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School Fatigue and the Factors that Influence IT

Adriana ALBU¹, Florin DIMA^{1*}, Arina BĂDĂLUȚĂ²

Abstract

In this study, we will underline the phenomenon of school fatigue which has arisen in students from technical colleges. We interviewed 108 students from a technical college in Bacau and 91 students from Suceava. The young people completed a questionnaire with questions about the frequency of fatigue, passive resting and leisure (television and computer use). Fatigue is often present (34.17%), especially in students from Suceava, which suggests that there is a reduced sleep time per night (less than 7 hours). Most young people spend a lot of time in front of the TV screen (4-5 hours a day - 14.57%) and on the computer (4-5 hours a day - 20.10%), which exacerbates fatigue. In adolescents, current ways of spending leisure time should be carefully monitored, as there is a risk of excessive use, leading to the effects of overloading and computer addiction.

Keywords: *fatigue; television; computer.*

Introduction

Fatigue is a physiological phenomenon that occurs when the physical or intellectual effort limit is exceeded. School fatigue must be carefully monitored as it may lead to less interest in study, failure or school dropout [7]. Being unhappy with his achievements, the student will associate with other colleagues with a similar school situation and will tend to move towards violent behavior, vagabondage, fleeing home, theft. Some young people will turn to alcohol or drug use, which obviously represents a particular social problem [6].

The situation is difficult in technical colleges where students prepare for their future job. Dropping out of school will be associated with the

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difficulty or impossibility of being hired, or with working in low-paying jobs, which promotes poverty.

In these students, the study of school fatigue should be directed towards the demand generated by the theoretical and specialized training [11]. Certain trades impose physical demands and mental concentration, which can lead to a high or even excessive workload.

Lately, the number of graduates from technical colleges who also have passed a baccalaureate exam has dropped dramatically. This reduction is associated with a decrease in the interest towards study and the reduction of employment opportunities in the profession for which they have been trained. Many graduates from technical colleges go abroad immediately after finishing high school where they engage in lower-paying jobs in those countries. They earn just enough money to have a somewhat decent lifestyle and often send money to the families they leave behind, so they are no longer interested in the graduation exams and the training for the profession they have prepared for during high school.

Problem Statement

Problems raised by students from technical colleges are increasing, as graduation and employment are increasingly difficult to achieve. Many students get into jobs that are inferior to their training because they do not meet the demands of a particular profession or find no job available.

Research Questions

What are the reasons why school failure, assessed by getting low marks for the baccalaureate exam, occurs more frequently in students from technical colleges; the reasons why these students do not attend the maturity examinations or abandon their studies? In general, school demands are similar in all technical colleges, so it is important to know if there are differences among communities, regarding the phenomenon of fatigue, and try to identify the triggering causes of these differentiated reactions (if they exist).

Purpose of the Study

Assessing the frequency with which school fatigue occurs in students from technical colleges; assessing the differences that arise between students from technical colleges in two counties of Moldavia regarding the perception of school fatigue; assessing sleep and nighttime sleep, taking into account the

less efficient recovery capacity of young people compared to adults (a longer sleep time is required for recovery); evaluating the time spent on activities considered recreational as watching TV and playing computer games.

Research Methods

The study was carried out on a group of 199 students in the 10th and 11th grade, from two technical colleges from Bacău and Suceava counties. 108 students from the "Anghel Saligny" Technical College in Bacău and 91 young people from the "Al. I. Cuza" Technical College in Suceava were questioned. A questionnaire, about the presence of fatigue and resting habits, was given to these young people. Fatigue was assessed by three questions: do you feel tired?: often - rarely - never; during the workweek are you more tired?: at the start - in the middle - at the end; when you feel tired?: in the morning - during the day - in the evening. The second aspect studied is that of rest; passive rest which is represented by sleep and active rest which is based on various recreational activities. Passive rest is provided by night and daytime sleep. Two questions were asked: how many hours do you sleep, on average, per night?: under 7 hours – 7 to 9 hours - over 9 hours; do you sleep in the afternoon?: every day - often - rarely - never. Normally, a teenager needs 9 hours of sleep compared to an adult who only needs 8 hours. Leisure time is assessed by studying television and computer use times: how many hours a day do you spend watching television?: none - 0.5/1 hour - 2/3 hours - 4/5 hours; how many hours a day do you spend at the computer: none - 0.5/1 hour - 2/3 hours - 4/5 hours. These are activities that can easily become a source of fatigue which is why they were included in the questionnaire. The results will be presented comparatively on the two communities studied. The results will be processed using Pearson's chi-squared test.

Findings

The study is oriented in two main directions, represented by the presence of the phenomenon of school fatigue and the issues of passive and active rest.

Fatigue is a physiological phenomenon that occurs after sustained activity and disappears through rest. In the questioned students, fatigue occurs rarely, in most cases (53.76%), which indicates requirements adapted to the students' work ability. We must also pay attention to the fact that

34.17% of students often feel tired, a phenomenon to be carefully studied (Table I).

