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Diary method of studying the stress factors in adolescents in the educational process of the school

The article is devoted to the current problem of the growth of psychosomatic disorders in adolescents. The purpose of the article is to determine the socio-psychological stress factors that cause a psychosomatic symptom in adolescents in the educational process of school using the method of diary research. The authors present the results of a three-week experiment conducted with students in grades 9–10, as a result of which records were obtained about specific stressful situations with descriptions of emotions, physical sensations and psychosomatic symptoms. The analysis of the data obtained was carried out, during which the authors established the similarity between the described situations in some participants of the experiment, who were later grouped and displayed in a table. The article uses mathematical calculations to determine the percentage of schoolchildren who are faced with one or another stress factor. The study helped identify a number of problems, including those related to parents' ignorance and lack of knowledge in the field of children's mental health. The authors drew conclusions about the importance of continuing research in this direction in connection with the trend of growth of psychosomatic disorders in adolescents and proposed ideas for an optimal solution to the described problem.

Keywords: psychosomatic disorder, stress factor, school educational process, diary method, an emotion, spectrum of emotions, snippet technique, psychosomatic symptom

Introduction

Nowadays, psychosomatic disorders in people of different ages have become a leading psychosocial problem. The daily flow of information, multiple social reforms, the lack of stability around the world — all this and much more certainly has an impact on a person, increasing the level of anxiety and stress. Adolescents are among the most susceptible to the impact of social and psychological factors on the occurrence and development of psychosomatic diseases. Psychosomatics is an interdisciplinary scientific field that includes knowledge of medicine, psychology, sociology, etc. In the most frequent use, the term «psychosomatics» means the influence of emotions and personality adaptation disorders on the origin of physiological disorders and diseases [1;10].

The idea of the influence of psychological factors on health is very ancient. Reflections on this topic are already found in Hippocrates, Aristotle and Plato. The problems of psychosomatic psychology were initially considered in line with the psychoanalytic concept of Z. Freud [2;16].

A theoretical analysis of the literature has shown that most studies of psychosomatic disorders, their prevention and correction were carried out in the field of medicine. However, this problem is practically not considered in the pedagogical sphere. In this regard, we consider it urgent to systematize knowledge in this area for educational psychologists, to identify the factors of occurrence, as well as to create psychological and pedagogical conditions for the prevention and correction of psychosomatic disorders in children.

The occurrence of psychosomatic disorders in childhood and adolescence is associated with weakness and overstrain of individual organs and systems, their congenital or acquired deficiency, the predominant nature of mental response, as well as personal characteristics of children and adolescents [3].

There are many different reasons for the appearance of psychosomatic disorders in a teenager: stresses affecting him can be both in the internal environment (in the family) and in the external (school).

Materials and methods

The purpose of this article is to determine the socio-psychological factors of stress in adolescents in the educational process of the school. Within the framework of the stated goal, research methods were defined, such as: experiment, observation, conversation and interview. The diary method was chosen for the experiment.

The method of keeping a diary is highly flexible and can be included in several research projects. In addition, diary studies can be aimed at solving various research issues, and the diaries themselves can be used to collect data for use in the development of qualitative, quantitative, and mixed methods [4;7]. Using diaries, researchers are able to acquire »reliable« first-person description of participants' experiences [5:469]. Diary method provides the opportunity for participants — or diarists in this case — to record, and reflect on their actions [6;1882]. They enable researchers to learn about the experiences of diarists in work settings [7;87], following events, as they occur over time, through the observations and recordings of the diarists themselves [8;166].

In the process of our experiment, traditional paper diaries were used for data collection, that were specially created and printed for this study and contained a brief instruction for completing. The research we conducted using the diary method consisted of five stages.

1. *Planning and preparation.* At this stage, we have identified the subject of the study, that is, socio-psychological stress factors in adolescents in the educational process of the school. A schedule was drawn up, data collection tools were selected, participants were recruited, and instructions/supporting materials were prepared.

2. *Preliminary briefing.* At this stage, we held a personal meeting with students of grades 9–10, discussed the details of the study, familiarized them with the technology and gave the necessary instructions for filling out diaries.

