UNIVERSIDADE FEDERAL DO RIO DE JANEIRO (UFRJ)

O Fenômeno Facebook no Brasil.
Rede Social ou Dependência Digital?

Eduardo Guedes da Conceição

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Delete – Uso Consciente de Tecnologi@s

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EDUARDO GUEDES DA CONCEIÇÃO

Dissertação de Mestrado apresentada ao Programa de Pós-Graduação em Psiquiatria e Saúde Mental do Instituto de Psiquiatria da Universidade Federal do Rio de Janeiro – UFRJ, como parte dos requisitos necessários à obtenção do grau de Mestre em Saúde Mental.

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O FENÔMENO FACEBOOK NO BRASIL.
REDE SOCIAL OU DEPENDÊNCIA DIGITAL?

Eduardo Guedes da Conceição

DISSERTAÇÃO DE MESTRADO APRESENTADA AO PROGRAMA DE PÓS-GRADUAÇÃO EM PSIQUIATRIA E SAÚDE MENTAL DO INSTITUTO DE PSIQUIATRIA DA UNIVERSIDADE FEDERAL DO RIO DE JANEIRO – UFRJ, COMO PARTE DOS REQUISITOS NECESSÁRIOS À OBTENÇÃO DO GRAU DE MESTRE EM SAÚDE MENTAL.

Aprovada por:

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Presidente, Prof[a]. Dra. Anna Lucia Spear King, Ph.D.

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DEDICATÓRIA

A todos aqueles que sofrem ou já sofreram diretamente ou indiretamente algum prejuízo com o uso abusivo e/ou dependente das tecnologias em suas vidas ou de seus familiares; e a todos os profissionais que se dedicam a promover saúde e melhora da qualidade de vida da sociedade através de pesquisas, tratamento ou projetos para o uso consciente digital.

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Resumo da Dissertação apresentada ao IPUB/UFRJ como parte dos requisitos necessários para a obtenção do grau de Mestre em Ciências (M.Sc.).

O Fenômeno Facebook no Brasil. Rede Social ou Dependência Digital?

O Facebook se tornou parte do cotidiano da sociedade moderna e é notadamente a rede social mais acessada no mundo. Ao mesmo tempo em que revolucionou as relações sociais, temos observado mudanças comportamentais e psicológicas relativas à sua utilização abusiva. Alguns têm utilizado a rede social como fonte de lazer e trabalho; e outros relatam graves prejuízos na vida real. Esta Dissertação de Mestrado levanta a importância da pesquisa em saúde sobre usuários abusivos e dependentes de Facebook no Brasil, e possibilita comparações com pesquisas de outros países. Esta dissertação é composta de **sete artigos** que contribuem na formulação de teoria específica sobre dependência digital e os seus impactos na sociedade. O **primeiro artigo** e o **segundo artigo** são revisões sistemáticas da literatura sobre a dependência de Facebook no mundo e foram utilizados para ingresso ao mestrado. Nesta ocasião, fui convidado a escrever a apresentação do **livro Nomofobia** da editora Atheneu e dois capítulos: "A Dependência de Redes Sociais" e "O Lixo Eletrônico e o Impacto Ambiental". Nos atendimentos de pacientes do Grupo Delete na UFRJ, percebemos a necessidade da construção de instrumentos específicos para validar a dependência digital, resultando no **terceiro artigo** que é a validação da Escala de Dependência do Facebook (EDF) cujos resultados forneceram uma versão aceita com 18 questões revisadas por 6 professores. Nesta ocasião também participei também como **coautor da validação das outras sete escala**: Dependência do Telefone celular; Uso Abusivo de Tecnologias; Dependência de Whatsapp; Dependência de Jogo Patológico; Prejuízos Físicos; Dependência Digital de Empregados de Empresas; e Depressão e Uso Abusivo de Tecnologias. O **quarto artigo** confirma que existe associação entre tempo de tela e índice de massa corporal (IMC) com a dependência de internet. Aproveitamos ainda a base de dados coletada**,** para realizar uma análise fatorial utilizando o Internet Addiction Test (IAT) em usuários do Facebook, conforme descrito no **quinto artigo**. O **sexto** e **sétimo artigos** são os **artigos principais desta dissertação**. O **sexto artigo** conclui que 3 em cada 10 usuários de Facebook desenvolveram dependência ou uso abusivo de internet (4,1% e 24,4% respectivamente), com crescimento de 38,4% na proporção de dependentes em 34 meses. O **sétimo artigo** descreve o perfil dos usuários de Facebook com uso abusivo ou dependência de internet no Brasil, indicando uma tendência para usuários de até 25 anos, sexo feminino, solteiros, com menor escolaridade (ensino básico) e renda em faixas inferiores (até R$ 1.000). Também desenvolvemos, no Grupo Delete, **três livros** para fomentar o uso consciente digital: **Cartilha Digital** para o público infantil, **Etiqueta Digital** para o público adulto e **Ergonomia Digital** sobre posturas adequadas no uso dos novos dispositivos eletrônicos.

