоотношенията и социалната сфера, и други фактори (Merskey and Bogduk, 1994). Редица изследвания доказват, че болковото усещане зависи от емоционални, ситуационни и когнитивни фактори (Turk and Flor, 1999). Познат е триерархичния концептуален модел,

## ПСИХОЛОГИЯ И МЕДИЦИНА

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## PSYCHOLOGY AND MEDICINE

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### ABSTRACT

The importance of psychology for modern medicine was analyzed. This study provides a single, integrated overview of the psychology that is relevant to medicine and by considering how this can be used in medical practice. Different levels of cognitive evaluation of health were presented in connection of their importance for treatment process organization. The arguments for usefulness of psychological assessments comparing to common sense was presented. In addition, arguments supported benefits of psychology for diagnostics and therapy were described as well as necessity for medical professionals to understand psychological symptoms deeply and competent.

*Key words: Medical psychology, medicine, health, medical professionals, psychological symptoms*

Психологията има своето място в съвременната медицина така както теми от психологията неизменно присъстват в учебните програми на Медицинските висши училища. В много държави понастоящем се правят усилия за все по-голямо присъствие на психологични и социални науки в медицинското обучение (White, KL; Connelly JE, 1992). Това е така, защото вече съществуват значими доказателства за това, че психологичните фактори играят важна роля по отношение на много аспекти на соматичното и психично здраве. Наред с това все още са налице редица бариери пред студентите-медици да изучават психологията, а именно:

Първо, на психологията все още се гледа като на „странична“ за медицината наука. Второ, психологията е широко-обхватна дисциплина, която включва множество раздели. В резултат на това много малко студенти и завършили лекари имат възможността и времето да се запознаят с достатъчен обем от достъпните психологични теории.

В Табл. 1 са показани различни направления на психологията и примери как те могат да бъдат приложими в медицината. Широкият обхват на психологичните теории прави за много медицински специалисти труден избора на подходящи за клиничната практика идеи и методи на приложението им. Трето, огромното предлагане на материали за психиката в пресата прави трудно отсяването на популярните факти от базираните на доказателства данни. Допълнително предизвикателство е намирането на границата, където свършват медицинските грижи и къде започват психологичните и социалните такива. Друга немалка трудност е липсата на учебни помагала, които да синтезират всички важни за медицината аспекти на психологията и които изяснят приложимостта им в клиничната практика.

13. Mantella R., Butters M., Dew M., et al., 2007. Cognitive impairment in late-life generalized anxiety disorder. *Am J Geriatr Psychiatry* 15, p. 673-679.
14. Liven, H., Lott, S., Antonak, R., 2004. Patterns of psychosocial adaptation to chronic illness and disability: a cluster analytic approach. *Psychology, Health&Medicine*, Vol 9, №4, p. 411-432.
15. O'Donnell, R., Kaszniak, A., 2011. Charting Late-Life Affective Disorders. *Journal of the American Society on Aging*, Vol. 35, Issue 2, p. 46-57.
16. Richardson, M., Simning, A., He, H., Conwell, Y., 2011. Anxiety and its correlates among older adults accessing aging services. *International Journal of Geriatric Psychiatry*, Vol. 26, Issue 1, p. 31-38.
17. Smit F., Comijs H., Schoevers R., et al., 2007. Target groups for the prevention of late-life anxiety. *Br J Psychiatry* 190, p. 428-434.
18. Taylor, M., Lynch, S., 2004. Trajectories of impairment, social support, and depressive symptoms in later life. *Journal of Gerontology: Social Sciences*, p. 238-246.

## ВРЪЗКА МЕЖДУ АЛКОХОЛНА ЗАВИСИМОСТ И ЛИЧНОСТОВИ РАЗСТРОЙСТВА

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## CONNECTION BETWEEN THE ALCOHOL DEPENDENCE AND THE PERSONALITY DISORDERS

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### ABSTRACT

The purpose of this article is to make a short review of the literature for the connection between the alcohol dependence and the personality disorders. The study has been made by means of a search in an electronic database by using ScienceDirect. The opinion which prevails in the science literature is that the problematic use (abuse and dependence) of alcohol is broadly spread among people with personality disorders. The problem with the alcohol dependence is a serious challenge for the society. On the other hand, the personality disorders are connected with worsen social functioning and they hinder the treatment of disorders with use of substances (L.Reich & A.I.Green, 1999; V.H.Thomas et al., 1999). Despite the growing interest in problems related to alcohol, it remains difficult to precisely determine the connection between personality disorders and alcohol dependence. Therefore, the data available at the moment is contradictory and unconvincing. The knowledge obtained in the present review will be of use for a future, more profound work on the problem.