3. *Filling out the diary.* At this stage of the study, we have set a specific deadline for filling out diaries, provided students with clear and detailed instructions with examples of entries for users to understand the degree of detail required of them. To fill out the diaries, the participants of the experiment were provided with 2 methods, each depending on the situation chose a method that was convenient for him.

- On—site data recording is the simplest method of data collection. Participants are asked to record all information about their actions immediately at the time of their commission. It is ideal when a huge number of records are not expected.

- Snippet technique — participants initially record briefly only the most basic information about their actions and transmit it via e-mail, text messages. Then, at the end of the day or when they have time, they describe the situation in detail. This 2-step method ensures that all relevant information will be recorded (and thus will not be forgotten by the participant), but at the same time, teenagers are not required to provide a large number of details, which can be tedious and unnatural in certain situations.

4. *Interview after the study.* After all the diaries with notes were collected, interviews were conducted with the teenagers studied. During this interview, we asked clarifying questions necessary for the completeness of the study.

5. *Data analysis.* After an interview was conducted with each participant of the study, the stage of analyzing the information received began. We evaluated the behavior of schoolchildren throughout the study. How does it evolve and change over time? What contributes to this behavior?

So, the participants of our study were students of grades 9–10 of secondary school No. 65. To determine the socio-psychological stress factors in adolescents in the educational process of the school, the diary entries of 25 schoolchildren aged 15–16 years, whose parents were given permission to conduct this experiment, were examined. In terms of duration, our experiment took 21 days, of which 7 days were spent planning and preparing, creating special diaries, meeting and getting to know the subjects, conducting a preliminary briefing. 2 weeks were allocated to schoolchildren to fill out diaries and interviews at the end of the study.

At the first stage (planning and preparation), we created and printed diaries for the study participants. We would like to note that among the participants of the study, we called it in a simplified form a «stress diary». Students could take notes on the two previously described techniques at any time of the educational process of the school.

At each stage, we faced various difficulties. At the initial stage, difficulties arose due to the lack of access to children to conduct research. Despite the informative conversations conducted by the school psychologist, there were parents who refused to give permission for their child to participate in this study.

During the meeting with schoolchildren, with the participation of classroom teachers and a school psychologist, the second stage of the study (preliminary briefing) was conducted. 25 schoolchildren of grades 9–10 were given 25 paper diaries. For clarity, the diaries had a red cover, since, according to the study, this color is most often associated with stress. During the briefing, we gave detailed explanations, explained the difference between such concepts as «emotions», «physical sensations», «well-being». All this was done in order to subsequently establish and fix the connection between a stressful situation and psychosomatic disorders in children.

Regardless of the level of stress, significant or insignificant, it was important to record any situations in which the subject could feel the slightest unpleasant emotions. Therefore, when explaining the instructions, we asked the students to bring in any negative emotions, even the smallest ones, or those that in their opinion are not a cause for stress.

We have made the contents of the diary quite simple and understandable. It contained instructions on how to fill in, techniques, and brief information about the range of emotions. We decided to insert a letter into the contents of the diary so that it would be easier for students to describe their feelings. The components of the diary for collecting information are provided below:

- A graph for numbering the serial number of the record;
- A graph for information about the date and time of recording;
- A graph to describe the situation that caused stress;
- A graph for describing emotions experienced at a stressful moment;
- A graph for describing feelings, physical well-being in a stressful moment

The figure below shows the spectrum of emotions that was presented to the participants of the experiment (Fig. 1) [9].

