

## Chapter #8

### EVALUATION OF A FACTOR THAT INFLUENCES SCHOOL FAILURE IN A GROUP OF ADOLESCENTS IN IASI COUNTY - FATIGUE

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#### ABSTRACT

School activity is characterized by high physical and mental demands. Any failure to adapt these requests to the possibilities of the age group can be associated with school failure. The study was carried out on a group of 208 students from the 9<sup>th</sup> grade from three high schools in Iasi county. A questionnaire regarding school activity and the causes of the phenomenon of school fatigue was applied. The results were processed using Pearson's chi-squared test. The students are constantly preparing only for certain subjects (72.59%). In most cases (65.86%) adolescents admit that they have been taught how to study only in certain subjects. Fatigue is often present in 58.65% of students. The students attribute the occurrence of this phenomenon to the numerous subjects they have to study (55.76), the large volume of homework (51.92%), insufficient sleep (48.55%), teachers being too strict (25%), or the breaks being too short (25%). Special attention must be paid to nighttime sleep which is insufficient in 66,82% of cases. Many factors that generate school fatigue must be known and carefully assessed in order to reduce the frequency of this phenomenon.

*Keywords:* school failure, fatigue, demanding activity.

#### 1. INTRODUCTION

In Romania, in the past few years, we have witnessed a drastic decrease in the number of young people graduating high school and passing the baccalaureate exam. It is a school failure situation that is becoming worrying. The indicators used to assess this phenomenon are represented by the early abandonment of studies, the gap between the student's potential and their results, abandoning school without a qualification, and failing the final exams. The appearance of the phenomenon of school failure is favored by several factors related to the student, school, family, or educational environment (Cosmovici & Iacob, 2008).

Of the factors that regard the student, health must be given special attention. We must be aware of certain organic diseases, physical or sensory deficiencies, and some individual psychological factors. In adolescents, the aspects related to nutrition and physical exercise become essential due to the current beauty ideal represented by the thin young woman and the muscular young man (Nagata, Ferguson, & Ross, 2016; Salam, Das, Lassi, & Bhutta, 2016). Particular attention should be paid to overweight students who will be the target of their colleagues' jokes. This will make them focus too much on their own body and isolate themselves (Abălașei & Trofin, 2016).

The second factor which should be closely analyzed is the school environment. The school environment must ensure lasting social development, to practically guarantee the progress of society. In this sense, it is necessary to find the answers to the following

questions: what are the characteristics that need to be structured to ensure the adaptation of young people to the new requirements; what kind of education do students need to contribute to the progress of society in the future; which are the skills, information, and attitudes that are needed to ensure a better future (Xie, 2018).

The school has many roles; it also decisively contributes to promoting healthy eating, physical exercise, ensuring the physical and mental health of students, developing social relationships, and avoiding the tendency of isolation (Sabinsky et al., 2018).

Particular attention should be paid to the school syllabus and the teaching method of the teachers. The teaching method must be oriented towards the student, in the direction of obtaining the expected results – understanding the presented topics and integrating the particular information within the student's general knowledge.

Teachers must focus on the issues related to the best teaching methods, methodologies, and techniques. They must ask themselves the question (and find the answer) "How to teach?" and not the one related to the curriculum, "What to teach?" (Sousa, 2019).

The family plays an important role in the life and evolution of young people. At present, it is also necessary to assess the relationship that exists between family and school. The traditional school is an institution with certain rules and characteristics; it is an isolated and rigid structure. In the traditional model, the teachers carry out their activity in isolation, in their own style. Lately, we are witnessing some changes related to the structure of a close relationship with the family, the interaction between school and family. In many schools parents are invited to be part of the school program, to have a feeling of belonging (Palmieri & Palma, 2017).

Special attention must be paid when considering poor families, the disadvantaged social environment because these students can easily give up on education. When looking at the educational environment, major attention must be paid to the social context in which education takes place (Cosmovici & Iacob, 2008).

### **1.1. Purpose of the study**

Knowing the factors that generate fatigue; it is important to assess these because they can easily lead to failure and dropping out of school.

