ANXIETY DISORDERS IN STUDENTS UNDER THE INFLUENCE OF COMPUTER MEDIA

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Abstract. The influence of the virtual world forms on sleep and emotions of users has been studied. The test group was comprised of 142 students studying information technology in one of the technical universities in Minsk. The structure of the virtual world forms used by the students and their combined effect on the sleep disturbances and formation of anxiety disorders has been analyses. It was established that 36,2% of respondents used to spend 40 or more hours a week in the virtual world. The majority of the respondents, 90,8%, is fond of computer games and devote to it about 55% of the time on average (100% is the total time spent at the computer). 78 students (54,9%) wake up due to fear and anxiety. The analysis showed that the number of people to wake up due to fear and anxiety among the users who combine computer games with watching movies is credibly higher: the criterion $\chi^2 = 5{,}83$. The article presents the dream description of one of the respondents.

The anonymous screening study conducted suggests that complex impact of plots of video games and movies destabilizes the mental health of users. This leads to sleep disturbances, increasing the risk of anxiety and depressive disorders.

Keywords: addiction (psychology), computers, gambling, dreams, mental health.

The virtual world is a product of the information and computer technologies. A computer-generated environment creating the illusion of the user's presence in the

world proposed by the software system has formed a new services market, which undoubtedly has an impact on Internet users. This is confirmed by the abundance of advertising in the virtual space. Computer online games, social networking, movies are an important part of the today's entertainment industry. Numerous studies have shown that both Internet in general and games in particular have a significant impact on the mental health of users [1, 2].

Scientists have already established personal and behavioral deviations typical for people with Internet-addicted [3, 4, 5, 6]. Other studies have found a relationship between behavioral disorders in computer-addicted persons and the symptoms of mental disorders [7, 8]. However, the problem of impact of the virtual world images on the human psyche, including unconscious processes has been hither to poorly study. In this regard, Freud's direction is especially up-to-date: "The study of dreams may be regarded as the most trustworthy approach to the exploration of the deeper psychic processes"(1922).

The objective of this study is to analyze the combined impact forms of the virtual world on the health of students.

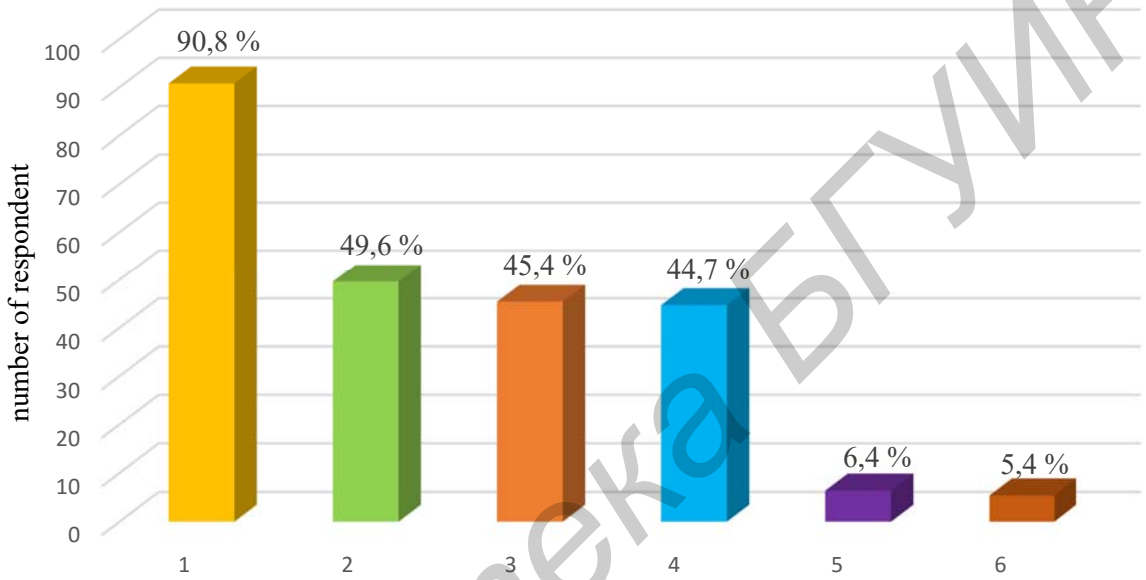
Method of the Study. A survey using a continuous questioning method was conducted among 142 students studying information technology at one of the technical universities of Minsk, all of them 2-5-year students, 119 (84,4%) being males and 23 (16,2%) females. The average age of the respondents was 19,7 years. The average duration of the virtual world use was 9 years. The survey was conducted in the second half-year (in April, 2015). All respondents gave an informed consent to participate in the study. In order to study the influence of the virtual world on the health of the students a special questionnaire developed by K. Mezianaya, K. Yashin and K. Karaneuski entitled, «Method of Screening Diagnostics of Computer Addiction and its Effect on Physical and Mental Health» was used. The questionnaire included questions on the time spent in the virtual world, the structure of sleep and the nature of dreams. Six forms of virtual reality was analyzed: computer games, social networking, surfing, watching television series and movies, stock gambling and gambling (cards), cybersex. The students were allowed to mark more than one answer. To analyze the time devoted to computer activity a period of 168 hours (7 days) with gradation in three intervals: from 1 to 24 hours, 25 to 39 hours, 40 hours or more was taken. Insomnia were identified by questions about waking up with fear, anxiety and unpleasant dreams, since according to the results of the studies conducted the relation between sleep disorders and anxiety disorders was established [10, 11, 12].