Palavras-chave: dependência; comportamento; internet addiction; facebook; rede social; facebook addiction, social network sites; facebook abuse.

Abstract of Dissertation presented to IPUB/UFRJ as a partial fulfillment of the requirements for the degree of Master of Science (M.Sc.)

The Facebook Phenomenon in Brazil. Social Networking or Digital Addiction?

Facebook has become part of daily routine in the modern society and it is notably the most viewed social network in the world. At the same time it revolutionized the social relations, behavioral and psychological changes concerning its abusive use have been observed. Some people have been using the social network as a source of leisure and work; while others report serious damages to their real life. This Master's Degree dissertation discusses the importance of the health research on Facebook addiction and its abuse by users in Brazil, and it also enables comparisons with researches around the rest of the world. This dissertation is composed of **seven articles** which contribute in the formulation of a specific theory on digital addiction and its impact on the society. The **first and the second articles** are systematic revisions of literature over the Facebook dependence in the world and have been used for admission into the Master's Degree course. I was invited to write the preface of the **book Nomofobia**, from publisher Atheneu, and two chapters: "Social Network Dependence" and "Electronic Waste and the Environmental Impact". Upon serving patients of the Delete Group at UFRJ (Universidade Federal do Rio de Janeiro), we have noticed the need for the creation of specific tools in order to validate the digital addiction, which resulted in a third article as the validation of the Facebook Dependence Scale (FDS) whose results have provided a version accepted with 18 questions revised by six professors. I have also participated as a **co-author of the validation of the other seven scales**: Cell Phone Addiction; Overuse of Technologies; Whatsapp Addiction; Pathological Game Addiction; Physical Damage; Digital Addiction by Companies' Employees; and Depression and Overuse of Technologies. The **fourth article** confirms the existence of an association between screen time and BMI (Body Mass Index) with Internet dependence. We still make use of the database collected to validate the Internet Addiction Test (IAT) through a factorial analysis, described in the **fifth article**. The **sixth and seventh articles** are the main ones in this dissertation. The **sixth article** concludes that 3 out of 10 Facebook users have developed dependence or internet abuse (4,1% and 24,4%, respectively), with a growth of 38,4% in the proportion of addicts in 34 months. The s**eventh article** describes the profile of Facebook users with internet dependence or overuse in Brazil, showing a tendency for users up to 25 years old, female, single, with lower education (elementary) and low income (up to $1.000 monthly). We have also developed, alongside the Delete Group, **three books** so as to instigate a conscious digital use: **Digital Guide** for children, **Digital Etiquette** for adults and **Digital Ergonomics** about appropriate attitudes when it comes to using new electronic devices.

Keywords: dependence; behavior; internet addiction; facebook; social network; facebook addiction; social network websites; facebook abuse.

LISTA DE ABREVIATURAS, SÍMBOLOS E SIGLAS

FAD	Facebook Addiction Disorder
IAT	Internet Addiction Test
DI	Dependência de Internet
Nomofobia	No Mobile Fobia (Medo de ficar sem o telefone celular ou algum dispositivo eletrônico)
TCC	Terapia Cognitivo-Comportamental
IPUB	Instituto de Psiquiatria
UFRJ	Universidade Federal do Rio de Janeiro
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
CEP	Comitê de Ética em Pesquisa
IPUB	Instituto de Psiquiatria
UFRJ	Universidade Federal do Rio de Janeiro

SUMÁRIO

1 INTRODUÇÃO

1 INTRODUÇÃO

As redes sociais revolucionaram o mundo e já fazem parte do cotidiano da sociedade moderna1, permitindo se relacionar com milhões de pessoas ao mesmo tempo, seja como fonte de informação, comunicação ou entretenimento.

