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EXCESSIVE INTERNET USE AND DEPRESSIVE DISORDERS

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SUMMARY

Recent studies of Internet influence on behavioural disorders of its users, have created quite a polarised ambience. On the one hand, there are those who believe that the Internet is a new better medium for enabling various patterns of communication and social relations. On the other hand, others maintain that Internet use can lead to social isolation and other forms of psychological disorders, for an example depression. The aim of this work is a review of research attempts to confirm a connection between increased Internet use and psychological disorders, in the first place, depression.

The number of studies on this subject is not very great thus far. This is mainly because depression and similar disorders are serious distortions in basic psychological processes; this suggests how difficult it may be to work with such examinees, and how complex it may appear to distinguish etiological factors. These facts do not lessen the importance of the aim itself, i.e. defining potential consequences of excessive Internet use when it comes to psychological wellbeing, since the Internet is expected to become a basic form of social interaction in the near future, and consequently one of the major factors of socialisation and constitution of one's psychological identity. Due to that fact, the aim of this work is to indicate methodological and conceptual flaws of the studies which have attempted to make a connection between mood disorders and the Internet, so as to establish the base for future studies of the psychological consequences of Internet development.

Key words depression - Internet use - psychological disorders

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INTRODUCTION

"There is a tremendous amount of money going into the development of this technology and almost nothing going into understanding how it affects people. That may spell trouble ahead"
(Dr Nathan Shapira).

Certain studies suggest that excessive Internet use carries some of the same risks as obsessive gambling and compulsive betting, for example social isolation, depression, failure and conflicts at work/ school or in family relations (Nie 2001). Initial results triggered claims that the process is also irreversible, i.e. individuals with certain problems in social relations, together with

psychological welfare, try to compensate for the feelings of emptiness, dissatisfaction and dysfunctional patterns of behaviour with virtual relations and intensive use of online contents (Griffith 1996). One can think that the basic question, drawn up from previous suppositions is - does increased Internet use lead to mental illness/problems, or does mental illness lead people to abuse the Internet?

However, on the other hand there are a far greater number of empirical findings giving opposite accounts, i.e. that there is no connection between excessive Internet use and psychological disorders, no matter the direction of the possible connection. As there have been changes in diet

patterns, completion of work duties, transport and shopping, necessarily there will also be adaptive changes in communication and socially interactive processes due to the natural evolution of human behaviour in accordance with technological development (Putnam 2000). Since the Internet is appraised to be one of the most significant creation of modern human civilisation there is a growing number of studies with the main aim of resolving different aspects of this dilemma. Although it clearly attracts attention, there are many reasons why studies already conducted have not provided crucial conclusions and theories. This is especially relevant when trying to connect the Internet and depressive disorders. The essential difference lies in the fact that depression is a very complex psychological disorder compared with most of the disorders related to Internet use. It is dependant on different factors which represent more serious distortions in basic psychological processes, cognitive, as well as emotional and behavioral (Beck et al. 1987). In itself it incorporates, for instance, social isolation, therefore it is not unusual that in the beginning of their studies, the studies which aimed at studying depression, observed social isolation itself, as one of the potential indicators and predictors of depression (Hinic et al. 2007). In addition, the difficulty of coping with depressed patients and difficulties of distinguishing etiological factors, should also be taken into consideration.

The aim of this work is to indicate some of methodological and conceptual flaws of the researches which have so far attempted to establish a link between mental disorders (depression in the first place) and the Internet, so as to set up a firm basis in time for future research which will have to be far more sophisticated in terms of methodology and prediction in order to try to decipher the interrelation between the user's personality, the surroundings, and the Internet itself. Although, in this context, 'mental disorders' are used to indicate a great range of disfunctions, from addiction, aggressive behaviour and social isolation to psychotic reactions, a special account is given to

the issue of depression, which will be largely the main focus of this review.