*Key words: alcohol dependence, personality disorders*

### ВЪВЕДЕНИЕ

Злоупотребата с алкохол е третата най-честа причина за заболявания, причиняващи ранна смърт и заболяване в Европейския съюз, след тютюнопушенето и високото кръвно налягане (P. Anderson, V. Vaumburg, 2006). Повече от 60 отделни категории заболявания в МКБ, 10-та ревизия, са били идентифицирани като потенциално причинени от злоупотребата с алкохол (J.Rehm, T.K. Greenfield, 2008).

## ТРЕВОЖНОСТ И ЛОКУС НА КОНТРОЛ ПРИ ЖЕНИ С БЕЗПЛОДИЕ

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## ANXIETY AND LOCUS OF CONTROL IN INFERTILE WOMEN

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### ABSTRACT

The purpose of the present study is to estimate the relationship between anxiety and locus of control in infertile women. 25 women with infertility being at the different stages of their treatment are investigated. Spielberger State and Trait Anxiety Inventory (STAI) and Rotter's Locus of Control Scale are used. It is found positive and significant correlation between locus of control and both trait anxiety and state anxiety. No correlation between duration of infertility and anxiety, as well as between duration of infertility and locus of control is found.

*Keywords: infertility, anxiety, locus of control*

### ВЪВЕДЕНИЕ

Безплодието е свързано с психологически дистрес у жените с безплодие (Henning and Strauss, 2002; Greil et al., 2010). Най-често срещаните емоционални реакции при безплодие са тревожност, депресия, неудовлетвореност и гняв (Berg and Wilson, 1990; Crick et al., 1997). Психологически последици от безплодието са негативна идентичност, чувство за безпомощност и загуба на персонален контрол, гняв, депресия, тревожност, социална изолация (Williams ME, 1997). Лечението на безплодието е продължително, разстройва семейните отношения и сексуалния живот, включва физическо страдание и води до емоционални разстройства при пациентите с безплодие (Kopitzke et al., 1991). Несигурността в изхода на лечението е източник на тревожност в безплодните двойки. (Berg and Wilson, 1991). Нивата на депресия и тревожност при безплодни жени са еквивалентни на нивата при пациенти с ХИВ, раково болни и пациенти със сърдечни заболявания, (Domar et al., 1993; Domra et al. 2000) и по-ниски само в сравнение с пациенти с хронична болка (Domar et al., 1993).

Редица изследвания потвърждават, че чувството за загуба на контрол е едно от често срещаните при пациенти с безплодие и осъзнаването на тази липса на контрол, може да увеличи преживяването на психологически дистрес (Mahlstedt, 1985; Matthews and Matthews, 1986; Sandelowski and Jones, 1986; Aydinel. S., 1991; Williams ME, 1997).

Цел на настоящото изследване е да бъдат оценени тревожността и локализацията на контрол при жени с безплодие и да се изследва връзката между тревожността и локализацията на контрол.

### МЕТОДИКА НА ИЗСЛЕДВАНЕ

#### Изследвани лица

Изследвани са 25 жени с безплодие, диагностицирано от специалисти, което е повод за насочването им към дейности по асистирана репродукция. Изследваните лица са на възраст

## КАРДИОВАСКУЛАРНИ ПРОМЕНИ ПРИ СТУДОВИЯ ПРЕСОРЕН ТЕСТ ПРИ ЗДРАВИ СПОРТУВАЩИ И НЕСПОРТУВАЩИ ЛИЦА

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### **Cardiovascular changes during cold pressor test in athletes and untrained health subjects**

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The purpose of the study was to examine the alteration of cardiac function during a cold pressor test in athletes and untrained health subjects. Methodology: The cold pressor test (CPT) was used to examine blood pressure's and heart rate's changes in 38 healthy young subject separated in two groups: athletes (n= 19) and untrained subjects (n= 19). Blood pressure and heart rate was measured using an semiautomatic blood pressure kit (Microlife BP A50, Switzerland). Mean blood pressure (MBP) was presented as one-third of the pulse pressure plus the diastolic blood pressure. The results showed that MBP increased during the cold stress in all the groups. In athletes, heart rate tended to increase. Only in untrained group heart rate and cardiac contractility decreased after the end of the test. We conclude that the physical training influences cardiac sympathetic response to cold stress.