## **2. OBJECTIVES OF THE STUDY**

Assessing the students' learning methods and how teachers are involved in guiding students in this regard; assessment of the phenomenon of school fatigue and of the clinical signs that appear in this case; students' own evaluation in connection with the causes of school fatigue; objective identification of causes such as insufficient sleep recognized by students.

## **3. METHOD**

The studied group consists of 208 students from the 9th grade from a National College in Iasi (54 teenagers), a National College in Pascani (80 young people), and from an Economic High School (74 students) in Iasi. Pascani is a small town located 60 km from Iasi. The city of Iasi has a large number of inhabitants, while also being the county capital. The National College in Iasi is an elite high school for Iasi County and even for the entire country.

The students completed a questionnaire with questions regarding the school activity and the causes of the phenomenon of school fatigue.

School activity was assessed with the help of three questions.

- "Do you study continuously, without losing a lesson?" – yes, in all subjects; only in certain subjects; I am not constantly preparing in any subject.

- "Did the teachers explain how to learn and solve the problems in the studied discipline?" – yes, in all subjects; only in certain subjects; no, in none of the studied subjects.

- "Do you study for pleasure?" – yes, in all subjects; only in certain subjects; no, in none of the studied subjects.

Fatigue was assessed with the help of three questions.

- "Do you feel tired?" – often; rarely; never.

- "When I am tired:" I have a headache, my eyes hurt, I have insomnia, I feel anxious, it's difficult to fall asleep.

- "What causes your fatigue?" (choose the answers that you think are most important)

- subjects are too difficult; the classes are too numerous (every day or during the week); the large volume of homework; teachers are too demanding; I don't get enough sleep; breaks are too short; I have to walk a long distance from home to school; parents pay too much attention to my school activity.

Also related to school fatigue, we will insist upon such factors as sleeping during the night and during the day, breaks, the distance between home and school, and the parents' level of interest for preparing homework, these being aspects that were recorded by students as generating problems.

Sleep (passive rest) can take place during the night and during the day:

- "How many hours do you sleep per night, on average?" under 8 hours; 8-9 hours; over 9 hours.

- "Do you sleep in the afternoon?" – every day; often; rarely; never.

The problem of short breaks appears because teachers do not respect the schedule.

- "Do teachers respect the break schedule?" always; often; rarely; never.

The distance between home and school can be a source of fatigue (Official standards mention that the trip should take a maximum of 30 minutes using transportation):

- "How long does it take you to get to school (in minutes)?" fewer than 15 minutes; 15-30 minutes; 30-45 minutes; 45-60 minutes; over 60 minutes"

Family can be a fatigue generating factor if they are too strict:

- "Do parents have time to help you with your homework?: always; often; rarely; never.

The results were processed using the Pearson CHI square test.

#### 4. RESULTS

We will address two basic aspects related to school activity and the presence of fatigue.

Sustained school activity strains the student from a neuropsychological and physical point of view. Obtaining meritorious school results can be achieved only under the conditions of systematic study in all subjects. Unfortunately, such a situation is present in only 16.82% of young people. In most cases, students pay attention only in certain subjects (72.59%) (Table 1).

*Table 1.*  
*The learning method of students.*  
*("Do you study continuously, without losing a lesson?").*

School	Pascani College	Iasi College	Iasi High School	Total
yes, in all subjects	14	7	14	35 (16.82%)
only in certain subjects	61	34	56	151 (72.59%)
I am not constantly preparing for any subject	5	13	4	22 (10.57%)

Our attention is drawn to the 10.57% of students who are not constantly preparing for any subject. Such answers are more frequent at the Iasi College, so the calculated differences are statistically significant ( $p < 0.01$   $f=4$ ,  $\chi^2=14.254$ ). It is a surprising result given that the college in Iasi is an elite school.

Students receive explanations on learning methods only in certain studied disciplines (65.86%), so only from certain teachers (Table 2).