PATHOLOGICAL USE OF INTERNET

The Internet itself cannot be a harmful creation, what can be is the way one uses it. Since the Internet is a very broad concept, it cannot be completely defined since it is expanding and growing daily. So it is important to add that in this work the concept of Internet and Internet use will be taken for every form of activity and use of the contents which cyberspace and the World's Net allow, from electronic mail and chat to trade, stock, and online live broadcasting, from the news, sexual contents to highly specialised contents.

Despite numerous studies, we still cannot, with certainty, produce an answer to the main question - what is normal Internet use? There are persons who are directly related to the Internet (eg. related by their job) and who can average 20 hours online without having major problems in real life functioning (Nie & Erbring 2000). For that reason the time criterion of normality for the phenomenon must be necessarily complemented with the criterion of type and context of online activities. For example, some online activities, like online gaming and chat, seem to be more compelling and potentially 'addictive' than others (Morahan-Martin & Schumaker 1997). So, what is excessive or 'pathological use of the Internet'? The simplest and most probable correct answer is - when it gets in the way of the rest of the user's normal life - family, school, work, social ties, economic situation, in short compulsive use despite harm that that activity brings to the user. Symptoms which are frequently linked with increased Internet use are anxiety, obsessive thoughts and fantasies about contents and activities online, compulsive behaviour, manic-depression episodes, insomnia, psycho-motor agitation. Important family, social and professional activities are neglected or reduced which result in marriage problems, loss of important relationships, jobs, professional or educational opportunities.

The next question would be - how to measure these symptoms and diagnose the underlying psychological disorders? When studied, the existing clinical instruments usually used for measuring these disorders, are most frequently those based on diagnostic criteria defined by DSM-IV or ICD-10, and the results gathered in this way are correlated or in other ways connected to the results gathered by currently conventional instruments for measuring the intensity, type and reasons for Internet use. For social isolation, the instruments such as UCLA Loneliness Scale are usually used, when it comes to detecting depressive symptoms - Beck Depression Inventory, for aggression - Buss & Perry Aggression Scale, and for compulsive disorders Yale-Brown Obsessive-Compulsive Scale.

For example, (Shapira et al. 2000) present results of a study in which they, in face-to-face psychiatric evaluation, using DSM-IV diagnostic criteria, interviewed 20 people whose lives had been disrupted by Internet use. They sometimes spent more than 30 hours online per week and their nonessential Internet use was 10 times greater than their essential use (implicit activities such as job- and school-related activities). The control group included 17 randomly selected college students with varying levels of Internet use. A surprising result is that almost every interviewed person from the clinical group is diagnosed with at least five psychiatric problems or episodes and with at least one mental illness, among which were bipolar disorder, depression, impulse control disorders or various types of chemical dependencies.

Meanwhile, numerous psychiatric circles have come up with their suggestions for future diagnostic criteria in identifying pathological Internet use and the possible connection with other disorders, compulsions, neuroses or violent mood swings (Beard & Wolf 2001). All the things mentioned are even intensified by the interests of various companies and institutions which anticipated potential financial and business problems from inappropriate Internet use by their employees (with or without accompanying mental disorders of the users).

As a result of similar discussions and debates, for the time being, the only firm idea would be to include the concept of pathological Internet use or Internet Addiction Disorder (IAD) in the next addition of DMS (V); the concept can be regarded as an individual disorder, or as a part of a broader one, called cybernetic disorder, which would classify all other abuses of modern technological achievements, such as mobile phones, computers, video games, as well as the Internet.

DEPRESSION AND THE INTERNET

Today, there are numerous theories trying to explain the main etiological factors of depression disorders. In the first place, there are theories that strongly suggest a genetic link to depressive disorders (Mihajlovic et al. 1998). Then, there are biochemical theories, because changes or imbalances in chemicals/hormone levels also represent causes of depression (Mihajlovic et al. 2002). In the end, there are psychodynamic theories, which emphasize the role of psychological factors, like individual traumatic life experiences, chronic stress, or in our case excessive Internet use.

Symptoms

Common symptoms of depressive disorders are pervasive feelings of anxiety, sadness, desperation, hopelessness, worthlessness, pessimism, guilty feelings, irritability and agitation, loss of interest in most or all everyday activities, fatigue, problems with concentration and memory, weight loss and suicidal ideation. They can all be, in theory, connected to excessive Internet use, which periodically is noted in research, although without a repeated or statistically significant result up to now.