*Key words: Cold pressor test, athletes, cardiovascular changes*

Публикуван и разработен от Hines и Braun (1932) Студовият пресорен тест (СПТ) се е състоял се в потапяне на едната ръка или крак в ледена вода за около една минута и клиничен анализ на кардиоваскуларната реакция (Jain, 2003; Grewal, 2011). СПТ служи като кардиоваскуларен тест за отчитане на съдовите промени чрез регистриране на промените в кръвното налягане и сърдечната честота в отговор на студово дразнене.

Студовият пресорен тест е и един от най-широко използваните методи за експериментално изследване на болката (Bayers and Bonica, 2001; Broun et al., 2003, Николов и Петкова, 2014). Тестът позволява съчетаването на физиологичните прояви (промени в сърдечната честота и кръвното налягане) в отговор на студовия стрес и болката от една страна и отчитането на промените в активността на вегетативната нервна система от друга (Monteiro et al., 2012).

Нормалният кардиоваскуларен студов пресорен (СП) ефект е покачване на систоличното и диастолното кръвно налягане с около 10-20 mm Hg и тенденция на покачване на сърдечната честота (Simoes et al., 2013). Пресорният отговор се характеризира с повишаване на сърдечния минутен обем в началния период (0-30с) (Yamamoto et al, 1992) и с повишаване на мускулния симпатиков тонус в по-късен период (30-120s) (Victor et al. 1987; Yamamoto et al, 1992). Такъв тип кардиоваскуларен отговор се описва от болшинството автори, като има известни колебания относно промените в сърдечната честота (Willemsen et al., 1998; Ring et al., 2000). За обяснението на кардиоваскуларния СП ефект има твърде много и разностранны изследвания. Общото заключение е, че се касае за първично неврогенни рефлексии, с пусковото участие на периферни нервновегетативни структури, с последващото ангажиране на гръбначния мозък, таламус, сензорната кора и вегетативната нервна система (Lavallo, 1975).

Като фактори, участващи във формирането на СП отговор изследователите изтъкват ролята на стреса, конституционалните особености, пола, психичния статус, наследствените фактори (Jarvis et al., 2011, Simoes et al., 2013). В последно време, за диференциране на причините, променящи отговора при здрави лица активно се дискутира ролята на физическия тренинг (Ifuku et al, 2007).

## Ефекти и последици от болката (Био-психо-социален подход)

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### Effects and consequences of pain (Bio-psycho-social approach)

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**Abstract:** Pain is one of the most medical and social problem. The pain is unpleasant, but under some conditions it can be associated with positive consequences. In this paper, positive biological, psychological, and social consequences of pain were explored. Three different domains in which pain may be considered to have positive consequences were discussed. 1. Pain facilitates pleasure by providing contrast for pleasurable experiences. In addition it increases sensitivity to sensory input, and facilitates self-rewarding behavior. 2. Pain is important for self-regulation and for increasing cognitive control. 3. Pain promotes affiliation. It arouse empathy from others and motivate for social connection. The role of painful experiences for maximizing positive outcomes is discussed on the basis of studies of many scientists.

*Keywords:* pain, biopsychosocial approach, sensory sensitivity, empathy, affiliation

Основното качество на болката е това, че е отблъскваща. Поради тази причина хората винаги първо се стремят да я намалят или премахнат. Това е очевидно от огромния размер на пазара на аналгетици, който за 2015 година е достигнал 34.6 милиарда долара (Global Industry Analysts, 2010). Преодоляването на болката също така е централна тема на огромен брой изследвания. Повече от 20 специализирани международни научни списания са посветени на изследването на болката. Повечето от изследванията, които се публикуват в тези списания са посветени на биологичните и психологичните аспекти на болката и предлагат нови и нови начини за облекчаване на страданието. Така че, вниманието към начините за справяне със страданието от болката е гарантирано чрез интереса и усилията на хиляди изследователи и клиницисти. Всички те изтъкват резултати и идеи, които биха подобрили качеството на живот на много хора по света. Страничният ефект от това впечатляващо количество работа обаче е, че те в известна степен ни отклоняват от идеята за комплексния характер на болката и за комплексните ефекти от нея.