Statistics. In this study, an analysis was made of the frequency distribution of symptoms of pathological involvement in computer activities and sleep disorders. Contingency tables were made for the two samples, and χ^2 criterion was calculated for the symptom of waking up due to anxiety and fear. The data obtained in this study were processed with standard application Microsoft Office Excel 2010 and a package of Statistica 10.0.

Results of the Study. Students were engaged in a full variety of forms offered by the virtual world. Two virtual world forms were used by 54 persons (38%), three forms

by 48 persons (33,8%), and four by 15 persons (10,6%), while two students used all six forms. At the time of the study, 22 students (15,5%) used one form: 13 persons played computer games, 5 persons used social networks, and the rest spent their time surfing and watching movies. The analysis showed that the majority of users, 128 persons (90,8%) were fond of computer games.

As shown in Fig. 1 computer games take the first place by the number of users in the group studied. Three virtual world forms are equally popular: watching movies, surfing (including video hosting) and social networks.

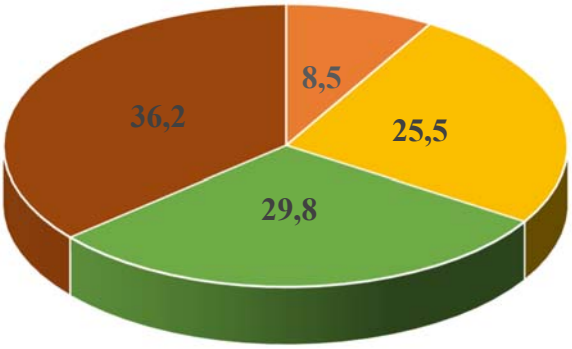


1 – computer games; 2 – surfing; 3 – social networks; 4 – viewing television serials; 5 – stock gambling; 6 – cybersex

Fig. 1. Distribution of the virtual world forms per the frequency of use byrespondents, %

Analysis of the time spent in the virtual world per day showed that an average of 55% of the time is devoted to computer games (of 100% being the total time spent at the computer). 46,8% of respondents dedicate to it from 80 to 100% of the time.

Fig. 2 shows that 51 students (35,9%) stay in the virtual world more than 40 hours a week. Extra long stay, from 80 to 168 hours, took place in 12 students (8,5%). Their interest has 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. Currently, scientists believe that one reliable sign of computer addiction is when the duration of regular participation in virtual space as a sheer pastime without performing work exceeds 38 hours per wee (Young, 1998).



from 1 to 24 hours – 25,5% of respondents; 25-39 hours – 36,2% of respondents; 40-79 hours – 29,8% of respondents; 80 hours and more – 8,5%

Fig. 2. Distribution of respondents by duration of stay in the virtual world during a week, %

The majority of respondents play different genres of games, but they have preferences in the choice of action strategies of characters. The analysis was made with regard to psychological motives of computer game addiction.