*Table 2.*  
*Frequency of explanations received by students on learning methods.*  
*("Did the teachers explain how to learn and solve the problems in the studied discipline?").*

School	Pascani College	Iasi College	Iasi High School	Total
yes, in all subjects	29	4	27	60 (28.84%)
only in certain subjects	50	45	42	137 (65.86%)
no, in none of the studied subjects	1	5	5	11 (5.28%)

We can observe that 28.84% of teenagers chose the "yes, in all subjects" answer. Such answers are less frequent in those from the college in Iasi, so the calculated differences are statistically significant ( $p < 0.001$   $f=4$ ,  $\chi^2=19,465$ ).

Most of the students study for pleasure only on certain subjects (86.53%), with only 3.84% studying seriously in all subjects (Table 3).

*Table 3.*  
*The number of students who study for pleasure.*  
*("Do you study for pleasure?")*

School	Pascani College	Iasi College	Iasi High School	Total
yes, in all subjects	2	0	6	8 (3.84%)
only in certain subjects	75	45	60	180 (86.53%)
no, in none of the studied subjects	3	9	8	20 (9.61%)

Some young people do not study for pleasure in any discipline, which is an alarming situation. Such a response occurs more frequently in students from the Iasi college, the differences calculated being significant ( $p < 0.05$   $f=4$ ,  $\chi^2=11.072$ ).

Intense school demands lead to certain responses from the body and fatigue, and this is "often" felt by 58.65% of young people (Table 4).

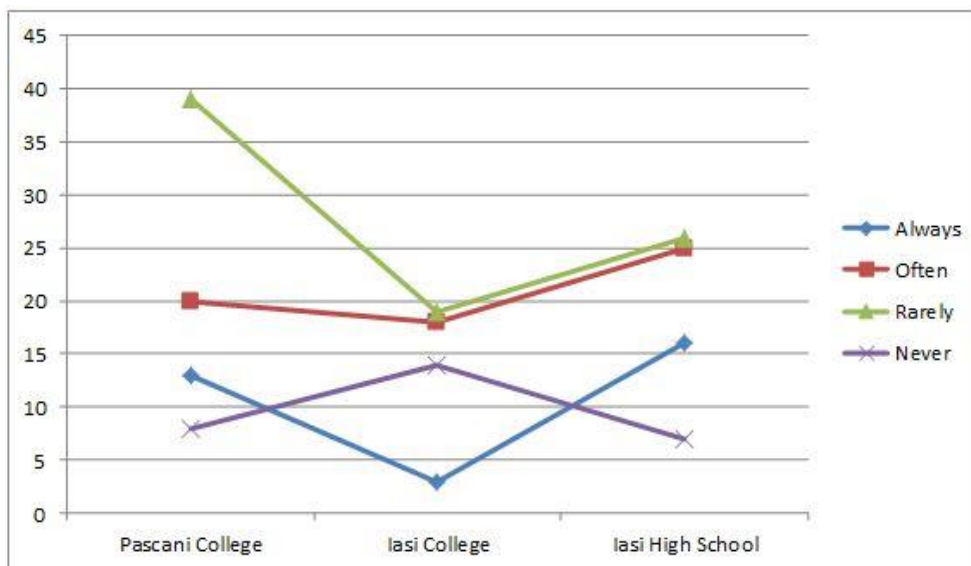
*Table 4.*  
*Frequency of fatigue.*  
*("Do you feel tired")*.

School	Often	Rarely	Never
Pascani College	43	36	1
Iasi College	42	11	1
Iasi High School	37	35	2
Total	122	82	4
%	58.65%	39.42	1.92

For students from the college in Iasi, the dominant answers are "often", so the calculated differences are statistically significant ( $p < 0.05$   $f=4$ ,  $\chi^2=11,807$ ). It is easy to understand this result considering the high level of school performance of the students from this high school.

High school requirements are linked to clinical signs that students associate with the appearance of fatigue. We can observe the presence of headaches (36.05%) and ocular reactions (22.59%) that are not specific to a young person who does not have health problems. We also witness the presence of anxiety (17.30%), insomnia (12.01%), and difficulty falling asleep (10.09%). These are phenomena that let us know that the students' capacity for physical and intellectual effort has been exceeded.

Figure 1.  
Clinical signs associated with fatigue.



