

## Section 11. Psychology

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### **Influence of computer games on the sleep quality and the nature of dreams in students**

**Abstract:** This study explored the use of different forms of the virtual world among students and the study of its influence on unconscious processes in students. The test group was comprised of 141 participants who were second to fifth year students at a technical university of Minsk city. We found that 38.3% of the participants spent more than 40 hours per work in the virtual world and 26.2% spent 25–39 hours per week. Moreover, 90.8% of the students engaged in computer games and game plots were present in the dreams of 16.3% of students. Nightmares and incubi were the cause of being awoken in 71.6% of students. Moreover, 14.9% of respondents expressed changes in depth psychology. Computer games are especially popular in the students' environment, and their substantial impact on the gamers' sleep quality and the nature of dreams was observed.

**Keywords:** computer games, computer addiction, gamers, dreams, psychiatric symptoms.

#### **Introduction**

The virtual world is a product of computer technologies. It provides users with enjoyment of every taste, but at the same time it is capable of intruding into a person's inner life, resulting in computer dependency. This new world has become an integral part of the lives of almost everyone, especially younger people, many of whom play computer games. Scientists often concur that there are more general features between gamers than individual distinctions [1, 35–38]. The gamers' generation is unique from previous generations their own world view has developed under the influence of this new

environment. The projection of these ideas on the surrounding world is realized according to patterns, which cannot be determined by existing research techniques. In our previous study we assessed the influence of computer game genres on the psychological, mental, and emotional state of gamers [2, 50–55]. It has been shown that the virtual world has these effects on society, but the true influence on individuals is poorly understood.

Currently, the study of depth psychology in computer addicted persons is particularly pressing. The gamer knows nothing about the content of their unconscious desires and

appetencies. Visualized fantastic performances that are daydreams in nature unfold before them on the screen, and the interest is directed to the realization of their internal desires in the developing action. New opportunities open before them, which are intensely induced and fared by a person's perceptions that are skillfully interwoven with the virtual world. An intense aggressive attack on the desires determined by base instincts is carried out with the purpose of evoking unconscious needs. The illusory opportunity to realize their desires in this daydream world is simultaneously granted. Such satisfaction of unconscious desires generates an internal conflict, which is reflected in the answer given by one of the gamers who stated that he felt more comfortable «in the real world, though it is equally bad everywhere». One can assume that this illusiveness leads to spiraling dissatisfaction, forcing the person to come back to the dreamland for abreaction. In this process, sublimation and repression mechanisms are activated and as a consequence, psychopathologic symptoms similar to hysterical are formed, which manifest as inadequate behavior. Researchers have found that the complexities of communication experienced by the user in the real world are not compensated in the virtual world, since Internet facilitates retreat from one's real self, and the emotional level becomes a leading one in self-feeling [3, 20–27; 4. 187–195].

The cognitive-behavioral model of pathological Internet use introduced by American psychologist R. Davis suggests two forms of Internet addiction: specific pathological Internet use and generalized pathological Internet use. The second form represents unspecialized, multi-purpose, excessive use of all Internet forms<sup>4</sup> Previous studies have established personal and behavioral deviations that are characteristic of Internet-addicted persons [5, 657–664; 6. 279–284]. Other researchers have shown a relationship between behavioral disorders that are characteristic of this pathology and the symptoms of mental disorders in students [7, 272–278; 8, 267–272; 9, 793–800]. However, the influence of the virtual world on human mentality, including unconscious processes, has not been sufficiently studied. In this regard, Freud's direction is especially: «The study of dreams may be regarded as the most trustworthy approach to the exploration of the deeper psychic processes» [10, 1–2; 11, 3–12].

**The objective of this study** was to assess the duration of one's stay in the virtual world and the nature of its influence on unconscious processes in students.

#### **Material and methods**

Our pilot study was conducted by way of an anonymous survey among students studying at a technical university of Minsk. The objective of this study was to assess the influence of the virtual world on students' health. For this purpose, a special questionnaire was developed by K. Meziyanaya and K. Karaneuski entitled, "Method of Screening Diagnostics of Computer Addiction and its Effect on Sleep", which asked participants about the length of time of stay in the virtual world, quality of sleep, and nature of the dreams. An informed consent was received from 141 students studying at a technical

university of Minsk, 119 (84.4%) male and 22 (15.6%) female. The study was conducted using a continuous questioning method, by means of the computer software downloaded in the university's internal network. The data received were not personalized. The average age of respondents was 21.4 years and the average total duration of virtual world use was 8 years.

