

Cyberaddiction Among Students at Alassane Ouattara University in Bouaké (Côte d'Ivoire): Prevalence and Associated Factors

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Abstract: *Introduction:* Cyberaddiction can impact all aspects of people's lives, especially adolescents and young adults. Knowledge about the prevalence and related factors of these phenomena is therefore needed for prevention and treatment planning. *Objective:* To assess the prevalence and factors associated with cyberaddiction among Ivorian students. *Material and methods:* This was a descriptive and analytical cross-sectional study that involved 388 students from Alassane Ouattara University in Bouaké over a period of 03 months (June - August 2017). The students were assessed using Young's Internet Addiction Test (IAT). *Results:* The prevalence of cyberaddiction was 11.08%. The associated factors were femalesex ($p=0.010$), usage modalities such as daily connection time greater than 8 hours ($p<0.0001$) and less than 1 hour ($p<0.0001$), network usage ($p=0.009$), night internet use ($p=0.0047$). The consequences on life were sleep disturbances ($p=0.009$), homework equality ($p<0.0001$), decreased performance ($p<0.0001$) and isolation ($p<0.006$). *Conclusion:* These results show the need to raise awareness among the population, especially students, about the harmful effects that excessive use of the Internet can have on their lives.

Keywords: Cyberaddiction, Evaluation, Prevalence, Associated Factors, Student, Ivory Coast

1. Introduction

Created in 1973, but accessible to the general public in 1989, the Internet has become a global phenomenon in the space of barely twenty years. With nearly 3 billion Internet users worldwide [1], 216 million in Africa [2] and more than 10 million in Côte d'Ivoire according to the ARTCI (Telecommunications Regulatory Authority of Côte d'Ivoire) at the end of 2016 [3], the Internet is one of those inventions

whose scale has profoundly transformed the habits, mentalities and behaviors of our societies. Powerful and complex, it abolishes the boundaries of space and time, virtually freeing man from all material constraints and thus offering him access to a total freedom, unknown until then. However, each invention and technological advance has brought both comfort and problems such as the phenomenon of addiction. In a paper published in 2012 by Yellowless et al, the prevalence of cyberaddiction worldwide varied between 1% and 30% depending on the test used and the

characteristics of the population studied [4]. Symptoms such as excessive internet use with loss of control, use in socially inappropriate or dangerous situations, symptoms such as feelings of anger, tension, depression when the internet is inaccessible and the constant need for more hours of use, in a person may be related to cyberaddiction [5]. Teenagers and young adults have been living with the internet since birth. This makes them groups at high risk of internet addiction. Like students around the world, the majority of Ivorian students are used to surfing the internet. However, no study on cyberaddiction has been carried out in our country Côte d'Ivoire.

2. Methodology

Our study took place at the Alassane Ouattara University in Bouaké. It is the second largest public university in Côte d'Ivoire. It concerned the 04 training and research units (UFR) that comprise this university, namely: the UFR of Medical Sciences (SM), the UFR of Administrative and Management Legal Sciences (SJAG), the UFR of Economics and Development Sciences (SEG), the UFR of Communication Environment and Society (CMS). This was a cross-sectional

study with a descriptive and analytical aim on students enrolled in these 04 UFRs over a period of 03 months, from June to August 2017. Each student was subjected to a series of 02 questionnaires. First a general data collection sheet specifying the sociodemographic and educational profile (sex, age, UFR, level of study, religion, housing) and the Mode of use of the Internet (duration of connection, favorite activity on the Internet) then the Young Internet Addiction Test (IAT) to assess Internet addiction in a subject. Students with at least one smartphone and regularly connecting to the internet were included in our study. Students who refused to participate in the survey were not included in our study. The data collected was analyzed using epi-Info software. Quantitative variables were expressed as an average and qualitative variables as proportions. The statistical test used was that of Khi two. Anonymous processing of files was respected. The significance threshold p value < 0.05 . According to the selection criteria, 388 out of 400 students were selected.

3. Results

Socio-demographic Data, Usage Modalities and Internet Addiction of the Study Population (Tables 1, 2, 3).

Table 1. Cyberaddiction distribution and socio-demographic characteristics.