The calculated differences are statistically insignificant ( $p > 0.05$ ,  $f = 10$ ,  $\chi^2 = 3.971$ ), a result that is easy to understand considering the similar set of school rigors among the three schools. Obviously, the physiological reactions that appear in the context of fatigue are also similar.

Students attribute fatigue to a large number of hours in the school program (55.76% - with insignificant differences among schools  $p > 0.05$ ,  $f = 2$ ,  $\chi^2 = 1.330$ ), to the high volume of homework (51.92% - significant differences  $p < 0.05$ ,  $f = 2$ ,  $\chi^2 = 6.900$ ) and the reduced number of hours of sleep per night (48.55% - insignificant differences  $p > 0.05$ ,  $f = 2$ ,  $\chi^2 = 3.353$ ) (Table 5).

There are other causes of fatigue, but they are reported by a lower percentage of students, such as: subjects are too difficult (29.80% - insignificant differences  $p > 0.05$ ,  $f = 2$ ,  $\chi^2 = 0.375$ ), teachers are too demanding (25.00% - insignificant differences  $p > 0.05$ ,  $f = 2$ ,  $\chi^2 = 2.715$ ), breaks are too short (21.15% - insignificant differences  $p > 0.05$ ,  $f = 2$ ,  $\chi^2 = 3.405$ ), I have to walk a long distance from home to school (10.09% - significant differences  $p < 0.01$ ,  $f = 2$ ,  $\chi^2 = 9.840$ ), parents pay too much attention to my school activity (5.28% - insignificant differences  $p > 0.05$ ,  $f = 2$ ,  $\chi^2 = 1.591$ ).

*Table 5.*  
*Causes attributed by students to the occurrence of fatigue.*  
*("What causes your fatigue?").*

School	Pascani College	Iasi College	Iasi High School	Total
subjects are too difficult	23	15	24	62 (29.80%)
the classes are too numerous	48	27	41	116 (55.76%)
the large volume of homework	34	27	47	108 (51.92%)
teachers are too demanding	18	18	16	52 (25.00%)
I don't get enough sleep	36	32	33	101 (48.55%)
breaks are too short	21	7	16	44 (21.15%)
I have to walk a long distance from home to school	4	3	14	21 (10.09%)
parents pay too much attention to my school activity	5	4	2	11 (5.28%)

Insufficient sleep is one of the factors that cause fatigue. In students, the normal number of hours of sleep per night is 8-9 hours, an answer which is present only in 29.80% of situations. In most cases (66.82%) students sleep fewer than 8 hours per night, which is not physiological and explains the onset of fatigue (Table 6).

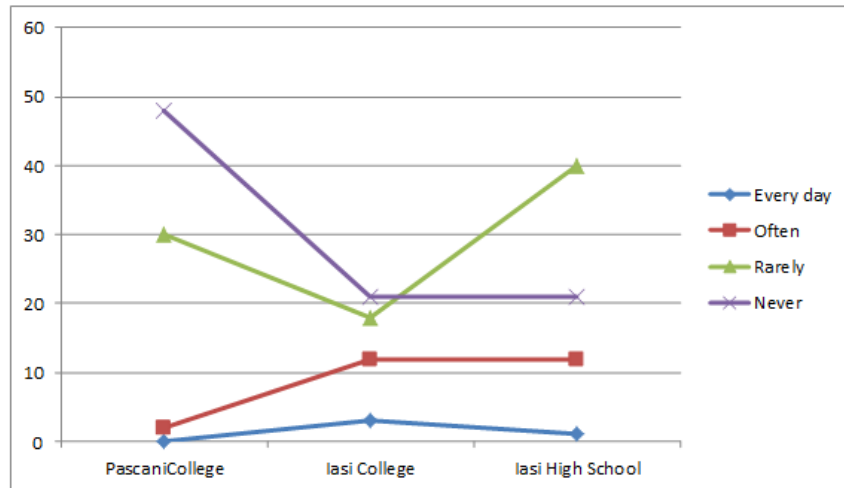
*Table 6.*  
*Hours of nighttime sleep.*  
*("How many hours do you sleep per night, on average?").*

School	Pascani College	Iasi College	Iasi High School	Total
Under 8 hours	44	37	58	139 (66.82%)
8-9 hours	32	17	13	62 (29.80%)
Over 9 hours	4	0	3	7 (3.36%)

Most students from the Iasi College sleep fewer than 8 hours per night, the differences calculated being statistically significant ( $p < 0.01$   $f=4$ ,  $\chi^2=12.334$ ).