What will be the symptoms which are sometimes caused by increased Internet use, and resemble the symptoms of a depression disorder? One of the first symptoms is lack of sleep, which apart from a 'deeper' disorder in the form of insomnia, can further bring about a sequence of other secondary symptoms, such as exhaustion,

anxiety and listlessness. The next in the sequence of causal and resultant symptoms are failures at school/ work/ family duties which can further cause apathy, cognitive obscurity, frustrations, lies, denials and hypermanic responses. Irritation, anxiety and finally aggression are also frequent side effects, especially when the user becomes an addict, and when he/ she is offline. Failures in online communication or rejection in cyber-relationships, as with those in the real world, can lead to depressive reactions. Furthermore, the Internet offers many data and can appear quite a frustrating phenomenon to those not accustomed to its use. This especially occurs when after persistent search on the Net for something which the user greatly needs or values, he/ she realises that they cannot find it on their own. Finally, we should also mention advertiments, hackers, viruses and other forms of Internet misuse which often bring common users into a state of psychological disturbance and anxiety.

However, can we also mark characteristics of Net usage which can stimulate already existing depressive symptoms or attract users who are already depressed? All possible reasons why one could be attracted to the Internet and why they would consciously or unconsciously resort to the Internet as a way of escape or help from real mental disabilities cannot be listed. Still, we can highlight the following psychological reasons. Some persons are drawn by the fact that they can freely create their own identity in cyberspace, with all the features they have always wanted to possess, from material and physical to social and psychological (Suler 1996). Anonymity is also one of the most captivating characteristics of the Internet because one can freely express personal opinion, attitude or behaviour in accordance with their own impulses or wishes without fear of rejection. The previous two reasons would be highly significant for anyone who in the real world may be struggling with some psychological problem. There are also online contents which attract users, such as online games, sites with sexually oriented contents, online data bases, as well as all forms of social interaction and support

(Hinic 2004), which is also of great importance to persons with mental problems who usually do not find an adequate form of social support in their surroundings. The list, like cyberspace itself, is expanding indefinitely.

Initial researches

In what way have the researches of the Internet behaviour connected some of these symptoms and disorders? Here, we will only list those researches which are in our opinion the most appropriate representations of questions and assumptions later stated in the Discussion. Initial studies seemed to claim that there could be something harmful and threatening in Internet use, especially excessive use. In a longitudinal study by (Kraut et al. 1997), two years of increased Internet use, in randomly selected and observed families, led to decreased family communication and reduction in social ties and social support (Kraut et al. 1998). Furthermore, some of the participants experienced increased levels of depression and loneliness, particularly in younger and adolescent groups.

The response immediately followed. (Hamburger & Ben-Artzi 2003) questioned Kraut's model on several accounts (model that suggested that Internet use leads to loneliness, social isolation and depression) and suggested their own model, that those people for whom self-related and social-related motives/ needs are not satisfied (like problems with feelings of loneliness and abandonment) through daily social interaction may attempt to fulfill them through virtual interaction. These researches emphasise that every study of the impact of the Internet on individuals and their behaviour must seriously take into consideration the issue of the typology and dynamics of personality types of its users, since what can be good and desirable for one person is not necessarily so for another. Every individual user has their own idiosyncratic model of online behaviour in line with their preferences and personalities (Hamburger & Ben-Artzi 2000). Since then this model is still considered to be more acceptable.

In a study by (McKenna & Bargh 2002), 25% of participants who previously reported some depression symptoms (melancholy, feelings of desperation and hopelessness, loss of interest, anxiety, etc.) after two years of using Internet, felt less depressed, 2% felt more depressed, and 73% stated no effect; whereas 68% felt that the Internet widened their social circle. Thus, while 73% of the participants reported no change in depression level over the past two years, 68% believed their social circle was larger, which seems to indicate that the Internet may be a useful tool for individuals who are lonely or socially anxious or depressed to develop relationships and release some of those depressive feelings. In similar research by (Shaw & Gant 2002) Internet use was found to decrease loneliness and depression significantly, while perceived social support and self-esteem increased significantly.