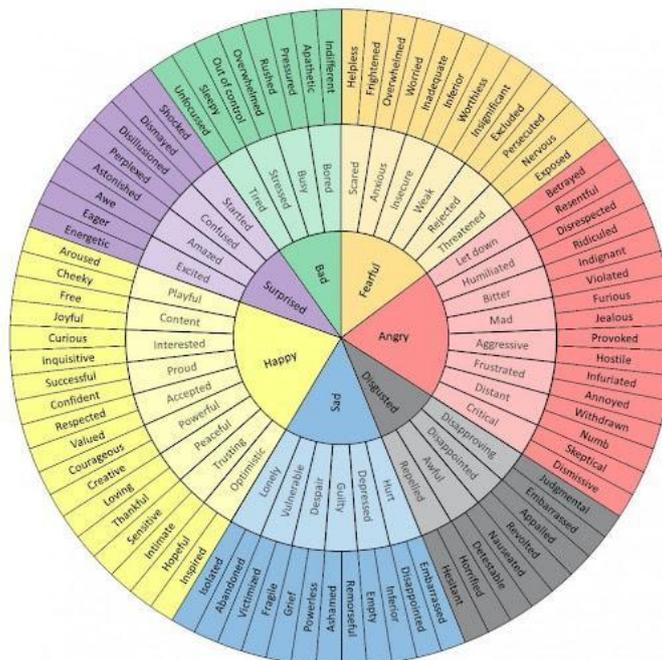


Figure 1. The «wheel of emotion»

At the third stage of the study (filling out the diary), we outlined the time frame of our experiment and started observing the participants. In the first days of observation, the main problem of our study became obvious — the lack of sufficient motivation among adolescents to fix their feelings. In this regard, we decided to hold an additional meeting with schoolchildren in the format of a conversation, during which we told in more detail about our research, about the diary method, and also conducted a psychological training game to establish a trust relationship between researchers and the subjects.

Results and Discussion

All 25 students were given 14 days to complete the diary. According to our observations, most often schoolchildren have chosen a snippet technique for filling out a diary. This method had its advantages and disadvantages. The possibility of recording only the most necessary information with a subsequent addition made it possible not to interfere with the learning process, which was a plus for this method. However, since an important condition of our research was to record their feelings and emotions at the moment, to be able to listen to themselves in a situation, we noticed that after some time, when the students completed the notes, they could no longer accurately describe their feelings, since they no longer felt the same emotions. It is worth noting that despite the absence of 14 graphs for 14 days of the experiment, out of 25 participants in the experiment, only 4 of them made entries every day. 17 people made irregular entries, 3 students recorded stressful situations 2–3 times in two weeks. 1 student did not make a single entry during the study period. The regularity of making entries and recording their feelings by the participants of the experiment in percentage ratio is shown in the figure below. (Fig. 2)

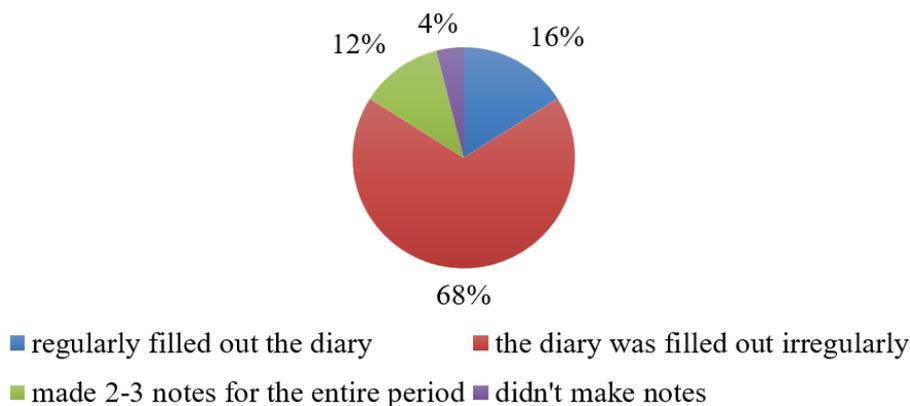


Figure 2. The regularity of making notes by the participants of the experiment

At the fourth stage all paper diaries were collected. After reviewing the notes, we decided to conduct an interview with some of the participants, during which we asked the questions we were interested in.

Below, in table 2, are some cuttings from the diary entries of students in grades 9–10. To preserve confidentiality, we do not publish the names of students, and the table shows the answers of different students.