The reduced time allocated to nighttime sleep can be compensated by daytime sleep. Unfortunately, most students are too preoccupied with school or leisure activities to "waste time" sleeping. In most cases, students never sleep during the day (43.26%) or rarely sleep during the day (42.30%).

Figure 2.  
Daily daytime sleep.

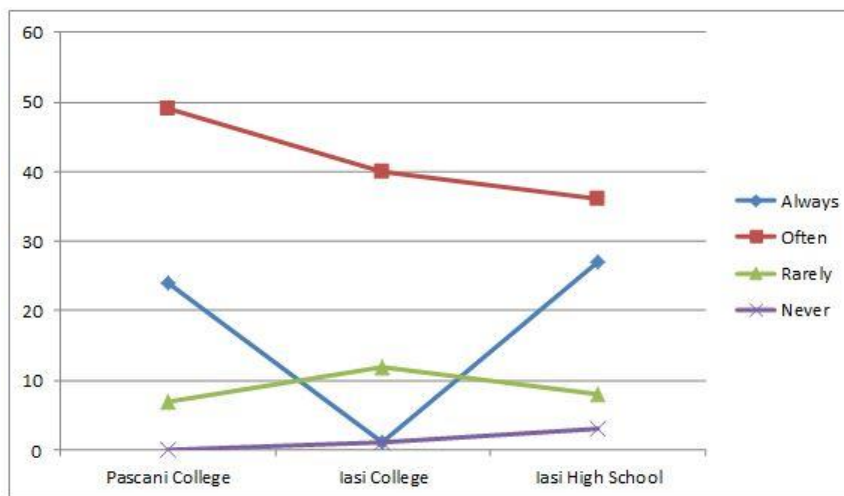


The calculated differences are statistically significant ( $p < 0.001$ ,  $f = 6$ ,  $\chi^2 = 29.888$ ) a fact which is surprising and highlights the situation at the college in Pascani where we notice a lack of the "every day" and "often" answers.

We will also insist upon some aspects less often highlighted by the students, but which can be objectified with the help of the answer to other questions. These are the breaks which may be too short, the long trips to school, and the exaggerated interest of parents in school activities.

The breaks between classes are "often" observed by most teachers (60.09%) or even "always" (25.00%) so there are no reasons to worry from this point of view.

Figure 3.  
Teachers respecting break time.