O Facebook é a rede social mais acessada. Pesquisas[2,3] indicam que existem mais de 2,2 bilhões de usuários do Facebook por todo o mundo, apontando o Brasil como quarto país com maior número de cadastros de Facebook no mundo (só perde para Índia, EUA e Indonésia), com mais de 130 milhões de usuários ativos e frequentes2 (mais da metade dos usuários no Brasil retornam ao site diariamente), comprovando a relevância da ferramenta no dia a dia da sociedade e importância de aprofundar o tema nacionalmente.

Ao mesmo tempo em que o Facebook transformou as relações sociais com inúmeras facilidades aos seus usuários, temos observado mudanças comportamentais e psicológicas relativas à sua utilização abusiva[1,4]. Alguns têm utilizado a rede social como fonte de lazer e trabalho e outros vêm se tornando dependentes, com graves prejuízos na vida real nas relações familiares, profissionais ou sociais[1].

Pesquisas[6,7,8] indicam que falar de si próprio gera um prazer equivalente a se alimentar, ganhar dinheiro, dormir ou fazer sexo. Numa conversa normal, as pessoas falam de si cerca de 30% do tempo, enquanto nas redes sociais este índice sobe para 90%, com possibilidade de um feedback instantâneo. Isso gera inconscientemente uma sensação de prazer instantâneo, mas que não é duradouro. O perigo é que as redes sociais alteram a percepção de tempo e espaço, podendo facilmente desencadear os transtornos de ansiedade e depressão, com relatos[1] de mais de 50% dos usuários ativos do Facebook declarando se sentir mais infelizes do que os seus amigos virtuais.

Existe uma linha tênue entre os limites da satisfação e da dependência no uso exagerado das redes sociais[6,7,8]. Por outro lado, é preciso definir a palavra 'vício' da mesma maneira que é utilizada em manuais de diagnóstico de distúrbios mentais por parte da Associação Americana de Psiquiatria e Organização Mundial da

Saúde[9]. Segundo estudos anteriores[10], há uma série de critérios de dependência típicos que precisam ser identificados para que uma pessoa possa ser diagnosticada com ele.

Em primeiro lugar, há alteração de humor, onde a rede social seria um meio da pessoa se sentir[8,10] melhor ou mais seguro (maior nível de excitação ou fuga). Este é o primeiro estágio normalmente mascarado com a falsa sensação de satisfação experimentada ao navegar nas redes sociais.

Em segundo lugar[8,10] , o nível de relevância, a partir do qual o usuário não consegue desligar seu pensamento das redes sociais (mesmo fora da rede, imagina circunstâncias do passado ou do futuro que deveriam ser publicadas), de tal forma que a ferramenta começa a lentamente dominar o comando da sua vida.

Em terceiro[8,10], a tolerância, que indica o tempo dedicado à ferramenta e o nível de controle que se tem dela, Em geral, é comum gastarem cada vez mais horas na rede social, atualizando fotos ou postando comentários, como forma de buscar as mesmas sensações agradáveis experimentadas anteriormente em um menor período de tempo. Sem perceber, o dependente vai perdendo o controle da situação e aos poucos, começa a substituir os programas reais do dia a dia por um maior tempo de navegação.

Em quarto lugar[8,10], podemos citar a abstinência e seus efeitos. Em geral, quando estão sem acesso à internet, tornam-se irritados, ansiosos, angustiados ou com medo, podendo gerar alterações no padrão do sono ou alimentação e ainda sinais de depressão.

Em quinto lugar[8,10], a evidência de conflitos na vida real, quando o uso abusivo das redes sociais compromete as relações na vida real com familiares e amigos. Este é o momento mais comum em que percebem a evidência do problema, mas sentem-se incapazes de reduzir ou simplesmente parar. É quando acontece uma perda de controle sobre o comportamento, podendo comprometer a educação ou desempenho profissional.