Table 1

Brief notes from the diary of «stress» provided

№	Date, time	The situation that caused stress	The emotions I experienced at the same time	My feelings, physical well-being (psychosomatic symptom)
1	01.02.2023 08:00	I did not have time to do my homework	Fear	I wanted the lesson to end faster. At a certain moment, it seemed that the heartbeat increased.
2	07.02.2023 14:30	There was a task in the English lesson to make an oral dialogue. Because I have a strong accent, I was very worried. Before that, there was a case when classmates laughed at my «English».	Shame, depression	I think my whole face is very red. It seemed to me that my throat was dry.
3	07.02.2023 12:00	My classmate became ill, I decided to take her home. As a result, I was late for class. I informed the head of the class. But the teacher refused to listen to my reason for being late. She scolded me in raised tones and disgraced me in front of the whole class. I could not say a word.	Resentment, anger	My hands were shaking, my head hurt.

Since our research was based on the principle of confidentiality, in order to keep students' personal data confidential, interviews with each of the participants were conducted separately. During the interview, observing the principle of non-evaluation, we asked questions only to clarify and obtain broader information. For example, one of these interviews was conducted with a student who did not make a single entry during the entire period of filling out the diary. According to the teenager, despite the fact that during this time he still met with an unpleasant situation, but it did not affect him personally at all, so he did not feel stress.

In addition, after we looked at the students' notes and conducted interviews with some of them, it became clear, that the easiest way was to record the situation. It was more difficult to identify the emotion they were feeling at that moment. However, the most complicated part was listening to their feelings and describing physical well-being. If we take into account that in total we counted 87 entries describing stressful situations, then only in 40.2 % of the students were able to clearly describe their physical condition and well-being.

Analyzing the data obtained, we noticed that some of the study participants described similar situations. Based on this, we tried to combine similar stress factors, then, using mathematical calculations, to determine the percentage of students who faced this or that stress factor. The main stress factors identified by us as a result of the study are presented in Table 2.

Table 2

Stress factors and their influence on changes in physical well-being.

	Stressful situation	Emotions experienced by students	Changes observed in physical well-being (psychosomatic symptom)
1	Not ready for the lesson, an unfulfilled task	Shame, fear	Palpitations, nausea
2	Open conflict, hostility with classmates	Anger, rage, disgust	Tingling sensation in the temples
3	Unfair assessment, lack of opportunity to be heard by the teacher	Anger, shame, fatigue, impotence	Sore throat, feeling of tightness in the chest
4	Comparison with more successful students	Resentment, depression, anger, envy, dislike	Irritation, itching
5	Remark from teachers, school staff	Shame	Fatigue, fatigue
6	Misunderstanding between peers	Resentment, anger, devastation	Feeling of tightness in the chest,
7	Performing difficult tasks in a physical education lesson, public recitation of a poem by heart, oral dialogues in a foreign language with an accent	Shame, anger	Slight increase in body temperature, redness of the face
8	Illness of someone from relatives, friends, conflict situations in the family	Guilt, self-worthlessness	Fatigue, feeling of tightness in the chest, pain in the head, drowsiness
9	Problems of relationships with the opposite sex	Shame, anger, resentment, disgust	Dizziness, increased body temperature
10	Lack of understanding from peers, teachers, family, lack of attention	Devastation	Drowsiness
11	Passing of testing, final control	Fear, excitement	Abdominal pain, nausea, numbness of limbs, headaches
12	Worries about appearance, physique, clothes	Shame, guilt	Rapid heartbeat, redness

Then, considering the percentage of students who encountered this stress factor, we decided to arrange these factors in descending order, that is, from the most common stress factors to the less frequent ones. The results are shown in the figure below. (Fig. 3)