Table I - The presence of school fatigue in the students surveyed.

Community	Presence of school fatigue			
	Often	Rarely	Never	Total
College from Bacău	27	63	18	108
College from Suceava	41	44	6	91
Total	68	107	24	199
%	34.17	53.76	12.06	

Our attention is drawn to the 12.06% of adolescents who submitted the answer „never”, which is somewhat odd. This may be because school demands are too low, their work capacity is greater or they are not concerned with school activity.

Differences calculated for the two communities are statistically significant for $p < 0.01$ ($f=2$, $\chi^2=10.885$) and draw attention to the students from the Suceava college who feel more tired. The study is important because in recent times fewer students from technical colleges achieve the required grades to pass the baccalaureate exams.

Similar results were obtained in other studies conducted on high school students in Iași, where 50.21% of students [1] affirmed rarely feeling tired.

In-depth studies should be initiated to know exactly the cause of this phenomenon. Choosing a high school or class profile is an important element, which involves a preoccupation for a particular training environment, for a particular lifestyle and some subsequent evolution [5]. There may be situations where the student is not interested in the high school profile that was chosen (based on his/her average scores or the insistence of the parents). There are disorganized families or where the economic issues are particularly difficult, so the student tries to earn some money by working in the afternoon or evening which favors the appearance of fatigue [3], [13]. Students from rural areas, from villages near towns, commute home to help with work around the house or in the fields.

Physiological fatigue occurs at the end of the week. Such a response is present only in 44.72% of the interviewed young people (Table II). Besides that, 40.20% of adolescents are tired at the beginning of the week, after a weekend in which they have been doing various activities and 30.15% of students are tired in the middle of the week.

Table II - The moment when fatigue occurs in a week

Community	The time of the week when students feel tired			
	At the start	In the middle	At the end	Total
College from Bacău	25	24	59	108
College from Suceava	25	36	30	91
Total	50	60	89	199
%	40.20	30.15	44.72	

It is important to know the type of weekend activities (which can be recreational or work). Even watching TV or playing computer games becomes tedious if it takes too long. Housework can also become tedious if it is demanding and lasting.

The calculated differences are statistically significant for $p < 0.01$ ($f=2$, $\chi^2=10.504$) and draw attention to the students from the Suceava college where fatigue appears prevalent at the middle of the week.

In a study carried out by high school students in Iasi, 43.3% of young people were tired at the end of the week, a result comparable to that obtained from the students in the two studied collectives [2].

During the day physiological fatigue occurs in the evening after intense activity, for 10-12 hours. This answer is present only to 46.23% of the interviewed young people. We must not overlook the fact that there are 30.65% of students who are tired in the morning, probably after an insufficient night sleep (Table III).

Table III – The moment during the day when students feel tired

Community	The time of day when students feel tired			
	Morning	During the day	Evening	Total
College from Bacău	26	19	63	108
College from Suceava	35	27	29	91
Total	61	46	92	199
%	30.65	23.11	46.23	

The calculated differences are statistically significant for $p < 0.001$ ($f=2$, $\chi^2=13.980$) and draw attention to the students from the Suceava college. We will have to pay special attention to these students and especially monitor sleep patterns, as the results are worrying.

Fatigue present in the morning, when waking up, was also confirmed by 32.91% of high school students in Iasi, which leads us to the idea of similar problems for students, problems that need to be known to intervene when the situation imposes it [1].

Physiological fatigue is removed by passive and active rest. Passive resting during sleep is done during the night and during the day. A teenager needs 9 hours of sleep, which exceeds the physiological requirement of the 8-hour adult. Parents wake up early in the morning to go to work, when the young man wakes up. If he slept late, because he had lessons or played at the computer and wakes up early in the morning, he may get insufficient sleep (Table IV).

Table IV – Nighttime sleep

Community	Average number of hours slept during the night			
	<7 hours	7-8 hours	9 hours or more	Total
College from Bacău	25	26	57	108
College from Suceava	34	29	28	91
Total	59	55	85	199
%	29.64	27.63	42.71	

Such a situation is present in more than half of the students questioned. There are 29.64% of young people who claim to have a sleep program of less than 7 hours a day, which is an alarming response. Less worrying are the responses of 27.63% young people sleeping 7-8 hours to add daytime sleep, which would lead to an almost normal sleep time. The calculated differences are statistically significant for $p < 0.01$ ($f=2$, $\chi^2=10.033$) and highlight the insufficient nighttime sleep for students in Suceava.

Sleeping for less than 7 hours logically associates with the permanent occurrence of fatigue, with a risk for the appearance of pathological phenomena of fatigue and with the occurrence of school failure [7].