Em um trabalho mais abrangente[11,12], é possível identificar alguns indicadores de potencial consumo problemático a partir de semelhança nos traços da personalidade, incluindo características como extroversão, introversão e narcisismo. Introvertidos tendem a utilizar as redes sociais para compensar a falta de contatos

da vida real, enquanto que os extrovertidos passam a usá-lo para ampliar suas já extensas redes. A maior utilização está associada com o elevado narcisismo, neuroticismo e baixa consciência. Portanto, as pessoas com estes traços podem estar particularmente em risco de desenvolver a dependência. Esse estudo[12] avaliou a propensão à dependência baseados em cinco dimensões principais dos fatores da personalidade: extroversão (ser extrovertido, falante), socialização (ser simpático e sociável), consciência (nível de organização), neuroticismo (relacionado ao estado de humor, em geral nervosismo e mau humor), abertura para experimentar (criatividade e intelectualmente orientado).

Esta dissertação busca descrever a evolução do FAD no Brasil em 34 meses (julho/2015 a abril/2018) em pesquisa realizada exclusivamente na internet, identificando a quantidade de usuários abusivos e dependentes e o seu perfil sócio demográfico, através de percentuais dos resultados obtidos em relação a idade, sexo, estado civil, escolaridade, renda, tempo de tela, peso, idade, e região geográfica da moradia (estados), e possibilitando comparação com outros países. Apesar do tema atual e relevante mundialmente, não foram encontrados pesquisas similares. A pesquisa busca contribuir na elaboração de teoria específica na comunidade científica internacional relativa à adoção das novas tecnologias pela sociedade e seu impacto no comportamento humano e nas relações familiares, profissionais ou sociais.

2 RESULTADOS

ARTIGO 1 – Internet Addiction and Excessive Social Networks Use: What About Facebook?

Eduardo Guedes, Frederica Sancassiani, Mauro Giovani Carta, Carlos Campos, Sergio Machado, Antonio Egicio Nardi, Anna Lucia Spear King

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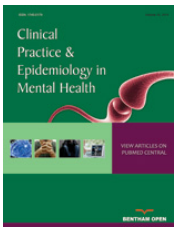

RESEARCH ARTICLE

Internet Addiction and Excessive Social Networks Use: What About Facebook?

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Abstract: Facebook is notably the most widely known and used social network worldwide. It has been described as a valuable tool for leisure and communication between people all over the world. However, healthy and conscience Facebook use is contrasted by excessive use and lack of control, creating an addiction with severely impacts the everyday life of many users, mainly youths. If Facebook use seems to be related to the need to belong, affiliate with others and for self-presentation, the beginning of excessive Facebook use and addiction could be associated to reward and gratification mechanisms as well as some personality traits. Studies from several countries indicate different Facebook addiction prevalence rates, mainly due to the use of a wide-range of evaluation instruments and to the lack of a clear and valid definition of this construct. Further investigations are needed to establish if excessive Facebook use can be considered as a specific online addiction disorder or an Internet addiction subtype.

Keywords: Excessive Use, Facebook, Internet Addiction, Social Networks.

RATIONALE

In the last decade, the large availability of the internet and the embracing of new digital technologies like smartphones are changing people's way of life and introducing new social dynamics [1 - 7]. Social networks allow immediate communication with just one click, by searching, reaching and sending any kind of verbal messages, videos or images. Thus, the use of social networks facilitates virtual contacts and meetings with other people, replacing many personal relationships and commitments [1 - 5]. With its 1.4 billion active users, Facebook is now considered the most popular social network worldwide [8, 9] and, as a consequence, researchers have started to study some features of its use [10, 11], as well as its excessive use [12, 13]. Caplan developed an overall theory about the misuse of the internet, according to which an online communication type allows to avoid negative feelings, such as loneliness and anxiety [14, 15].

Griffiths stated that an addictive behavior is characterized by the six core components of addiction: salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse [16, 17]. He argued that any behavior that fulfills

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these six criteria can be considered as an addiction, including social networking. Furthermore, the addiction on social networks, as Facebook, has also been considered only when the excessive use damages personal, family and/or professional life [18, 19]. Some reports indicate that the excessive use of social networks increases isolation in real life, bringing harms to relationships [20]. It is worthily highlighted that a growing complaint in mental health services from patients or even parents worried about their children's is increased social isolation, levels of anxiety and worsening in school performance due to excessive social networks use [21].