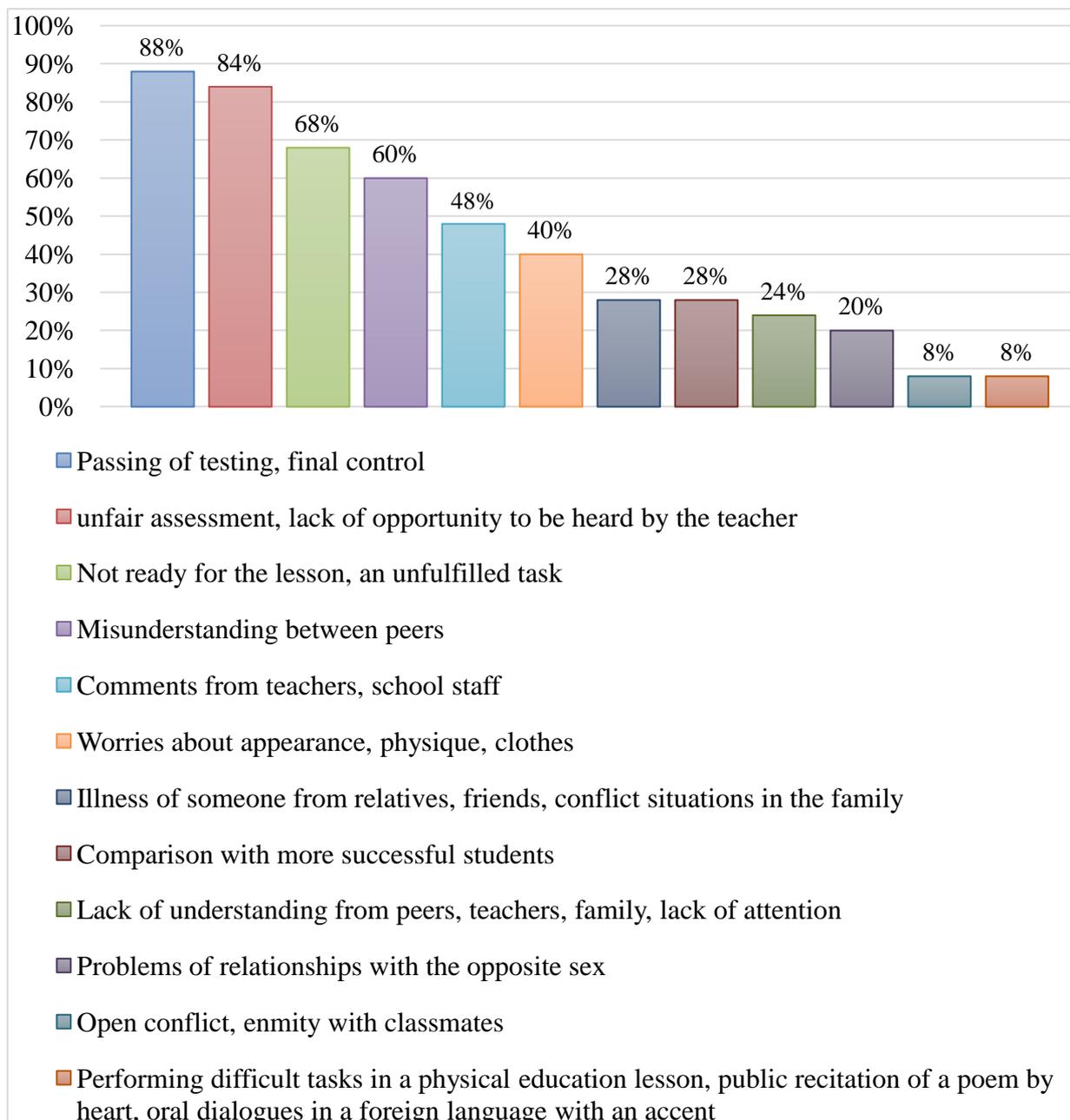


Figure 3. Stress factors by frequency of mention in students' diary entries

As we can see, the most common cause of stress among students in grades 9–10 is excitement when passing tests, final tests, exams, etc. In the notes of 22 children out of 25 (88 %), we saw a mention of taking tests, while all of them felt fear and excitement at that moment.

In our experiment, we did not try to assess the level of stress, since our main task was to identify only factors.