Въпреки че е дразнеща и мъчителна, болката може да бъде свързана и с положителни резултати. До сега в науката са направени твърде малко усилия да се направи преглед на позитивните последици от болката. Това вероятно е поради тясната връзка между болката от една страна и негативните преживявания, болестта, нараняванията и страданието от друга. Болката обаче присъства и в редица нормални, дори здравословни дейности. Тя може да се появи при интензивни тренировки (O'Connor & Cook, 1999), при практикуването на екстремни спортове (Le Breton, 2000), като плуване в ледени води (Zenner et al., 1980), състезания по ядене на люти чушки (Rozin & Schiller, 1980), както и при някои форми на терапия като дълбок масаж.

В търсенето на позитивната страна на болката ще се опитаме да потърсим нови връзки между изследвания, които са разпръснати в различни сфери на науката, включително биология, невронауки, психиатрия, социална психология, психология на развитието и разбира се – клинична психология. Ще се опитаме да интерпретираме

## Роля на оптимизма като личностна черта при пациенти с онкологични заболявания.

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**Abstract:** The purpose of the present study is to examine the optimism and negative expectations among cancer patients. Methods: Optimism and negative expectations Inventory, socio-demographic questionnaire. 28 cancer patients were examined through the period of time between October and December 2016. All patients were hospitalized in department of Radiology, Stara Zagora. Results: It was found that female patients in T1-T2 stage of the disease 39.93(SD=6.27) presents higher level of optimism in comparison to male patients and patients in stage III and IV of the disease 34.90(SD=5.26). The positive correlation between age and negative expectations. This result can be

Key words: optimism and negative expectations, cancer patients

Проблемът с онкологичните заболявания е актуален през годините и все по значим в днешно време за развитото човечество и в частност за нашето общество. Официалните статистически данни показват, че в България през 2013г. регистрираните заболявания от злокачествени новообраувания са 3702.4/100 000 случая от които 432.4 са новооткрити. През 2014г. броят на регистрираните случаи нараства на 3819.0/100 000 случая, като новооткритите са 461.9. Данните сочат, че най-голям относителен дял в структурата на заболяемостта от рак заемат женската гърда, простатата, белия дроб, гърдата, колоректалния карцином, стомаха и др. локализации ([www.nsi.bg](http://www.nsi.bg)).

Метафоричното понятие „рак“ (Bahnsen-1997) е общ термин за около 100 заболявания, които се различават в етиологията, протичането и лечението (Schwarz, Singer-2008).

Въпреки огромното разнообразие от диагнози, терапевтични методи, както и различни социално-демографски и личностни характеристики на засегнатите, централният общ опит се свързва с „Животозастрашаващият характер на рака и несигурността, дали и кога човек действително ще оздравее“(Tschuschke-2011).

С откриването на болестта се поставя началото на продължителен процес на физически и психични промени на личността, съпътстващи борбата за оцеляване. Ситуацията на онкологично заболяване се явява кризисна за човека и ролята на психиката за успешното провеждане на диагностичния, лечебния и възстановителния процес при болния е огромна. (Rajandram et al. 2011; Zenger et al 2010) посочват, оптимизма като важен потенциален предиктор на психологически стрес сред пациенти с рак. Оптимизмът е определен като относително стабилна генерализирана тенденция – обобщено очакване да се случват повече добри неща, отколкото лоши (Schreier & Carver - 1987), и общия положителен резултат(от очакването) ще предизвика и/или засили непрекъснатите усилия за постигане на желаната цел. (Carver et al. 1993) предполагат, че оптимистите използват различни стратегии за справяне когато се сблъскват със стресиращи събития в сравнение с песимистите. Преглед на (Scheier-1998) разкрива голям обем данни от изследвания доказващи, че оптимизма има благоприятен ефект върху благосъстоянието и здравето на хората и ролята му по отношение на болестта и възстановяване от заболяването. При изследване на 237 пациенти с хронични соматични заболявания (Минева, 2016) установява, че негативните очаквания, заедно с убежденията за лична ефикасност са значими предиктори на начина, по който пациентите възприемат болестта си ( $F=23.78$ ,  $P=0.0001$ ). Пациентите, които имат по-изразен песимизъм и по-слаби убеждения за своите способности за справяне с болестта (управление на симптомите и поддържане на физическа активност) формират по-негативна преценка за