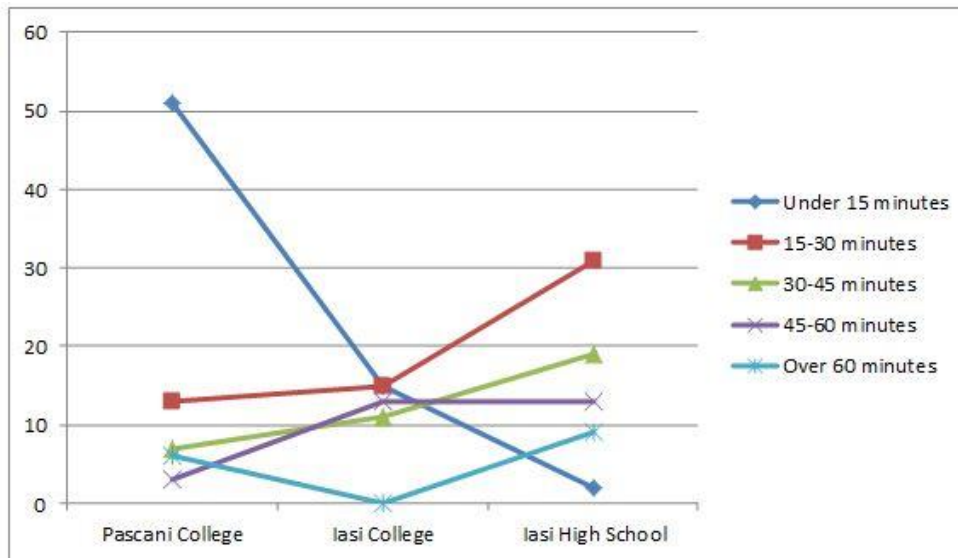




Unfortunately, there are significant differences ( $p < 0.001$ ,  $f = 6$ ,  $\chi^2 = 27.962$ ) which highlight the situation at the high school in Iasi where there are few "always" answers.

Another factor that generates fatigue is the long distance between home and school. According to the norms, this time must not exceed 30 minutes while using transportation. In the studied group, the results are adequate only in 61.05% of situations where the trip takes fewer than 15 minutes (32.69%) or between 15 and 30 minutes (28.36%). Unfortunately, some students need 30-45 minutes to travel to school (17.78%) and even over 60 minutes (7.21%). It is an aspect that must be known and taken into account when studying the causes of fatigue and even school failure.

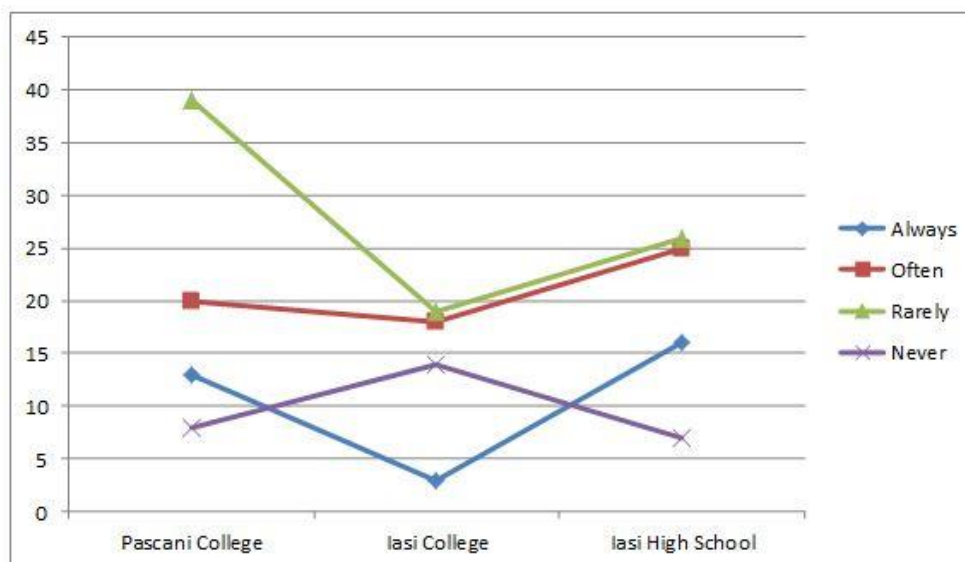
Figure 4.  
The time needed to travel to school.



We notice significant differences ( $p < 0.0000$ ,  $f = 8$ ,  $\chi^2 = 72.883$ ) which draw our attention towards the high school in Iasi, where the students live in different areas of the city or even in the suburbs. Therefore, it takes quite a long time to get to school.

A final aspect is represented by the parents' level of involvement in the school activity of their children, especially homework. Parents are "rarely" (40.38%) or "often" (30.28%) involved with how their child prepares their homework. There are only 15.38% of parents who are "always" involved. This is a situation where the parent might be too exacting, thus becoming a source of stress.

Figure 5.  
Parents' involvement in school activity.



We can see significant differences ( $p < 0.05$ ,  $f = 6$ ,  $\chi^2 = 16.324$ ) which highlights the situation for the students in the Iasi College where parents' involvement with school activity is modest even though their children go to a renowned school where the level of competitiveness is very high.