Griffiths described the Social Network Sites (SNSs) addiction by 6 pillars: usage patterns, motivations, dependency and typical profiles, negative consequences, evidence of dependence and comorbidity [17, 22]. Furthermore, there is also a review evaluating SNSs addiction in 17 studies which shows a growing interest on this issue, although findings are limited because of the methodology used [23]. As a result, internet addiction and social networks addiction are not well-defined constructs yet, mainly because there is no gold standard measures of these conditions, nor is there any widely accepted theory [4, 12]. On the other hand, some authors [5, 24, 25] introduced specifically the "Facebook Addiction Disorder", or more generally "SNSs Addiction Disorder", on the basis of these six addiction criteria: (1) neglect of personal life; (2) mental preoccupation; (3) escapism (an entertainment that allows people to forget about the real problems of life); (4) mood modifying experiences; (5) tolerance and (6) concealing the addictive behavior.

Despite many researchers defending the hypothesis that the excessive use of the internet and social networks as Facebook can cause addiction, the concept is still controversial [5, 12, 17, 23, 26, 27] and the DSM-5 [21] did not include them as addiction disorders. Within this context, the aim of the present paper is to summarize the state of the art about the use and excessive use of Facebook and to explore how Facebook usage could become addictive.

FACEBOOK USE AND EXCESSIVE USE

Statistics provided by Facebook in 2015 [9] reveal that, worldwide, there are over 1.44 billion monthly active Facebook users and at least 936 million people log in every day. Among those daily users, 745 million check the site by their mobile devices. According to a recent review, there are cultural and socio-demographic differences in Facebook use: females and ethnic minorities seem to use Facebook more than males and Caucasians [10]. Furthermore, a cross-culture study examined differences in Facebook use among people from USA, UK, Italy, Greece and France, founding that, compared to USA users, the UK users classified "groups" as being more relevant, Italian users rated both "groups" and "games/applications" as most relevant, whereas Greek users considered "status updates" being less relevant [28].

A recent study on 100 Swedish students about the use of Facebook shows that 85% of them log in Facebook at least one time every day and 70% admitted that they logged in whenever they started their computer [29]. Furthermore, the participants spent an average of 75 minutes a day on Facebook, with men spending 64 minutes and women 81 minutes every day. In this study, the average user logs in on Facebook 6.1 times/day and almost half the participants mentioned that they feel it is hard to keep up socially without Facebook. Another survey conducted on a sample of 1605 US adults aged between 18 and 54 years old, shows that 34% of girls aged between 18-34 log in to Facebook before they go to the toilet every time they wake up in the morning, 21% wake up in the middle of the night to read their texts and 39% identify themselves as Facebook addicts [30]. Furthermore, Hofmann and colleagues [31], in a survey on 205 German Facebook and Twitter users aged between 18 and 85, showed that the desire for being daily on social networks reported by participants is superior to the desires for sleep and rest. They concluded that social networks addiction is more harmful than smoking and drug-addiction because social media are widely available and cheaper.

HOW FACEBOOK COULD BECOME ADDICTIVE?

Even with an increasing amount of evidence focusing on social network addiction [8] and a few studies indicating that the prevalence of Facebook addiction ranges from 8.6% to 41.9% [12, 32 - 34], limited research has examined how Facebook use could become addictive [17, 23]. The "biopsychosocial framework" for the etiology of addictions [16] and the "syndrome model of addiction" [35] state that people addicted to social networks have similar symptoms to those reported by people who suffer from substances addiction [36]. Xu and Tan [37] proposed that the shift from normal to social networking misuse arises when social networking is considered as an important (or even exclusive) instrument to cope with stress, loneliness and depression.

Regarding Internet addiction, Griffiths [23] argued that it is not well established if people become addicted to the platform or to the contents of the internet. Users addicted to the internet cannot give up several aspects of online use.

Thereby, the author postulates three subtypes of internet addicts, on the basis of the "object" of the addiction: on-line games, sex, and e-mail or text messages. Social networks are an online activity in which texting or e-mailing are predominant, in spite of being used for game playing and even sex-related purposes.