Table 1. Distribution of answers according to factors that characterize psychological motives of computer games addiction

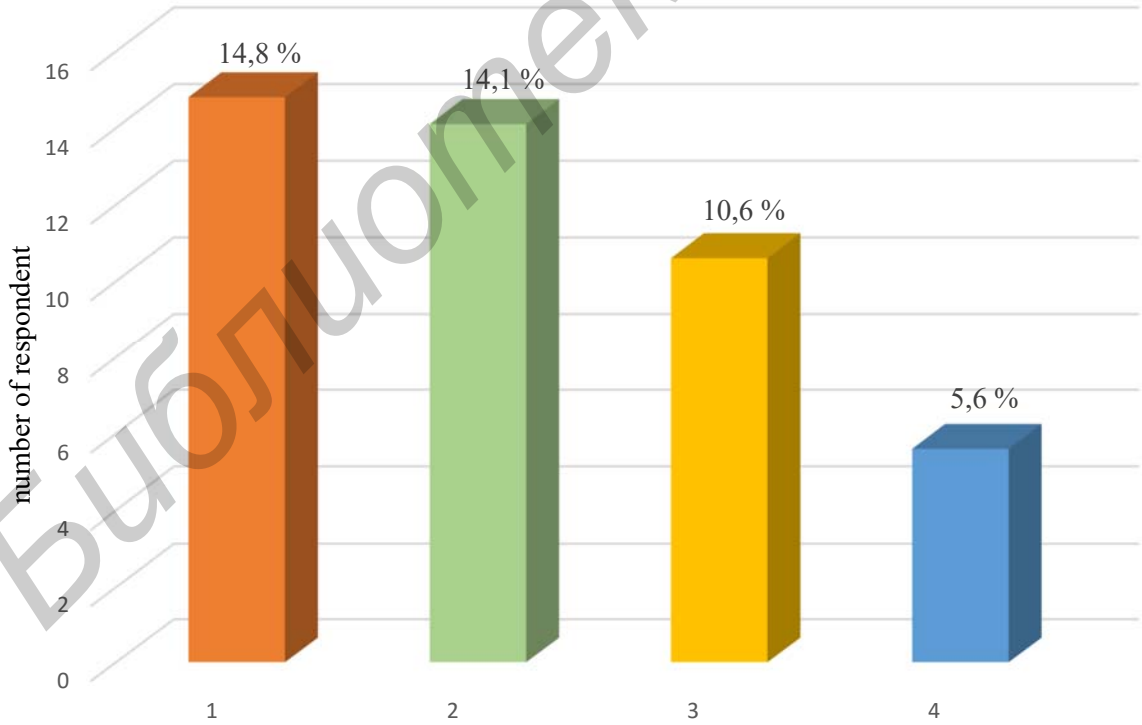
Factor	Answer option	Number of answers	%
The aim of actions in the game of the virtual image controlled by the gamer	Rescue and protection	46	32,4
	Destruction and suppression	54	38,0
	Orientation in a new environment	47	33,1
	Achievement of superiority	68	47,9

As seen in Table 1, striving for suppression and subjugation of others in the games attracted 5,6% of respondents more than the hero action for rescue and protection. This fact testifies to the choice of aggressive plots by a large part of the gamers. As shown by the analysis, the gamers who want to achieve superiority and to rescue or protect others in the games, eagerly used violence and destruction in the virtual world to attain this aim. Devotion to orientation games may be explained by the fact that such psychological process as orientation in space and understanding of complex logical-and-grammatical structures and tasks are basically common due to localization in the parieto-occipital (low parietal) regions of the left hemisphere (Luria, 2006).