## 5. DISCUSSION

Concerning school activity, the work style of each student is very important. In the studied group, many students systematically study only certain subjects (72.59%) and who enjoy studying certain subjects. There are numerous differences between students in a class that have to do with the characteristics of physical development, intelligence, interest, perception, abilities, learning style, and personality. Starting from these aspects it would be necessary to adapt the lesson plan to the students' learning style and speed, and not focus on collective education. Each teacher should adapt their teaching methods to the characteristics of the students, which would allow them to make full use of their skills and knowledge. (Kubat, 2018). If these aspects are not taken into account, we may reach a situation similar to that of the students in the studied group where in 9.61% of cases they do not study for pleasure any subject in the school syllabus.

Learning style is influenced by several psychological, physiological, emotional, social and environmental factors, so the talent of the teachers is essential in solving these problems and in finding the best methods of teaching and stimulating the students (Ozdemir, Alaybeyoglu, Mulayim, & Uysal, 2018). In the studied group, there are 20% of students who associate the appearance of fatigue with the increased demands of teachers, an aspect that must be taken into account because it may be a case of teachers not adapting their demands to the real capabilities of students and their learning style.

In solving these problems, an essential role rests with the teachers who can instruct the students on learning methods in each discipline of study. Unfortunately, in the studied group, most of the answers (65.86%) are for explanations "only in certain subjects". This is where the experience of the teachers comes in, as well as their working environment represented by job satisfaction, the recognition of efforts, their well-being (De Stasio, Boldrini, Ragni & Bacile, 2019).

School activity is inherently associated with the occurrence of fatigue of greater or lesser intensity. Fatigue is a physiological phenomenon that occurs when the body's capacity for effort is exceeded. The frequent fatigue present in more than half of the surveyed students is easy to understand because of the desire to obtain a high level of performance in school. Also, this result is confirmed by other studies carried out on adolescents in the area of Moldova from general education high schools (Albu, Dima, Dorofte, & Abdulan, 2017). When looking at technical colleges the preoccupation is oriented mainly towards obtaining the skills necessary for the future profession and less towards the theoretical elements thusly marked fatigue is recognized only by a third of the surveyed students (Albu, Dima, & Badaluta, 2017).

Intense fatigue is associated with the appearance of clinical signs represented by headaches, eye pain and insomnia, elements that are not specific to young people. Such problems are observed in other studies so they must be more closely analyzed by specialists in the field of school medicine and education. A worrying result was obtained in a study carried out on students with and without anemia. In those with anemia, sleep problems are much more common (Abduallah Hussein & Ahmed Ouda, 2018).

The observed clinical signs and symptoms must also guide us towards the risk of serious health problems, a phenomenon observed in a group of young people in the USA (Jacobs, 2019). No serious health problem was highlighted in the students in the studied group, which is encouraging.

Parents, teachers and the school doctor must carefully monitor these phenomena and intervene when there is a risk of chronic fatigue and health problems that easily lead to school failure (Cosmovici & Iacob, 2008).

Fatigue occurs due to a large number of hours in the school program, a large volume of homework, and insufficient sleep. We often encounter situations where the daily activity of a student is 10-11 hours (6-7 hours at school and 3-4 hours for homework) a period of activity that exceeds even that of an adult. We must pay attention to insufficient sleep, as it can lead to chronic fatigue. In adolescents, the recommended number of hours of sleep per night is 8-10, which is reported by only one-third of the questioned students. It is a result obtained in other studies carried out in the area of Moldova where only 25% of students report an appropriate number of hours of sleep per night (Albu, Hodorca, Onose, Negrea, & Cracana, 2016).

At the international level, the results are different, resulting in certain population characteristics that must be carefully studied. Only 39% of young people in Brazil have insufficient sleep, while those in Argentina reach 49% (Villa-González, Huertas-Delgado, Chillón, Ramirez-Vélez, & Barraco-Ruiz, 2019). Special attention should be paid to this issue because longitudinal studies of adolescents in Japan show an increase in the frequency of young people who sleep less and less (Yamamoto et al., 2018).

Unfortunately, in Romania, such studies are underdeveloped so for now we cannot compare the current results with those of 10-15 years ago. At the international level, there are such studies. These are essential for the correct assessment of past and future situations. The study carried out in the USA in 1997 highlights a percentage of 24.98% boys and 32.72% girls who report insufficient sleep (Jacobs, 2019).