From those early days, the impact of Internet use and abuse is increasingly being investigated. Such an online survey examined scores within the Beck Depression Inventory (BDI) and symptoms of Internet addiction (Young & Rogers 1998) determined by using a modified version of the DSM-IV profile for gambling addiction. The mean BDI score (11.2) of respondents identified as addicted fell within the mild to moderate range of depression. (Armstrong et al. 2000) also present findings that individuals with melancholia are more likely to indulge in Internet addictive behavior. These studies, among other things, are important because they advocate a strong link between addictive Internet use and other mental disorders, which is probably the reason why the studies which attempt to identify individual mental problems in a 'high user' cyber population have not come up with any statistically significant results. It seems that overlapping of different mental disorder symptoms should be taken into consideration more intently, particularly the distinction between the cause and the result of the Internet addiction phenomenon.

Recent studies

In 2006, (Ybarra 2006) presented a secondary data analysis of results previously presented in a New Hampshire University study, 2000. Their goal was to describe the relationships between youth-reported depressive symptomatology and Internet use. In the original cross-sectional telephone survey of Internet-using youth and one caregiver in the household, the sample was divided into three groups:

1. youth with major depressive symptomatology (5 or more symptoms of depression, one of which must be anhedonia or dysphoria);
2. youth with minor depressive symptomatology (3 to 5 symptoms of depression);
3. youth with mild/no symptomatology (fewer than 3 symptoms).

The survey showed that Internet use in general is not related to depressive symptomatology. Self-rated importance of the Internet, and self-rated Internet expertise are similar across the levels of depressive symptomatology. However, intensity of Internet use (strong difference is at 3 or more hours per day versus fewer) is significantly related to the report of major depressive symptomatology (28% of youth with major depression vs. 13% of youth with mild/no symptomatology), but continuing research on this subject with more methodological attention and precision is yet needed.

'Internet use and well-being in adolescence' (Gross et al. 2002) is a significant study since it deals with the specified sample - adolescents, who are usually present as a segment of Internet users' population, who should be at the top of a list of those liable to the harmful Internet impact. The variables in this research included the following sets: specific online and offline activities and dispositional measures of psychological adjustment (depression, social anxiety and loneliness). The specific quality of this research is the method of gathering data from the subjects, which involved daily reports of their overall well-being, social adjustment and after-school activity. The primary aim of this research was to define a possible

connection between Internet use and psychological well-being, regarding what adolescents were doing online, and what they are doing when they engage in offline activities. In spite of the growing role of online communication in the lives of adolescents, even regular Internet users in this study continued to spend most of their after-school time on traditional activities, many of which involved peer interaction with family, friends etc. Finally, time online, overall or in specific domains, was not correlated with a coefficient of psychological well-being and adjustment. The findings presented in this study suggest that there is no simple main effect of the Internet use on everyday activities of the average adolescent person, and that the Internet may serve distinct functions for socially anxious and lonely individuals (La Greca & Lopez 1998).

As there are no domestic studies on the subject, we will present one of our studies (Hinić 2007) which examined changes in offline behaviour of Internet users and their satisfaction with certain aspects of their personal psycho-social life. Out of 110 Internet users in Serbia, aged between 15 and 45, only 4.5% of the examinees were classified as 'heavy users' (20+ hours per week online). By analysing the reports of these examinees, we have come to the conclusion that the influence of the Internet on their lives is minimal and almost completely positive especially in the sphere of social involvement. Not one of the examinees fulfilled addiction criteria, nor did they show the symptoms of behavioural disorders.

DISCUSSION

There are far more tangible proofs supporting the thesis that if there is a connection between the Internet and psychological problems and disorders, it is more likely that persons with already existent symptoms of psychological disturbances seek relief or support when using the possibilities of the Internet. However, as may be concluded based on the present studies, the situation is everything but clear. At least, the positive outcome of the confusion in these hypotheses and their confirmations is that many new questions,

criticisms and proposals are arising, and they can also lead to more precise, sophisticated and more useful studies and interpretations in the future.

