



## LIFESTYLE AND INTERNET USE: ADDICTION AND ITS CORRELATIONS

*Estilo de vida e uso da internet: adicção e suas correlações*

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**Abstract: Objective:** to analyze the correlation of the dimensions of the students' lifestyle with the addiction in Internet. **Methodology:** This is a cross-sectional, quantitative, analytical study in a sample composed of 966 students from public and private high schools in Montes Claros-Minas Gerais. A questionnaire was applied that addressed sociodemographic and training variables. The Fantastic Lifestyle questionnaires and the Internet Addiction Test were also used. Pearson's correlation coefficient was used to test the linear correlation between lifestyle dimensions and Internet addiction among students via the Statistical Package for Social Science software version 20.0. This study was conducted within the standards required by the Helsinki Declaration and approved by the Research Ethics Committee under Protocol No. 1,520,173 / 2016. **Results:** Participants were aged between 14 and 25 years (78.7% of them aged 15 to 17 years), 53.4% were female, 91.5% were in the morning, 84.8% were from public institutions and 82.2% studied and did not work. Three of the nine dimensions of the "Fantastic Lifestyle" questionnaire were correlated with Internet addiction: Sleep, seatbelt, stress and sex ( $p = 0.012$ ); Feeding ( $p = 0.019$ ) and Introspection ( $p = 0.046$ ). **Conclusion:** Internet addiction is correlated with inadequate eating, lifestyle with greater risks and greater degree of introspection.

**Keywords:** Internet; Addiction; Students.

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**Resumo: Objetivo:** analisar a correlação das dimensões do estilo de vida de estudantes com a adição em internet. **Metodologia:** Trata-se de um estudo transversal, quantitativo, analítico em uma amostra composta por 966 alunos do ensino médio público e privado de Montes Claros-Minas Gerais. Foi aplicado um questionário que aborda variáveis sociodemográficas e de formação. Foram utilizados também os questionários Estilo de Vida Fantástico e o *Internet Addiction Test*. O coeficiente de correlação de Pearson foi usado para testar a correlação linear entre as dimensões do estilo de vida e a adição em internet entre os estudantes, via software Statistical Package for the Social Science versão 20.0. Este estudo foi conduzido dentro dos padrões exigidos pela declaração de Helsinki e aprovado pelo Comitê de Ética em Pesquisa sob protocolo nº 1.520.173/2016. **Resultados:** Os participantes têm idade entre 14 e 25 anos (78,7% deles com idade entre 15 e 17 anos), 53,4% são do sexo feminino, 91,5% estudam no período matutino, 84,8% são de instituições públicas e 82,2% estudam e não trabalham. Três das nove dimensões do questionário “Estilo de vida Fantástico” estão correlacionadas com adição em internet: Sono, Uso de cinto de segurança, estresse e sexo ( $p=0,012$ ); Alimentação ( $p=0,019$ ) e Introspecção ( $p=0,046$ ). **Conclusão:** A adição em internet está correlacionada com uma alimentação inadequada, estilo de vida com maiores riscos e maior grau de introspecção.

**Palavras-chave:** Internet; Dependência; Estudantes.

## INTRODUCTION

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Style of life consists of a set of habits and customs, which can be influenced, modified, encouraged or inhibited by the socialization process.<sup>1</sup> The use of internet has made part of an increasing in the life habits of individuals and brought several facilities for the contemporary society<sup>2</sup>. However, its use may become excessive and even harmful, constituting a dependency defined as the addiction on the internet, may interfere in various dimensions of people's lives, constituting a public health problem.<sup>2-4</sup>

Internet addiction involves the maladaptive use of this means of communication, having pathological repercussions in physical and emotional components.<sup>2-4</sup> Such scenario, Internet addiction, is based on a recent study conducted in Singapore, which showed a prevalence rate of 29.5% of addiction in the population sample.<sup>5</sup>

There is a close relationship between life-style and addiction in internet in force in the past two decades.<sup>2</sup> From perspective, there are disturbing scenarios that express this unhealthy interaction of students with the technological means.<sup>6</sup> A survey with 600 students in the United States showed a correlation between internet addiction and triggering of depression, anxiety and stress.<sup>7</sup> The requirements that serve to measure data about the style of life gain support from tools directed to this goal, as for instance the "Fantastic Lifestyle Questionnaire" that provides the epidemiological survey of parameters for expressing the behavioral content that implies in quality of life.<sup>8</sup>

The healthy life habits result in life-style that promote the health of individuals, increasing the quality of life and serving as health promoters.<sup>9</sup> The addiction in internet affects the quality of life

of individuals and as a survey with 205 college students in Iran shows.<sup>10</sup>

Considering that the inappropriate use of internet can interfere in the various dimensions of life style and that there is a lack of studies that investigate this situation, this study aims to analyze the correlation of the dimensions of the students' style of life and the internet addiction.

