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Research Article

The Relationship Between Lifestyle, Stress Levels, Physical Activity and Chronic Pain in Young People

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Abstract

Relevance: In recent years, there has been a trend towards an increase in cases of chronic pain among young people, which leads to a deterioration in their health and quality of life. In modern society, the issue of a sedentary lifestyle and psycho-emotional overstrain is acute, which has significant trends among young people and can in turn provoke the occurrence of chronic pain. The study of these issues among young people is of great interest and requires the use of preventive interventions in order to maintain health and improve the quality of life.

Purpose: To assess the lifestyle, subjective level of stress and level of chronic pain of young people to identify the risk contingent and timely implementation of preventive and therapeutic measures.

Materials and Methods: A survey of 160 young people was conducted, the age range was 18-35 years. To determine the subjective level of stress, the PSS-10 (Perceived Stress Scale) self-assessment questionnaire was used. A survey was conducted on lifestyle, subjective assessment of the level of health and assessment of the level of physical activity, taking into account the recommendations of the World Health Organization.

Results: During the lifestyle assessment, it was found that 34.6% of the subjects did not have an adequate level of physical activity, 28% had body mass index indicators that did not correspond to the normal range, about 24.4% spent more than 6 hours a day in a sitting position, which indicates prolonged sitting and is one of the risk factors for chronic low back pain. Sleep disturbance among young people was observed in 71% of the subjects studied. Moderate levels of stress were experienced by the majority of the subjects (74%) and High levels of subjective stress were observed in 12% of individuals, chronic pain was observed in 58% of individuals.

Conclusions: Most young people have chronic pain, chronic lower back pain predominates, and chronic pain of a mixed nature predominates. There is a relationship between chronic pain and lifestyle, namely sedentary work, physical inactivity and sleep disturbances, and significant levels of stress.

Keywords: World Health Organization; Lifestyle; Physical Activity

Entry

Negative environmental factors, problems associated with hostilities, aggravation of socio-economic issues have a decisive impact on the health of society and can trigger the development of a number of pathological conditions. To respond to threats and challenges, the body has a series of adaptive responses that communicate the need to change homeostatic states in order to adapt and survive [1]. According to the classical theory of stress by G. Selye, Stress is a state of physiological or psychological tension caused by various factors (somatic, mental, emotional, external

or internal, more often a combination of them) that are aimed at disrupting the functions of the body and which the body tries to avoid [2]. For the first time, G. Selye described the concept of stress and those adaptive reactions that occur in the human body to an external stimulus, a stressor. Selye proposed the stages of stress that characterize tension syndrome or general adaptation syndrome. The first stage lasts the first 48 hours - the anxiety reaction, during which the mobilization of defenses occurs, it is also characterized by the appearance of acute manifestations that stop only with the disappearance of the action of stress factors. The next stage, which begins after 48 hours, is called the resistance stage, during which there is a complete adaptation to the stressor. The last stage of exhaustion, characterized by a decrease in organic functions, it is this stage that often underlies many pathological processes and the development of chronic stress [3]. Numerous studies have shown a link between chronic psychological stress and psychiatric disorders such as depression, post-traumatic stress disorder, as well as accelerated aging [4]. This suggests the involvement of neuronal, physiological, molecular, and genomic mechanisms. Chronic psychological stress is thought to stimulate the release of anti-inflammatory cytokines, thus causing inflammation and disease development [5]. According to the literature, chronic stress is more common in women of working age than in men, young people are also exposed to potentially traumatic events that can further cause them to deteriorate social, academic, professional functioning and health [6,7]. Assessment of the psycho-emotional state and study of the level of stress in young people is important. Timely involvement of preventive programs will improve stress resistance, prevent the occurrence of psycho-emotional disorders, the development of pathological conditions and diseases. First of all, the management of the fight against psycho-emotional diseases and stress should begin with lifestyle correction, diet, sleep correction, sufficient rest and regular physical exercise [8]. It is known from the literature that regular physical exercise is a key factor in combating psycho-emotional diseases and stress, which naturally activate the body's defense mechanisms and are a powerful prophylactic agent for the occurrence of chronic diseases[9]. In the context of a full-scale war and the problems associated with it, the youth of Ukraine needs attention and psychological assistance, the study of aspects of lifestyle and psycho-emotional health will allow us to identify exactly the contingent of young people who need it most, to implement preventive and therapeutic measures in a timely manner.

Purpose

To assess the lifestyle, subjective level of stress and level of chronic pain of young people to identify the risk contingent and timely implementation of preventive and therapeutic measures.