Question of methodology

The first group of these issues includes several objections in the field of methodology. In the first place, the measures of online activities must be specified more clearly and precisely, and more trustworthy measures and scales of mental disorders should be chosen in addition. Previous studies often relied on too global measures of both the categories of variables mentioned above, which were also greatly influenced by selective memory and predictability of the items proposed (Gross et al. 2002).

The best example of the observations mentioned above is a longitudinal study by (Kraut et al. 1998). Many criticisms have been made of this study, especially regarding their choice of subjects. One of their main findings in the study was that heavy Internet use is related to the experience of loneliness and increased feeling of depression among users. Critics point out that large number of participants were in a life-stage in which social contact was likely to decline as a matter of course, regardless of their Internet use - for example, students to be, who were going to leave their homes in the near future, which in most cases affected their social network negatively. The sample also did not include a non-Internet-using control group so it cannot be determined how much of the symptomatology mentioned above was due to a direct negative influence of Internet use, and how much was due to natural process which typically occurs together with a feeling of dissatisfaction and lack of social support during adolescence.

Question of depression disorder types

The official diagnostic criteria (DSM-IV-TR) suggest more than a few categories of depression disorder, from depressive mood, dysthymia or a mild depression, to bipolar disorder, seasonal affective disorder to clinical/major depression.

These disorders can be short-term or long lasting, from relatively mild to more serious, with severe clinical types. So, further research is urged to take into account various types of depression disorders since a symptom of one type of depression can be misunderstood as some other psychological disorder and vice versa. Moreover, the occurrent periodicity of certain symptom types requires longitudinal observation of the subjects, so that their actualisation would not escape validity registration in the tests and questionnaires adopted in the study. We will give only a few examples to illustrate this thesis.

Dysthymia, represents a mild form of depression which can occasionally become quite severe and disturb the person affected. A few months can pass without the patient being aware of some of the severe symptoms. What can be problematic in identifying depressive disorder upon empirical researches in the field of cyberpsychology are these 'mild' phases. Dysthymic disorder can evolve into a clinical depression, thus this phenomenon is relevant to the above argument.

On the other hand, sufferers of major depression experience an overwhelming and debilitating despondency, tearfulness, or feelings of hopelessness that are long lasting and that may interfere with their ability to function in the workplace, at home, or in other social situations. This is why they are so easy to identify in a study. However, this subpopulation is the rarest, and it is quite difficult to work with its members in experimental research, which can make the process even harder. Variations of major depression include psychotic depression, atypical depression, postpartum depression, premenstrual dysphoric disorder, which additionally makes the concrete and genuine problem discrimination more difficult (Pušić 2005).

Seasonal affective disorder only occurs at certain times of the year. People with this illness may feel lethargic and depressed during the winter months, but may have normal moods during the summer months. One of the most probable causes of this disorder are abnormal circadian rhythms, so

this factor also must be taken into consideration during future studies.

Question of Internet addiction vs. other types of psychological disorders

Thus far, we have seen that different types of mental disorders are frequently intertwined in the abovementioned studies, and that it is not always easy to single out only one specific mental problem of the Internet user, particularly due to the fact that in most cases the concept of Internet addiction, which itself has not been defined in depth yet, interferes in the final diagnosis (Young 1998).

Significant differences, for example, were found between addicts and nonaddicts in depression, showing that the addict group tended to have higher depression on the subscales of depressed mood, feelings of sadness, poor interpersonal relationships, and negative self-concepts (Yang & Tung 2007). Future researches have a vital task of disclosing whether, and to what extent, the identified symptomatology pursuant to some defined mental problem, is an individual phenomenon or just a consequence of a developed Internet addiction. This task should be approached with great attention and patience, particularly if we take into account the fact that clear and more successful criteria for Internet addiction diagnosis are still being constituted and checked.