## METHODOLOGY

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This was a cross-sectional study of quantitative nature, with a population consisting of middle school students regularly enrolled in public and private schools, from the 1st to the 3rd series of the city of Montes Claros, Minas Gerais. The sample size was defined by means of calculation for finite populations, considering the prevalence of the event of 50%, confidence level of 95%, standard error of 5%. Data were used from the school census of 2012 and 2014 for the number of students of education network of the municipality. It was estimated the participation of at least 748 adolescents. It was adopted the correction for the design effect ( $Deff=2.0$ ) and was established also an increase of 20% as non-response rate. It was used as an inclusion criterion being a student regularly registered in the institution and in the selected class. As an exclusion criterion, it was considered the fact that the student will not be present on the day scheduled for the data collection or not handing the informed consent.

As an instrument of data collection, a questionnaire was used which included sociodemographic variables (gender, age and socioeconomic class), training (institution of study, shift and series) and use of the internet (connection time, number of days of access and frequency of

daily access). The Fantastic Lifestyle questionnaires and the Internet Addiction Test (IAT) were also used.

For evaluation of the adolescents' style of life the validated questionnaire "Fantastic Lifestyle" was applied, which considers the behavior of individuals in recent months. The instrument consists of 25 questions divided into nine areas (23 in the Likert scale from zero to four points and two dichotomous questions - no; zero and yes; four points). The following areas were considered: family and friends, physical activity, nutrition, tobacco and toxics, alcohol intake, sleep, seat belt, stress, and safe sex, type of behavior, introspection and work.<sup>8</sup> According to the score obtained in each domain in the adolescents' style of life it was classified as "Needs Improvement, regular, good, very good and excellent" in that domain (Table 1). It was considered as inappropriate the life style classified as needs improvement and regular, those classified as good, very good or excellent were considered with a healthy lifestyle.

In order to assess the Internet addiction, it was used the *Internet Addiction Test* (IAT). The scale consists of 20 items that cover all three dimensions: Isolation and social problems, time management and performance and replacement of reality. Each item is in a Likert scale from 1 (rarely) to 5 (always). The total score can vary from 20 to 100 points. The classification of the addiction is performed according to the score obtained by the individual in:

- Median user, who has full control over its use (20 to 39 points);
- Problematic user, that has occasional problems (40 to 69 points);
- User with addiction, which has significant problems because of the use of the Internet (70 to 100 points).

Data collection was carried out in the classroom, between the second half of 2016 and the first half of 2017. The instrument was delivered, after the teachers' authorization, being answered by the students and collected, shortly after, along

**Table 1 - Classification Interval of the Fantastic Lifestyle Questionnaire from the possibility of points in each of the domains.**

Possibility of points	Classification				
	Needs improvement	Regular	Good	Very Good	Excellent
04	0	1	2	3	4
08	0 - 3	4	5 - 6	7	8
12	0 - 4	5 - 6	7 - 8	9 - 10	11 - 12
16	0 - 5	6 - 9	10 - 11	12 - 13	14 - 16
20	0 - 7	8 - 11	12 - 14	15 - 17	18 - 20

with the Free and Informed Consent Form (ICF) signed by the interviewees' parents, along with the informed consent signed by the same.

For data analysis, the statistical software SPSS was used (*Statistical Package for Social*

*Sciences*), version 20.0. The results regarding the studied sample were obtained by means of simple descriptive statistics (frequency, percentage, mean and standard deviation). Pearson's correlation coefficient was used to test the linear correlation

between the dimensions of the life-style and internet addiction among the students. Statistical significance was established at 5% ( $p < 0.05$ ).

This study was conducted within the standards required by the declaration of Helsinki and fulfilling the recommended resolution # 466 dated from December 12th of 2012 and the Operational Norm no. 001/2013 dated from September 30th of 2013 of the National Health Council/Ministry of Health, was approved by the Research Ethics Committee under protocol no. 1.520.173/2016.

## RESULTS

966 high school students participated in the study from the municipality of Montes Claros - MG, and 53.4% were female and 46.6% male, aged between 14 and 25 years (78.7% of them aged between 15 and 17 years). Regarding the school profile, 91.5% studied in the morning period and 5.6% in the nighttime, 84.8% were part of public institutions and 82.2% studied exclusively (Table 2).

**Table 2 - Sociodemographic characteristics of high school students in the municipality of Montes Claros - MG.**

Variables	n	%
<b>Sex</b>		
Female	516	53.4
Male	450	46.6
<b>Age</b>		
15-17 years	761	78.8
≥ 18 years	205	21.2
<b>Shift Studying</b>		
Morning	883	91.5
Afternoon	3	0.3
Night	54	5.6

Continuation of Table 2

Variables	n	%
Full time/Daytime	25	2.6
<b>Types of Educational institution</b>		
Public	819	84.8
Private	147	15.2
<b>Reconciles work and study</b>		
Yes	172	17.8
No	793	82.2

Through the application of the IAT questionnaire, it was found that 9.8% of the students presented themselves as users addicts, while a share of 52.3% made problematic use of the internet. Regarding the time of connection, 76.7% used the internet on a daily basis and 58.4% with a frequency of daily access more than 6 times (Table 3).