Prevalence addiction	No addict	addict	p-value
Sex	345 (88.92%)	43 (11.08%)	
Masculin	173 (93.51%)	12 (6.49%)	0.010
Feminine	172 (84.72%)	31 (15.28%)	
Age			
[15 - 19]	30 (83.33%)	6 (16.67%)	0.39
[20 - 24]	225 (90.72%)	23 (9.28%)	0.17
[25 - 29]	84 (86.60%)	13 (13.40%)	0.51
>29 years	6 (85.71%)	1 (14.29%)	0.74
Level			
Licence	208 (90.04%)	23 (9.96%)	0.49
Master	116 (87.22%)	17 (12.78%)	0.55
Doctorate	21 (87.50%)	3 (12.50%)	0.91

Table 2. Cyberaddiction Distribution and Use.

Items	Cyberaddiction		p-value
	No (n=345)	Yes (n=43)	
Most used function			
Social networks	224 (64.93%)	37 (86.05%)	0.009
Download	80 (23.18%)	3 (6.98%)	0.12
Online games	7 (2.03%)	1 (2.32%)	0.65
Research	20 (5.80%)	2 (4.65%)	0.96
Mail	14 (4.06%)	0	0.36
Connection time/day			
<1 hour	104 (30.16%)	1 (2.33%)	<0.0001
[1 - 4]	123 (35.65%)	5 (11.63%)	0.06
[5 - 8]	88 (25.50%)	10 (23.25%)	1.46
>8h	30 (8.69%)	27 (62.79%)	<0.0001
Connection time			
Morning	62 (17.97%)	7 (16.28%)	0.66
In the afternoon	41 (11.88%)	3 (6.98%)	0.48
In the evening	107 (31.01%)	10 (23.25%)	0.32
At night	99 (28.69%)	14 (32.56%)	0.0047
At any time	36 (10.45%)	9 (20.93%)	0.18

Table 3. Breakdown by CyberAddiction and its Consequences.

Consequences	Cyberaddiction		p-value
	Yes (n=43)	No (n=345)	
On health			
anxiety and stress at withdrawal	16 (37.20%)	87 (25.22%)	0.13
sleep disorders	28 (65.12%)	148 (42.90%)	0.009
On educational life			
Difficulty concentrating	17 (39.53%)	98 (28.41%)	0.18
Neglect of duties	32 (74.41%)	109 (31.59%)	<0.0001
Decreased performance	5 (11.63%)	1 (0.29%)	<0.0001
On social life			
Negligence of tasks Housewives	18 (41.46%)	113 (32.75%)	0.30
Tendency to isolation	11 (25.58%)	35 (10.14%)	0.006
Complaints from relatives	20 (46.51%)	142 (41.16%)	0.61

The female gender accounted for 52.32% with a sex ratio of 0.91. The average age of respondents was 22.85 ± 2.76 , with extremes ranging from 17 to 31 years. Social networks were the favorite activity in 62.27% of our respondents and 30.15% of students connected with an internet connection time in 32.22% of students that was 1 to 4 hours a day. In our study, 60.57% of students had a night profile. The prevalence of cyberaddiction was 11.08. There was a statistically significant link between cyberaddiction and gender. There was no correlation between age, educational at-education and cyberaddiction. There was a correlation between social networks and cyberaddiction. ($p=0.009$). There was a statistically significant link between having a daily connection time of less than 1 hour ($p<0.0001$) and that of more than 8 hours ($p<0.0001$). There was also a correlation between cyberaddiction and nighttime internet use ($p=0.032$). Also, there was a correlation between cyberaddiction and the occurrence of sleep disorder ($p=0.009$). In addition, there was a significant link between cyberaddiction, decreased academic performance ($p<0.0001$) and neglect of homework ($p<0.0001$). Finally, there was a correlation between cyberaddiction and the tendency to isolate oneself ($p=0.009$).

4. Discussion

The socio-demographic profile of the respondent population was that of a young adult with an average age of 23 years, female. Our results were superimposed on those of the study population of Cocorada E [6] which had an average age of 23 years, and the Patesson and al study, [7] in terms of female predominance with a sex ratio of 0.86. This female predominance was due to the fact that women gave more interest to the study, and by the voluntary recruitment method: an analysis of the literature showed us that in studies based on this mode of recruitment, women are much more likely to answer the proposed questionnaires [8]. The studies carried out by authors in young adult populations are divergent, particularly in terms of distribution by sex. Indeed, a study conducted by Yeap and al [9] in Malaysia in 2015 had a predominance of men (51%). The daily internet connection time for 32.22% of students was between 1 and 4 hours. In the study by Suliman and al [10], it was 72.70% of students who had a connection time between 1 and 4 hours. The preferred connection time was 30.15% and 29.12% for the evening and