Question of personality types

The population of Internet users is not uniform but comprises many different personality types. People use the Internet in a variety of ways in keeping with their own personal preferences, needs, and attitudes. Therefore, the results of this interaction are more likely to vary among different individuals. For example, the personality characteristics that has been found to influence Internet use are that of extroversion and neuroticism (Hamburger & Ben-Artzi 2000), self confidence and self-esteem (Yang & Tung 2007). Although there are certain regularities which can be registered, so far attempts to define a sociodemographic structure of a specific population of heavy users requires a more serious

verification. All previous stereotypes that show a profile of the problematic Internet user as a teenager, usually male, with poor or no social life (Griffith 1996) soon fell under serious criticism and empirical redefinition. Several later studies (Horrigan et al. 2003) came up with a pretty consistent profile that problematic Internet users are older than expected, in the (early) to mid-30s, they are male and female, they spend about 28 hours a week in pleasure, recreational or personal computer use, and they report problematic use for about three years.

Although the situation concerning empirical results on this subject is dispersive, what is particularly important is that by adopting this personality theory of Internet use we can more clearly understand and explain the differences by the fact that certain people can get more easily attached to the Internet services and become addicted, whereas with others it is only one among many daily activities, of no particular importance. In that case, dilemmas about the term 'Internet usage' would be much less vague although their real disentanglement would imply a more complex matrix of factors and subfactors.

Question of types and contents of online activities

Finally, it is completely clear that the matter of type should be taken into account in future studies, especially the content of online activities. What absolutely matters is not only if or how much time a person spends on the Internet, but also what he/she is doing online, and with whom our study participants establish an online interaction, which is even more significant. Strong ties with close persons are an important predictor for feelings of self-confidence and satisfaction, and negative predictors for lack of confidence, bad self-image and finally depression (McKenna & Bargh 1999).

CONCLUSION

The area of Internet psychology still does not have even approximately defined boundaries, although many authors from the cyberspace studies

touch profoundly the area of psychological and psychiatric phenomena and problems. For that reason, the answers of most studies, and consequently this work, very often must present division, fragmentation, indistinctness and non-defining issues, which are currently, as it seems, characteristics inherent in the mere discipline of cyberpsychology and cyberpsychiatry.

One thing is certain. The popular conception of depressive influence of the Internet had some empirical and logical foundations at the beginning, still, all things considered, remained at the same position without an adequate and timely adaptation, so that nowadays scientific circles regard this radical and exclusive stance mostly with a certain amount of doubt. Why? Because the Internet is an alive and rapidly-changing conception, which is developing new and more sophisticated models of communication, search engines and activities in general every day. The Internet is incorporating into itself potentials and advantages of all other media, in such a way that listening to the radio or watching a TV broadcast online becomes natural (Hinic 2004).

As has already been pointed out in this work, there is some empirical information supporting the fact that depressive people find comfort and consolation in cyberspace. Moreover, some of them indicate that using the Internet may even have a positive effect on depressive symptomatology (McKenna & Bargh 2002). It is obvious that Internet use is reinforced by pleasurable thoughts and feelings which occur while the person is using the Internet. Although researchers in the field of addiction studies question the concept of an 'addictive personality' as such, it is possible that someone who has one addiction may be prone to become addicted to other substances or activities, including Internet use as reinforcement. People with mental disorders or symptoms such as depression, impulse control disorders, feelings of isolation, stress, anxiety, or forms of addictions may self-medicate by using the Internet in the same way that some people use alcohol or drugs to self-medicate the symptoms of their mental disorder.

A doubt must not be cast on the fact that developing information technologies are the factor which will in future influence or even create a part of human behaviour. In line with that, mankind, science and medicine need to be prepared for potential consequences either in respect of their prevention or their additional development and advocacy. All stated results and all aforesaid research indicate that, for the time being, there is no space for apocalyptic assumptions on the subject of technologies prevailing over humans in such a way as to lead to quite a serious outlook in the future, although some negative consequences are still present (Hinic 2007). The timely observation of changes in the processes which are supposed to be 'victims' of an intensive Internet spread, is, for this the reason a serious task for the next phase in the of constitution and reinforcement of cyberpsychology and cyberpsychiatry as sciences of the future.

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