Analysis of the impact of the virtual world on the unconscious processes in students. The destructive nature of the influence of the virtual world on the psyche of the students is supported by the fact that in 29 cases (20,4%) they stated to themselves in

a dream: “I just dream it!”. 82 students (57,7%) used to wake up due to unpleasant nature of the dream. The analysis showed that 78 students (54,9%) woke up involuntarily due to fear and anxiety. In general, fear, anxiety, and unpleasant nature of dreams are the cause of waking up in 101 respondents (71,1%). At the same time, 45 persons (32%) mainly rate their dreams as pleasant. This confirms the psychoanalytical fact that despite the negative experiences in dreams, the fulfillment of desires occurs in them. Freud pointed out that in the course of the dream some unconscious desires may be implemented: "… the painful elements of our daily thoughts are able to force their way into our dreams only if at the same time they are able to disguise a wish-fulfillment." He also argued that the theory of the anxiety-dream belongs to the psychology of neuroses: "… anxiety in dreams is an anxiety-problem and not a dream-problem"(1900/2012). On the other hand, nightmares (incubi), according to psychoanalysis data, represent a punishment for realizing something illicit, forbidden, or a breach of moral standards.

The study in the combined effect of several virtual world forms on the mental processes of users revealed a special role of computer games, along with the video films. The analysis showed that among users of these two forms there was a credibly higher number of people waking up due to fear and anxiety, criterion $\chi^2 = 5{,}83$, as compared with those not combining viewing video films with playing games.



1 – the feeling of one’s selectness and special mission; 2 – appearance of strange dreams; 3 – presence of a hero of computer games; 4 – continuation of the game in a dream

Fig. 3. Analysis of the nature of dreams, %

The presence of game scenes in dreams occurs in 16.3% of those surveyed. As shown in Fig. 3, 8 students continue to play in dreams (5,6%), in 15 respondents (10,6%) a hero or a virtual world image were present in the dreams, owing to his/her identification with the characters of games. 21 respondents (14,8%) experienced strange premonitions in a dream: "strange sensation of future changes, presentiments of their selectness, some mission." Analysis 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.

Freud stated that dreams are a response to all that is relevant at this time to the sleeping soul and that "every dream without exception treats of oneself. Dreams are absolutely egoistic..." (1900/2012).

Dreams of a 18-year student:

- A huge ship made of white metal is hanging in the sky. My friend is in the air, holding on to the edge of the board, so as not to fall. I'm trying to pull him out, but he falls down and naval guns destroy him in flight. I suddenly find myself among the crowd, which the naval guns start to shoot at. And I just have to run faster than shells." He further said: "Today, my nightmares have fairly the same structure:

– There is a character in dreams to cause a sense of discomfort: fight with him, cross-talk, bullying and so on.

– Other characters of a dream are indifferent to his actions in relation to me;

– My attempts to resist this villain cause a general resentment of other characters in the dream;

– The very attempt to confront him turns out to have devastating consequences for me."

As established by psychoanalysis, such scenes are dreams of punishment of one-self. At the time of survey the student stated that his experience of video games was 14 years. He visited by about five virtual world forms, limiting the sessions to 4 hours. He believed that "everything was permitted" to the hero of the computer game and "he was feeling the impact of the virtual image on himself." In his dreams there was a sexual theme, dream in a dream, self-punishment and the sense of connectedness. The extent of his immersion in the game and/or the Internet is such that sometimes it leads to the loss of perception of the surrounding.

Conclusion. The results of the study indicate that some of the students studying technical specialist, are involved in all the variety of services offered by the virtual world. Stay in cyberspace for 40 or more hours per week is established in 36,2% of respondents, which can indirectly indicate a pathological passion.

Striving to achieve the desired results leads to the ignoring of morality standards in the games, resulting in the inner psychological conflict. The combined effect of video films and game plots destabilizes the mind of users, leading to disturbed sleep due to anxiety and fear in 54.9% of respondents. It is a sign of formation of anxiety and depressive disorders.

The changes in mental activity at an unconscious level in combination with psychopathological phenomena, developing under the influence of computer games, may pose a threat of uncontrolled behavior of such persons.

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