In this context, daytime sleep is very important, but it is present daily in the program of just 6.03% of young people surveyed. We can also take into account the answers of „often”, found in 18.09% of questionnaires. Practically, daytime sleep is a constant presence in the program of 25% of students, which is an unsatisfactory outcome. Differences calculated for the two communities are statistically insignificant ($p > 0.05$, $f=3$, $\chi^2=3.175$), which is worrying, especially for college students in Suceava. They sleep too little during the night and do not sleep during the day, which can explain the constant occurrence of fatigue (Table V).

Leisure time is now a great challenge because the chosen activities must not be performed for too long and must promote rest. At present, free time is for television programs and computer games. These activities, if done for a long time can become important sources of fatigue.

Table V – The presence of daytime sleep

Daytime sleep	College from Bacău	College from Suceava	Total	%
Every day	5	5	12	6.03
Often	16	20	36	18.09
Rarely	57	45	102	51.25
Never	30	19	49	24.62

Television programs can be both educational and inappropriate. In programs specifically designed for pupils, general information can be provided that is educational. It is also possible to promote education for health promotion through television programs [9]. Adult programs, which are often preferred by students, may present scenes of violence, which may contribute to aggressive behavior. In the studied groups, the dominant time spent in front of the TV is 2-3 hours (37.68%). Normally, the student can spend up to 1 hour in front of the TV screen, a result recognized by a quarter of the students surveyed. Our attention is also drawn to the 22.61% of young people who choose the “none” version, which is somewhat odd in the conditions in which the TV is present in each household (Table VI).

At the opposite end, there are 14.57% young people staying 4-5 hours in front of the TV screen, which is worrying. Most of the negative responses appear in students from the Suceava college, so the calculated differences are statistically significant for $p < 0.001$ ($f=3$, $\chi^2=20.535$).

Table VI – Time spent in front of the TV

Hours of TV time	College from Bacău	College from Suceava	Total	%
None	16	29	45	22.61
0.5-1 hour	20	30	50	25.12
2-3 hours	50	25	75	37.68
4-5 hours	22	7	29	14.57

For certain families, the TV is sometimes a constant presence; all household activities are carried out with the TV set turned on, they eat in front of the TV, the child is doing homework with the TV turned on and so

on. Sitting for hours in front of the television screen will favor the emergence of a sedentary lifestyle and chaotic eating habits [12]. It is a habit that occurs during the schooling period and will later be present in the adult.

Computer games are an integral part of a student's life as well as online social networking [4] You cannot be cool and trendy without a computer or a tablet. There are also study subjects where training requires access to certain programs on the Internet. Everything is fine as long as there is no exaggeration. In the studied group, balanced responses (spend an hour per day on the computer) are present in only in 22.11% of situations. In most cases, students spend 2-3 hours daily (25.62%) explaining the reduced sleep time.

There are also surprising results because 32.16% of young people chose the answer “none”, which leads us to the idea of the absence of a personal or a family computer. A worrying situation occurs in 20.10% cases where “4-5 hours” is marked. These young people sit in front of the computer practically the whole afternoon, so they do not have much time for schooling. These are young people in grades X and XI who also need to prepare for their future profession, but they do not have much time because they spend too much of it on the computer (Table VII).

Differences calculated are statistically significant at a $p < 0.001$ ($f=3$, $\chi^2=27.343$) and draw attention to students from Bacău who spend more time in front of the computer.

Table VII - Time spent by students on the computer

Hours spent on the computer	College from Bacău	College from Suceava	Total	%
None	25	39	64	32.16
0.5-1 hour	18	26	44	22.11
2-3 hours	30	21	51	25.62
4-5 hours	35	5	40	20.10

Judicious use of time spent on the computer is required because of the risk of computer addiction associated with neglecting other activities and even with the emergence of the social isolation trend [6].

In a similar study carried out in high schools in the Republic of Moldova, there are 10.3% of young people using the computer for 1 hour (acceptable result) and 14.6% of students using it for 4-5 hours. Also, there are students who use the computer daily, for 6 hours (10.3%), 7 hours (4.0%) or 8 hours (3.2%) [8].

A student who sits for 2-3 hours a day in front of the TV screen and another 2-3 hours playing computer games does not have much time to systematically prepare lessons and get solid school information.

Conclusion

Students in the studied groups are experiencing the phenomenon of school fatigue, especially at the college in Suceava. In-depth studies are needed to better assess the situation and intervene where needed. Fatigue is caused by insufficient sleep during the night and the absence of daytime sleep. Relaxation activities (TV and computer) become sources of fatigue and can even turn into risk factors if the student spends too much time doing them.

The time spent in front of the television or computer screen is sometimes too high, which can explain the modest concern about school education and the unsatisfactory results obtained at the baccalaureate exams.

Better and more in-depth studies must be carried out by physicians and educators in order to know the intensity of school fatigue and when and how to intervene where the situation requires it.

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