Special attention should be paid to students who have insufficient hours of sleep because they can easily reach the point where they use substances that remove the feeling of chronic fatigue and even some legal drugs such as coffee, alcohol and tobacco (Baciu, 2019; Miller, Janssen, & Jackson, 2017). Young people have insufficient information so they easily resort to "invigorating" products obtained without restrictions but which can have negative effects on their health.

In the school program, the 50-minute activity must be followed by a 10-minute break to restore the body's effort capacity. In most cases, break time is respected by teachers (85.09%) but breaks are too short for students (21.15%). These are aspects related to the organization of the educational program that should be carefully analyzed by the specialists in this field.

Another factor that generates fatigue is the distance from home to school and back. According to the regulations in our country, it is recommended to cover 0.5-3 km or 30 minutes using transport (Gavat, Albu, & Petrariu, 2006). There are many situations in which students have to travel longer distances from home to school and vice versa, this being a factor of fatigue in 10.09% of cases. They usually travel using public transport or on foot.

In reality, there are problems with 40% of students who exceed the maximum recommended time of 30 minutes, but this is not considered by students to be difficult. If the students walk to school it is a positive aspect because this represents light physical activity that stimulates the body's functions. On the other hand, the long time needed to travel will be a source of fatigue, especially for students in rural areas. In Romania there are few high schools in rural areas, so students who want to continue their studies must attend a high school in the city, which explains the rather high percentage of young people who need a lot of time to get to school.

For the high schools in the studied group, there are no problems related to the school environment because they are located in a big city, so they have electricity, running water, an adequate sewerage system, and sufficient heating.

Studies carried out in seven African countries have shown a positive correlation between the prevalence of obesity / being overweight and giving up walking or cycling to and from school (Manyanga, El-Sayed, Doku, & Randall, 2014).

Parents still play an important role in the evolution of the adolescent. It is considered that parental supervision, positive monitoring and ensuring adequate parent-student communication are necessary in order to prevent the onset of inappropriate behaviors and even orientation towards delinquency (Zilanawala, Sacker, & Kelly, 2017).

In the studied group, the supervision performed by the parents concerning school activity is modest. Only 15.38% of parents are always interested in how their children prepare their homework. Also, 5.28% of students admitted as a cause of fatigue the fact that parents pay too much attention to school activities. It is a worrying aspect because most parents consider that school activity is the teacher's / school's responsibility and not theirs.

Numerous studies emphasize the positive role of parental involvement in increasing child's school results. Parental involvement practically means controlling the way the child does their homework, establishing rules, parent-student communication, learning support, and communication with the school. These are important aspects that will favor obtaining results adapted to the real abilities of adolescents (Erdener & Knoppel, 2018).

Internationally, there is a European survey called Health Behavior in School-Aged Children which tracks various aspects related to the lives of students represented by adolescents, school, families and groups of friends (Godeau, Dressen, Jeunier, Mouret, & Navarro, 2000). Such studies allow a deeper knowledge of the evolution of young people and intervention when needed.

## 6. CONCLUSION

It is necessary to pay special attention to the way students adapt to school requirements. In the studied group, many young people do not constantly study all subjects and who study for pleasure only certain subjects. A particular problem is the one related to teaching style because the students received explanations on learning methods only in certain subjects.

Fatigue is present in most students, but students from elite high schools are most exposed to this reaction. There are some clinical signs such as headaches, eye pain, sleep problems that need to be carefully monitored. There is a risk of triggering serious health problems, which is not desirable.

A particular problem is that of fatigue, which is due to a large number of hours in the school program, the large volume of homework, and insufficient sleep. Insufficient sleep is a problem for most students because it favors the onset of chronic fatigue followed by school failure.

Students associate fatigue less with the long road to school and with the parents' high demands.

Unfortunately, parents are not very interested in their children's school activity so many problems may occur that will be detected too late or even ignored.

Such studies are essential for maintaining the health of the students and ensuring the expected school results.

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