night respectively. More than half of the respondents, i.e. 60.57%, had a profile that madethem surf at a lower cost at night. The prevalence of cyberaddiction in our study was 11.08%. All of them had a moderate addiction. Calédra E [11] in her study carried out in France also found no case of severe addiction, it was moderate as in ours, but found a lower prevalence which was 7.7%. A 2013 study of Indian students, Yadav et al [12] found a prevalence of 11.80%. This rate was consistent with ours. The prevalence of cyberaddiction was higher among women (15.28%) than among men (6.49%). There was a statistically significant link between gender and cyberaddiction in favour of women. Women were quicker to use the Internet, they found more content related to their needs, their interest and expressed more relational needs than the Internet offered. Our results were identical with those of Nasr and al (2015) in Tunisia [13]. While in most studies in the literature men were more affected than women. These were Fisoun et al (2011) [14] for 7.2% of men against 5.1% of women, Sasmaz and al (2013) [15] 20.4% of men against 9.3% of women. The age group of [15-19 years] was the one where the prevalence was higher (16.67%). This group was the most affected because it includes adolescents and young adults. It is a transitional phase between adolescence and adulthood; it is in this period that the subject will forge his personality and will tend to more discovery. Nevertheless, there was no correlation between addiction and age. Benguigui J [16] in his study found that 32% of those under 18 were cyberaddicts. Our work revealed that on the internet cyberaddicts (86.05%) had social networks as their favorite activity. Haug et al [17], found a similar result with 81.30% of cyberaddicts, the same for Patesson et al, 80% [7]. There was a statistically significant link between cyberaddiction and excessive use of social networks. Caledra E [11], she too in her study found a link between the use of social networks and cyberaddiction. This is explained by the fact that social networks represented links between groups of people of all ages, cultures, remotely, via sharing sites such as Facebook, Myspace, Twitter etc... they allowed professional or friendly connections, by creating a profile, inviting or looking for friends, sharing files (*photos, videos*), feeding the content via the comment post. More than half of cyberaddicts (62.79%) remained connected to the internet for more than 8 hours a day. There was a correlation between cyberaddiction and connection time. A connection time of more than 8 hours exposed to cyberaddiction while a

duration of less than 1 hour was a protective factor. This is explained, like any type of addiction, the repeated connection to the internet led to a gradual increase in the level of satisfaction, thus causing a state of increasing need: it was necessary to surf more and more to intensify the stimulation and to be satisfied. In Benguigui's study [16], 56% of cyberaddicts surf the internet between 4 and 8 hours a day. The night was the preferred connection time among cyberaddicts (32.56%). There was a correlation between nighttime internet use and cyberaddiction. Our respondents, being students, waited until the end of the courses to be able to easily use the Internet and took advantage of some attractive price offers at this time. The occurrence of sleep disorder was statistically related to cyberaddiction. It was present in 65.12% of cyberaddicts. They deprived themselves of sleep because they were surfing the internet, thus altering the quality of sleep. Lejoyeux et al, [18] also found a link between cyberaddiction and sleep disorders. Cyberaddicts (74.41%), neglected their homework to be able to surf the internet better, which irreparably led to a drop in performance in 11.63%. There was a correlation between cyberaddiction, decreased performance, and neglect of homework. Koua et al [19] also in their study carried out in 2015 found a decline in school performance or even a repetition among cybercriminals in Côte d'Ivoire. There was a correlation between cyberaddiction and the tendency to isolate oneself. Cyberaddicts (25.68%) being on the internet preferred to isolate themselves, to take shelter from all eyes in order not to be disturbed and to take full advantage of the internet. These phenomena most often led to conflicts between the subject and his entourage.

5. Conclusion

This study made it possible to find the main characteristics of cyberaddiction among students of the Alassane Ouattara University in Bouaké. The prevalence of cyberaddiction was 11.08%. The factors associated with this behavioral addiction were: The female sex, a daily connection time greater than 8 hours, and less than 1 hour, the use of social networks, the nocturnal use of internet. The impact on life was sleep disorders, neglect of homework, decreased performance and a tendency to isolation ($p < 0.006$). This original study shows the reality of cyberaddiction in Côte d'Ivoire, hence the need for early intervention measures on the one hand and epidemiological studies to be carried out, particularly in children and adolescents, on the other.

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