Materials and Methods

To achieve this goal, a survey of 160 young people was conducted, the age range was 18-35 years. To determine the subjective level of stress, the PSS-10 (Perceived Stress Scale) self-assessment questionnaire was used. The questionnaire is a classic tool for assessing stress, consisting of 10 questions that help assess the respondent's thoughts and feelings over the past month. A general scale of scores from 0 to 40 is calculated by inverse evaluation, higher scores indicate a higher level of perception of stress [10]. A survey was also conducted about lifestyle, subjective assessment of the level of health and assessment of the level of physical activity, taking into account the recommendations of the World Health Organization [11]. Statistical analysis of the obtained results was carried out with the help of the Statistica software package. The data is represented by numbers, percentages, average, or median, respectively.

Results

We conducted a survey of 160 young people, the average age was 23.43 ± 5.55, among them men 44-27% and women 116-73%. According to anthropometric indicators, it was found that 72% of the subjects had a body mass index (BMI) within the normal range of 21.8 ± 3.2 kg/m^2, 15.5% were underweight (BMI 18.2 ± 4.7 kg/m^2), 10% were overweight (BMI 26.5 ± 2.7 kg/m^2), obesity of the first degree was observed in 2.5% of the subjects (BMI 31.7 ± 4.5 kg/m^2). The assessment of the level of physical activity showed that 41.5% of the subjects had a sufficient level of physical activity according to the latest WHO recommendations [12], 150-300 minutes per week of moderate-intensity aerobic activity, 23.9% were engaged in physical activity of more than 300 minutes per week, which indicates a high level. About 8.2% of people did not engage in physical activity at all and 26.4% had insufficient levels of physical activity up to 150 minutes per week. Adequate levels of physical activity play an important role in the daily lives of young people, as they are the main factor in preventing the occurrence of chronic noncommunicable diseases and have a significant impact on mental health, emotional stability and well-being [13,14].

In modern society, the issue of physical inactivity and long-term sitting is acute, since the above two factors have a negative impact on health, including the psycho-emotional state [15]. Physical inactivity has been described as a global pandemic amid obesity and diabetes, which is a complex issue that needs to be addressed at the state level [16]. Modern society and young people, due to the Covid-19 pandemic and the problems it has caused, have switched to a more sedentary lifestyle and distance learning, which has led to trends of prolonged sitting, increasing the time spent in a sitting position for more than 5-6 hours [17]. The study showed that about 24.4% of young people spend more than 6 hours in a sitting position, 35% about 5-6 hours, which corresponds to long-term sitting, 31.9% spend 3-4 hours in a sitting position and only 24.4% of the subjects less than 3 hours. Most young people (78.7%) do not take active breaks during long-term sitting, which certainly has a negative impact on their musculoskeletal system and cognitive functions [18]. Sleep disturbances among young people were observed in 71% of those studied. Among them, 64.1% had a feeling of lack of sleep and fatigue after sleep, 10.3% had shallow sleep, and 25.6% had difficulty falling asleep. Pain and stress are interrelated bodily responses that share physiological and cognitive responses and can reinforce each other. If one of the above processes becomes chronic, it can have negative consequences, lead to long-term «maladaptive» changes in physiology and behavior, leading to suffering and deterioration of well-being [19]. Among the studied young people, chronic pain (> 3 months) was observed in 58%, the average intensity of pain on a visually analogue scale was 5.7 ± 2.8 points. Among them, 37.3% had mixed pain, 32.5% had low back pain, 16.2% had cervical spine pain, 6.9% had thoracic spine pain, 4.6% had headache, and 2.5% had joint pain. The assessment of the level of subjective stress showed that the average level of stress of young people is 20.24 ± 3.42 points, which indicates a moderate level of subjective stress. The average indicators of men's stress level were 18.8 ± 4.2 points, among women 21.1 ± 3.7 points, we found no statistically significant gender differences in the average PPS scores ($p > 0.05$). Among young people, a low level of stress was observed in 14% of people, a moderate level of stress was observed in the majority of the surveyed 74% and a high level of subjective stress was observed in 12% of people requiring special treatment. We can assume that such high percentages of chronic pain in young people are associated with physical inactivity, sedentary work and significant levels of stress. We found a negative correlation between the level of physical activity and the level of subjective stress, respondents with a high level of physical activity had a lower level of subjective stress (-0.76, $p < 0.01$). Sleep and pain are important physiological functions that interact with each other and affect each other in the human body [20]. We found a significant relationship between sleep disturbance in young people and the intensity of chronic pain (0.63, $p < 0.01$).

A negative correlation between BMI and subjective stress was also determined, so young people with a low BMI respectively had a high level of subjective stress (-0.56, $p < 0.01$).

Conclusions

Most young people have chronic pain, chronic lower back pain predominates, and chronic pain of a mixed nature predominates. There is a relationship between chronic pain and lifestyle, namely sedentary work, physical inactivity and sleep disturbances, and significant levels of stress. When developing individual rehabilitation programs for young patients, it is imperative to pay attention to the psycho-emotional state, study the quality of sleep, study the features of workplace ergonomics and other aspects of lifestyle.

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