According to the model proposed by Nadkami and Hofman [10], Facebook use is mainly driven by two basic social needs: (1) sense of belonging to, and (2) self-presentation. The "need to belong" arises from the basic drive to affiliate with others and obtain social acceptance, whereas the need for self-presentation is steadily required for the process of impression management. These motivational drives often co-exist and could explain the Facebook use. Several demographic and cultural factors are associated with the need to belong, whereas personality traits such as neuroticism, narcissism, shyness, self-esteem and self-worth are associated with the need for self-presentation.

Tamir and Michell [38] described an increased neural activation underling the cognitive mechanisms associated with gratification upon talking about oneself. Using fMRI, the authors explored how brain activity while people talked about themselves was related to a pleasant experience, in comparison to other natural rewards such as sex or food. Authors argued that babies aged 9 months try to catch other's attention to the parts of the environment that they view as the most important, which could be considered the first form of self-exposure; adults, on the other hand, want to give forward information to others about themselves. Thus, human beings have an intrinsic drive for self-exposure, and this behavioral pattern is forced in social networks because of the brain's reward system: "People dedicate close to 40% of their time talking about themselves. This number reaches 80% in social networks with the possibility of feedback and immediate rewards" [38].

Similarly to many addictions, the activation of the reward system through self-exposure [39, 40] can increase the level of dopamine in the reward system [41], generating a dependence framework for social networks excessive use. Finally, some studies [17, 23] evaluated the tendency to develop a social network addiction based on personality traits such as: "extroversion", "socialization", "awareness", "neuroticism" and "openness to experimentation". Furthermore, the potential excessive use of social networks seems to be related to high narcissism, high neuroticism and low awareness [5, 42].

MEASURING INTERNET ADDICTION AND FACEBOOK ADDICTION

Several authors attempted to define Internet addiction as a syndrome with a set of symptoms that includes: a) preoccupation with the Internet activities; b) increasing tolerance; c) development of psychological dependency and withdrawal symptoms; d) inability to reduce Internet use; e) Internet use to cope with negative mood and reduce stress; f) replacing other activities and relationships with recurrent Internet use despite awareness of the bad consequences [43 - 45]. The Internet Addiction Scale [46], a 20 item self-report questionnaire, is a revised version of the earlier 8 item scale Young's Internet Addiction Diagnostic Questionnaire [43] and it was developed by adapting DSM-IV criteria for pathological gambling, a diagnosis classified as an impulse-control disorder.

Actually, this instrument is the most widely used alternative in the field of internet addiction [47] and it measures the degree to which all types of online activities disturbs aspects of one's daily life: daily routine, sleep pattern, productivity, social life, feelings. With regards to Facebook addiction, the systematic review of Ryan and colleagues [12] analyzed eight self-report questionnaires used to its evaluation in several studies [8, 48 - 53]. Authors concluded that research addressing this salient area is still in its infancy and highlighted the overall lack of construct validity surrounding these instruments, developed from existing measures of Internet addiction without in-depth exploratory research with Facebook addicted individuals [12].

CONCLUSION AND FUTURE PERSPECTIVES

Internet addiction and excessive social networks use are already important issues for treatment and research. Even if Facebook is the number one tool to promote entertainment, maintaining relationships and occupying time [40], some people could develop addictive behavior based on the sensation to feel better or more self-assured (increased level of excitement or escape) upon navigating social networks [54]. Facebook addiction could be related to brain reward and gratification mechanisms and it seems more prevalent in persons with some personality traits and mood states, such as anxiety, depression, narcissism, low self-esteem, seeking for an increased mood elevation.

Despite being a current topic, Internet addiction and excessive social networks use could be unnoticed and underestimated. However, specialized clinics and programs already target these kinds of addictions [55] although there is still a need for further research to determine if Facebook excessive use can be considered as a specific online

addiction disorder or an Internet addiction subtype.

CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

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REFERENCES

[1] Boyd DM, Ellison NB. Social network sites: Definition, history, and scholarship. J Comput Mediat Commun 2007; 13(1): 210-30. [http://dx.doi.org/10.1111/j.1083-6101.2007.00393.x]

[2] Ellison NB, Steinfield C, Lampe C. The benefits of Facebook "friends": Social capital and college students' use of online social network sites. J Comput Mediat Commun 2007; 12(4): 1143-68. [http://dx.doi.org/10.1111/j.1083-6101.2007.00367.x]

[3] Cheung CM, Chiu P, Lee MK. Online social networks: why do students use Facebook? Comput Human Behav 2011; 27(4): 1337-43. [http://dx.doi.org/10.1016/j.chb.2010.07.028]

[4] Kuss DJ, Griffiths MD, Karila L, Billieux J. Internet addiction: a systematic review of epidemiological research for the last decade. Curr Pharm Des 2014; 20(25): 4026-52. [http://dx.doi.org/10.2174/13816128113199990617] [PMID: 24001297]

[5] Kuss DJ, Griffiths MD. Online social networking and addiction-a review of the psychological literature. Int J Environ Res Public Health 2011; 8(9): 3528-52. [http://dx.doi.org/10.3390/ijerph8093528] [PMID: 22016701]

[6] King AL, Valença AM, Silva AC, Sancassiani F, Machado S, Nardi AE. "Nomophobia": impact of cell phone use interfering with symptoms and emotions of individuals with panic disorder compared with a control group. Clin Pract Epidemol Ment Health 2014; 10: 28-35. [http://dx.doi.org/10.2174/1745017901410010028] [PMID: 24669231]

[7] King AL, Valença AM, Silva AC, Baczynski T, Carvalho MR, Nardi AE. Nomophobia: dependency on virtual enviroments or social phobia? Comput Human Behav 2013; 29(140-144)

[8] Cam E, Isbulan O. A new addiction for teacher candidates: Social networks. Turk Online J Educ Technol 2012; 11(3): 14-9.

[9] Facebook. Company info: Facebook newsroom: Facebook; 2015. Available from: http://newsroom.fb.com/company-info/ 2015.

[10] Nadkarni A, Hofmann SG. Why do people use Facebook? Pers Individ Dif 2012; 52(3): 243-9. [http://dx.doi.org/10.1016/j.paid.2011.11.007] [PMID: 22544987]

[11] Wilson RE, Gosling SD, Graham LT. A review of facebook research in the social sciences. Perspect Psychol Sci 2012; 7(3): 203-20. [http://dx.doi.org/10.1177/1745691612442904] [PMID: 26168459]

[12] Ryan T, Chester A, Reece J, Xenos S. The uses and abuses of Facebook: A review of Facebook addiction. J Behav Addict 2014; 3(3): 133-48. [http://dx.doi.org/10.1556/JBA.3.2014.016] [PMID: 25317337]

[13] Weinstein A, Lejoyeux M. Internet addiction or excessive internet use. Am J Drug Alcohol Abuse 2010; 36(5): 277-83. [http://dx.doi.org/10.3109/00952990.2010.491880] [PMID: 20545603]

[14] Caplan SE. Relations among loneliness, social anxiety, and problematic Internet use. Cyberpsychol Behav 2007; 10(2): 234-42. [http://dx.doi.org/10.1089/cpb.2006.9963] [PMID: 17474841]

[15] Caplan SE. Theory and measurement of generaliz ed problematic Internet use: A two-step approach. Comput Human Behav 2010; 26(5): 1089-97. [http://dx.doi.org/10.1016/j.chb.2010.03.012]

[16] Griffiths MD. A 'components' model of addiction within a biopsychosocial framework. J Subst Abuse 2005; 10(4): 191-7.

[17] Griffiths MD. Social networking addiction: Emerging themes and issues. J Addict Res Ther 2013; 4: e118. [http://dx.doi.org/10.4172/2155-6105.1000e118]

[18] LaRose R, Kim J, Peng W. Social Networking: Addictive, Compulsive, Problematic, or Just Another Media Habit? In: Papacharissi Z, Ed. A networked self: Identity, community, and culture on social network sites. New York: Taylor & Francis 2010.

[19] LaRose R, Mastro D, Eastin MS. Understanding Internet usage: A social-cognitive approach to uses and gratifications. Soc Sci Comput Rev 2001; 19(4): 395-413. [http://dx.doi.org/10.1177/089443930101900401]

[20] Elphinston RA, Noller P. Time to face it! Facebook intrusion and the implications for romantic jealousy and relationship satisfaction. Cyberpsychol Behav Soc Netw 2011; 14(11): 631-5. [http://dx.doi.org/10.1089/cyber.2010.0318] [PMID: 21548798]

[21] American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 5th ed. Arlington, VA: APA 2013.