**Table 3 - Characteristics related to internet usage of high school students in the municipality of Montes Claros - MG.**

Variables	n	%
<b>Internet Addiction</b>		
Median User	366	37.9
Problematic User	505	52.3
User with addiction	95	9.8
<b>Time of use weekly</b>		
None	25	2.6
1 day	19	2.0
2 to 3 days	79	8.2
4 to 6 days	101	10.5
<b>Frequency of daily use</b>		
None	39	4
1 to 3 times	201	20.8
4 to 6 times	162	16.8
More than 6 times	564	58.4

Upon analyzing the correlation of the dimensions of the students' style of life and the internet addiction, the 9 domains of the Fantastic Lifestyle Questionnaire, the study found a relationship between exaggerated use of the internet and 3 dimensions, namely: Sleep, seatbelt, stress and sex ( $p = 0.012$ ); Feeding ( $p = 0.019$ ) and Introspection ( $p = 0.046$ ). (Table 4).

It was observed that the level of addiction is directly related to the inadequate diet, in an ascending curve of 15.7% in the median users, to 23.9% in users with inappropriate use of the internet (those that had problematic use or addict of the internet). There is a negative correlation between addiction and safe behavior regarding the use of safety belt, Sleep, stress and sex: The prevalence of unsafe behavior rose from 3% among users to 6.2% median in users with disharmonic use of the internet. The level of addiction is associated directly with the introspection: the rate increased from 6.7% among median users to 15.4% in students who had some problem with the internet.

## DISCUSSION

The present study found that there is a relationship between the dimensions of the style of life and the internet addiction. A correlation between the addicted use of the internet and unhealthy habits in the context of feeding, safe behavior and introspection. The impairment of quality of life has been observed among those individuals with internet addiction.<sup>10</sup>

Research conducted in 2,780 Spanish students demonstrated that the problematic use of the internet is more common in overweight or obese people, being 2.5 times higher in those with BMI greater than 30 kg/m<sup>2</sup> and another held in 584 Turkish adolescents noted a significant relationship between BMI and addiction.<sup>11,12</sup> There is a direct relationship between the level of Internet usage and poor nutrition, especially with inadequate intake of calories, causing an increase in body mass index (BMI), waist circumference and metabolic patterns

**Table 4 - Dimensions statistically related to internet usage of high school students in the municipality of Montes Claros - MG.**

DIMENSIONS	IAT			P-value
	Median User	Problematic User	Addicted User	
<b>Nutrition</b>				
Adequate	308 (84.3%)	65 (69.7%)	383 (76.9%)	0.019
Inadequate	55 (15.7%)	28 (30.3%)	113 (23.1%)	
<b>Sleep, seat belt, stress and safe sex</b>				
Adequate	352 (97.0%)	79 (85.0%)	479 (95.0%)	0.012
Inadequate	10 (3.0%)	15 (15.0%)	22 (5.0%)	
<b>Introspection</b>				
Adequate	341 (93.3%)	78 (81.8%)	428 (85.3%)	0.046
Inadequate	24 (6.7%)	17 (18.2%)	75 (14.7%)	



changes.<sup>11</sup> This relationship is corroborated by the fact that the addicts tend to neglect obligations such as domestic and social tasks to keep browsing on the internet, which leads to non-regulated feeding, in times and in content, generating an increase in weight.<sup>11</sup>

It was observed in the present study the association between inadequate introspection and the level of internet usage, which can be explained by the fact that the individuals with addiction have a score lower on tests of social skills and that more balanced ones in introspection use the internet purposefully, presenting a lower rate of inadequacy.<sup>13, 14</sup>

Addicted individuals tend to devote a greater proportion of time in the virtual world, which hinders the socialization outside the online dimension. In addition, they tend to change their emotional state when they are not connected, expressing irritability, impatience and bother to mention issues related to internet addiction.<sup>15</sup>

The safe behavior, including safe sex, use of safety belt, sleep and adequate levels of stress showed less frequently in those with higher level of addiction. Fact of considerable social impact, for having relationship with psychiatric syndromes<sup>16,17</sup> and related consequences, such as unwanted pregnancy<sup>6,8</sup> or greater severity of injuries in accidents.<sup>18,19</sup>

This result is supported by other studies, in which it is showed that sleep can become inadequate due to the fact that online activities (games and social networks), since they can induce the user to stay awake longer than the desired.<sup>20-22</sup> Addicts still have a higher level of stress.<sup>7</sup> The stress is relieved when the individual is connected, curing the signs of abstinence.<sup>7,23,24,25</sup> When offline, they exhibit discomfort and emotional alterations. And the safe sex that is a component changed due

to neglect regarding the use of contraceptive and/or hormonal barriers.<sup>26</sup>

This study should be interpreted in the light of the limitations pertaining to cross-sectional design that prevents the cause-and-effect relationship.

## CONCLUSION

This research found that the inappropriate use of the internet by high school students has a relationship with dimensions of life style: Sleep, seat belt, stress and sex; feeding and introspection. It is expected that the results of this study provide the reflection of administrators, teachers, parents and/or guardians, and students about the influences of maladaptive usage of the internet in the style of life is not healthy, which can have on physical and psychological health of these individuals. Public policies directed to the student's health need to be consolidated in the national scenario. It is suggested further studies that address this issue in other populations.

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