#### **Statistics**

In this study we have performed frequency distribution of the computer dependence and sleep disorder symptoms in students. Data were processed using Microsoft Office Excel 2010 and the STATISTICA 10.0 package.

#### **Research Results**

**Study of the use of different virtual world forms.** The students were allowed to mark several answer variants. Two virtual world forms were used by 54 persons (38.3%), three forms by 48 persons (34%), and four by 15 persons (10.6%). Only two students managed to engage in all six virtual world forms. The analysis showed that 22 students (15.6%) only used one form of a virtual world. Of these, 13 persons were only engaged in computer games, 5 persons used social networks, and the others spent time surfing the internet and watching television.

**Analysis of the frequency of virtual world forms use by the students.** Our analysis found that almost all participants played computer games (128; 90.8%) This result indicates that computer games have become the same daily routine of their life as TV has for modern society. However, due to the dynamism of the process and discrepancy in answers, it was not possible to define the time devoted to computer games by the students. The respondents were allowed to mark several answers. Three virtual world forms were almost equally popular in the test group: surfing (including video hosting) was enjoyed by 70 (49.6%) students, social networks were used by 64 (45.4%) students, and television series or movies were watched by 63 (44.7%) students. Online sex and stock gambling were of less interest (8 and 9 students, respectively). In total, 98 (63.1%) students used the virtual world for entertainment and recreation. The aspiration to display patronage through rescue and protection of others in a game was seen in 46 (32.8%) students, while suppression and submission of associates was used by 54 (38.6%) students. The desire to attain superiority in a game was observed in 68 (48.2%) of students, 47 (33.6%) of students chose score orienteering games. It should be noted that some gamers who strived to rescue and protect in games tended to willingly use violence and destruction over the virtual world to achieve their goals.

In the virtual world, students pursue various purposes in both games and on social networks. Surfing, for example, is widely acquainted with pornography. If the user incurs a role of benefactor of others and becomes comfortable with this role for a long period of time, then he may get lost in messianic feelings. In other cases one's beliefs are imposed on partners. An online competitive game with the other person's psychology is an opportunity for some people to search for like-minded fellows. Approbation and rounding-out of one's

leadership abilities are affected here, such as «propagation of depression», as one of the respondents confessed.

**Analysis of the duration of stay in the virtual world.** Twelve students (8.5%) stated that they spent an extended period of time in the virtual world, including 4 students who spent up to a 100 hours a week and 8 students who spent up to 168 hours per week. For these students, their interest acquired an addictive nature: they either do not visit the virtual world at all or stay there around the clock for seven days at a stretch, engaging mainly in computer games. We found that 54 (38.3%) students spent 40 or more hours each week in cyberspace. A similar addiction index was determined by researchers in South Korea<sup>11</sup>. It is believed that one sign of computer dependency is when the duration of regular participation in virtual space as a sheer pastime without performing work exceeds 38 hours per week [12, 5–33]. In our study conducted in 2013, computer dependency was found in 33.8% of participants [2, 50–55].

**Analysis of the influence of the virtual world on unconscious processes in students.** An analysis of sleep quality and the nature of dreams in respondents was conducted in order to study the changes occurring at an unconscious level.

We found that 18 (2.8%) of students experienced a recurrence of a plot in dreams. The nature of these dreams, according to psychoanalysis data, often has the same basis as and is linked to a psychological traumatic experience (psycho-trauma) in early childhood. The recurrence of plots in dreams suggests that in the mental sphere of users, such experiences sharply actualize, and what has been repressed and hidden deep in the unconscious now tries to gain access to the conscious world. Plots of computer games offer diverse possibilities for protecting oneself in different situations. Some of them can reflect a psycho-trauma of one's childhood, for «dreams never occupy themselves with trifles» [13, 1–3].

Other symptoms that contribute to changes in the unconscious sphere of students are “dreams within a dream” as analyzed by Freud. He established that «the inclusion of a certain content in a dream within a dream is, therefore, equivalent to the wish that what has been characterized as a dream had never occurred». In our study we found that 32 (22.7%) participants had such a nature of dreams.