The second most common reason was «not a fair assessment, lack of opportunity to be heard by the teacher.» In the diary entries of 21 students, we saw a description of specific situations that, in the opinion of the students, were not fair to them. It is noteworthy that it was by this criterion that the majority described their physical sensations and well-being as «chest tightness and sore throat.» It can be clearly seen that according to the description of schoolchildren, the lack of an opportunity to express their opinion has an

impact on painful sensations in the throat. In her writings, the American writer and psychologist Louise Hay identifies several reasons why a sore throat is associated with psychosomatics, one of which is unspokenness [10]. It is worth noting that this is only the author's theory, which is not supported by scientific research, nevertheless it is confirmed by real examples.

The third stress factor in adolescents, according to the results of our study, were problems with homework, unpreparedness for the lesson. Similar problems were encountered in 17 (68 %) children. During the conversation, the students said that, first of all, the feeling of shame in front of classmates prevailed, while the feeling of fear for getting a bad grade faded into the background. At the same time, they described physical sensations as mild nausea and palpitations.

After that, there are factors such as misunderstandings between peers in 15 out of 25 respondents (60 %), comments from teachers or school staff in 12 students (48 %) and worries about their appearance in 10 students (40 %).

During the processing of the results, it became unexpected for us that family-related problems the causes of stress were only in 28 %, that is, in 7 children. After all, as a rule, psychosomatic disorders in children are the «litmus» of family relationships and interactions.

According to the research of foreign scientists M.A. Lavrova, N.A. Tomina, Ya. I. Koryakova, the following features are characteristic of a «psychosomatogenic» family:

- 1) the absence or lack of appreciation of the free expression of emotions; the tendency to avoid expressing disagreement and open discussion of conflicts;
- 2) dominant hyperprotection: increased attention to the child, expressed in excessive guardianship and petty control of behavior (numerous prohibitions, restriction of the child in actions);
- 3) indulgent hyperprotection: protecting the child from the slightest difficulties, excessive indulgence of any desires, lack of prohibitions, excessive admiration for any, even minimal success;
- 4) hypoprotection: lack of care, control and attention, lack of interest in the child's life, the formal nature of upbringing and the child's lack of involvement in family life;
- 5) hypersensitivity of each family member to the experiences of another;
- 6) rigidity of family relationships, low ability to change the rules of interaction under changing circumstances;
- 7) a child with his disease often plays the role of a stabilizer in a hidden marital conflict;
- 8) emotional rejection: parents are burdened with their child, his needs are ignored, he is mistreated;
- 9) increased moral responsibility: the demand from the child of honesty, decency, the development of feelings that do not correspond to age, attributing to him the role of «head of the family», prophesying him a special future, while the child is afraid to disappoint parents and tries to justify all the hopes placed on him [1].

Comparison with other students became the cause of stressful situations in 28 % of schoolchildren. Emotions described in similar situations vary from feelings of depression to feelings of anger, up to dislike of the object in favor of which the comparison is being made. These feelings are also difficult for an adult, and the adolescent psyche is not able to cope with them adequately. Comparing is risky because it is possible to launch vindictiveness and hostile relationships, and not efforts.

Further, according to the degree of prevalence, the reasons for the lack of understanding on the part of peers, teachers, family, lack of attention, which were described in 6 out of 25 children (24 %). In order to get a clearer picture of the situation, during the interview we asked teenagers about their hobbies. It should be noted that teenagers who had records with similar factors shared that they prefer to spend more time with gadgets, communicating on social networks or playing computer games. We also found out that they have more different hobbies and interests.

5 out of 25 students told about the problems of relationship with the opposite sex.

Only 2 out of 25 students described in their notes situations in which there was an open conflict between schoolchildren. The same number of children, that is, 8 % of respondents described situations in which they experienced feelings of shame and anger when performing difficult tasks in a physical education lesson, public recitation of a poem by heart, oral dialogues in a foreign language with an accent.