A destructive nature of the influence of the virtual world on the mentality of students was also confirmed by the fact that 29 (20.6%) of the students stated to themselves in a dream: “I just dream it!” The desire to sleep, as Freud has established, leads to the following: «Don't worry; sleep on; it's only a dream, is in many cases the suggestion of the Pcs to consciousness when the dream gets too bad» [14, 1–3]. In our study we found that 82 (58.2%) of students woke up involuntarily due to the unpleasant nature of dreams.

On the other hand, nightmares (incubi), according to psychoanalysis data, represent a punishment for realizing something illicit, forbidden, or a breach of moral standards. Our analysis found that 78 (55.3%) students woke up due to fear and apprehension. Incubi and unpleasant dreams were

the reason of waking up in 101 (71.6%) students, although 45 (31.9%) of these students also defined their dreams as pleasant. Freud found that dreams are the hidden realizations of (repressed) wishes. If, however, moral standards and taboos are broken in a dream, then it is interrupted and replaced by awakening. We next established that such negative plots may be, in particular, the dreams about self-punishment and other peoples' punishment. In dreams, as Freud has established, further development of mental life processes takes place and remains purposeful. Therefore, after elimination of desirable target representations for any reason, unconscious and/or undesirable ones occupy leading positions.

Another substantial indicator of excitation and inhibition process disorders during sleep is somnambulism. In our study 9 (6.4%) participants suffered from this illness. In four cases, the sleepwalking had appeared recently (and even right before the interview), for the other cases it had taken place since their childhood. All of these students spent more than 6 hours a day in the virtual world.

**Analysis of the nature of dreams.** We next assessed the nature of dreams with the purpose of assessing the impact of computer game plots on the gamers' mentality, since, as Freud put it: «It has been my experience — and to this I have found no exception — that every dream treats of oneself. Dreams are absolutely egoistic...» [13, 1–3].

About 5.7% students continued gaming in their dreams. In 15 (10.6%) cases, a hero or a virtual world image were present in the dreams, owing to his/her identification with the characters of games. The type of character is important: some students saw themselves as a scientist, soldier, or prom-trotter, and two students saw themselves as a killer. Sometimes the role of such an image is played by “the almighty essence”, and sometimes by a shooting tank.

The consequence of such processes was the occurrence of strange and unusual dreams at a unconscious level in 20 (14.2%) students, while in 6 students stated that these had occurred since childhood. As a rule, such dreams are accompanied by the recurrence of a plot and by a dream in a dream. Twenty-one (14.9%) students experienced strange premonitions in a dream: at an unconscious level they had “strange sensation of future changes, presentiments of their selectness, some mission”. The analysis also showed that such students often played strategy genres more than 6 hours per day, and some of them for up to 168 hours a week.

### Conclusion

Data obtained in this study indicate that for youths, and in this case the students, there is a total involvement of all services offered by the virtual world and, in particular, computer games. We found that 38.3% of the students remained in cyberspace for 40 and more hours per week, which equals a full work week, suggesting computer dependence. Moreover, we found that the number of students within this group is 4.5% greater than that found in our 2013 study.

The mentality of students was found to be on the verge of exhaustion in 40% of students due to the many hours spent in

the virtual world as well as poor quality of dreams. Virtual images, especially in computer games, actualize processes in both “super-ego” and unconscious spheres. The aspiration to receive desires by ignoring moral norms and subsequently rationalizing the violations leads to the internal conflict, which is expressed in destructive nature of dreams resulting in sleep disorders caused by anxiety and fear in 55.3% of respondents, being the symptom of depressive disorders.

The personality of some gamers (10.6%) probably undergo, under the impact of game plots and self-identification with the game character, transformation of the “I am a Superman”

type. This creates the factors that promote the development of psychopathological disorders. Currently, the impact of this type of dependence on mental health, as a rule, is not considered in cases of serious mental illness in a gamer. The coming generation, which includes children of present users of computer games, social networks, and Internet surfing, will be brought up under an active influence of conceptualization of their parents and a quickly changing virtual world. This poses a problem that requires special consideration by scientists and experts, since there is currently insufficient knowledge for making adequate decisions and recommendations within this field.

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