Conclusions

Our study aimed at identifying stress factors in students of grades 9–10, using the diary method, gave the above results. During a three-week experiment, we were able to identify the most common causes of stress in adolescents. However, it is worth noting that the difficulty in obtaining permission to work with

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Мектептің білім беру процесінде жасөспірімдердегі стресс факторларын зерттеудің күнделіктік әдісі

Мақала бүгінгі күнде өзекті болып табылатын жасөспірімдердегі психосоматикалық бұзылыстар санының арту мәселесіне арналған. Аталмыш зерттеу жұмысының мақсаты — «күнелік әдісін» қолдану арқылы мектептің білім беру процесінде жасөспірімдердегі психосоматикалық симптомның өршуіне себеп болатын әлеуметтік-психологиялық стресс факторларын анықтау болып табылады. Мақала барысында авторлар нәтижесінде эмоциялар, физикалық сезімдер және психосоматикалық симптом сипатталған нақты стресстік жағдайлар туралы жазбалар алынған, жалпы білім беретін мектептің 9–10 сынып оқушыларымен жүргізілген, үш апталық эксперименттің нәтижелерін келтіреді. Алынған деректерге талдау жасау барысында, зерттеушілер эксперименттің кейбір қатысушыларында сипатталған жағдайлар арасындағы ұқсастықты анықтап, оларды топтастыра отырып ақпаратты жинақтайды. Мақалада математикалық есептеулер әдісімен белгілі бір стресс факторына тап болған оқушылардың пайыздық үлестері анықталды. Жүргізілген эксперимент және зерттеу процесі ата-аналардың жалпы баланың психикалық денсаулығы жайында хабарларының аздығы мен білімдерінің жеткіліксіздігінен туындаған бірқатар проблемаларды анықтауға көмектесті. Авторлар мектеп оқушыларындағы психосоматикалық бұзылыс симптомдары мен психосоматикалық аурулардың өсу тенденциясына байланысты осы бағыттағы зерттеу жұмыстарын жалғастырудың маңыздылығы жайлы қорытынды жасай отырып, сөз етілген мәселені оңтайлы шешу идеяларын ұсынады. Ғылыми мақала орта білім беру мұғалімдері, психологтар, «педагогика және психология» білім беру бағдарламасы бойынша білім алатын студенттер үшін, сондай-ақ осы саладағы зерттеумен айналысатын оқырмандардың кең ауқымы үшін қызығушылық тудыруы мүмкін.

Кілт сөздер: психосоматикалық бұзылыс, стресс факторы, мектептің оқу процесі, күнделік әдісі, эмоция, эмоциялар спектрі, снippet-техникасы, психосоматикалық симптом

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Дневниковый метод исследования факторов стресса у подростков в образовательном процессе школы

Статья посвящена актуальной на сегодняшний день проблеме роста психосоматических нарушений у подростков. Целью статьи является определение социально-психологических факторов стресса, вызывающих психосоматический симптом, у подростков в образовательном процессе школы посредством использования дневникового метода исследования. Авторами приведены результаты трехнедельного эксперимента, проведенного с учениками 9–10 классов общеобразовательной школы, в результате которого были получены записи о конкретных стрессовых ситуациях с описанием эмоций, физических ощущений и психосоматического симптома. Проведен анализ полученных данных, в ходе которого авторами установлена схожесть между описываемыми ситуациями у некоторых участников эксперимента, которые в дальнейшем были объединены в группы и выведены в таблицу. В статье методом математических подсчетов, определено процентное соотношение школьников, которые столкнулись с тем или иным фактором стресса. Исследование помогло выявить ряд проблем, в том числе связанных с неосведомленностью и недостаточностью знаний у родителей в области психического здоровья детей. Авторами были сделаны выводы о значимости продолжения исследования в этом направлении в связи с тенденцией роста психосоматических нарушений и психосоматических расстройств у подростков, а также предложены идеи для оптимального решения описываемой проблемы. Статья представляет интерес для педагогов среднего образования, психологов и студентов, обучающихся по образовательной программе «педагогика и психология», а также для широкого круга читателей, занимающихся исследованиями в данной сфере.

Ключевые слова: психосоматическое нарушение, фактор стресса, образовательный процесс школы, дневниковый метод, эмоция, спектр эмоций, снippet-техника, психосоматический симптом

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