[22] Griffiths MD. Facebook addiction: concerns, criticism, and recommendations-a response to Andreassen and colleagues. Psychol Rep 2012; 110(2): 518-20.
[http://dx.doi.org/10.2466/01.07.18.PR0.110.2.518-520] [PMID: 22662405]

[23] Griffiths MD, Kuss DJ, Demetrovics Z. Social networking addiction: An overview of preliminary findings. In: Rosenberg KP, Feder C, Eds. Behavioral addictions: Criteria, evidence, and treatment. London: Academic Press 2014; pp. 119-41.
[http://dx.doi.org/10.1016/B978-0-12-407724-9.00006-9]

[24] Young K. Facebook Addiction Disorder?. Bradford, PA, USA: The Center for Online Addiction 2009.

[25] Summers A. Facebook Addiction Disorder - The 6 Symptoms of F.A.D: Social Times; 2011. Available from: http://www.adweek.com/socialtimes/facebook-addiction-disorder-the-6-symptoms-of-f-a-d/61408?red=st

[26] Pies R. Should DSM-V Designate "Internet Addiction" a Mental Disorder? Psychiatry (Edgmont) 2009; 6(2): 31-7.
[PMID: 19724746]

[27] Song I, LaRose R, Eastin MS, Lin CA. Internet gratifications and internet addiction: on the uses and abuses of new media. Cyberpsychol Behav 2004; 7(4): 384-94.
[http://dx.doi.org/10.1089/cpb.2004.7.384] [PMID: 15331025]

[28] Vasalou A, Joinson AN, Courvoisier D. Cultural differences, experience with social networks and the nature of "true commitment" in Facebook. Int J Hum Comput Stud 2010; 68(10): 719-28.
[http://dx.doi.org/10.1016/j.ijhcs.2010.06.002]

[29] Denti L, Barbopuolos I, Nilsson I, *et al.* Sweden's largest Facebook study. Gothenburg: University of Gothenburg 2012.

[30] Abhijit N. Facebook Addiction. USA: Buzzle; 2012 Available from: http://www.buzzle.com/articles/facebook-addiction.html 2012.

[31] Hofmann W, Vohs KD, Baumeister RF. What people desire, feel conflicted about, and try to resist in everyday life. Psychol Sci 2012; 23(6): 582-8.
[http://dx.doi.org/10.1177/0956797612437426] [PMID: 22547657]

[32] Wolniczak I, Cáceres-DelAguila JA, Palma-Ardiles G, *et al.* Association between Facebook dependence and poor sleep quality: a study in a sample of undergraduate students in Peru. PLoS One 2013; 8(3): e59087.
[http://dx.doi.org/10.1371/journal.pone.0059087] [PMID: 23554978]

[33] Lee YL, Verma RK, Yadav H, Barua A. Health impacts of Facebook usage and mobile texting among undergraduate dental students: it's time to understand the difference between usage and an excessive use. Eur J Dent Educ 2015. [Epub ahead of print]
[http://dx.doi.org/10.1111/eje.12164] [PMID: 26277860]

[34] Khumsri J, Yingyeun R, Mereerat Manwong, Hanprathet N, Phanasathit M. Prevalence of facebook addiction and related factors among thai high school students. J Med Assoc Thai 2015; 98(Suppl. 3): S51-60.
[PMID: 26387389]

[35] Shaffer HJ, LaPlante DA, LaBrie RA, Kidman RC, Donato AN, Stanton MV. Toward a syndrome model of addiction: multiple expressions, common etiology. Harv Rev Psychiatry 2004; 12(6): 367-74.
[http://dx.doi.org/10.1080/10673220490905705] [PMID: 15764471]

[36] Echeburúa E, de Corral P. Addiction to new technologies and to online social networking in young people: A new challenge. Adicciones 2010; 22(2): 91-5.
[PMID: 20549142]

[37] Xu H, Tan BC. Why do I keep checking Facebook: Effects of Message Characteristics on the Formation of Social Network Services Addiction. In: International Conference on Information Systems. Florida, USA: ICIS 2012.

[38] Tamir DI, Mitchell JP. Disclosing information about the self is intrinsically rewarding. Proc Natl Acad Sci USA 2012; 109(21): 8038-43.
[http://dx.doi.org/10.1073/pnas.1202129109] [PMID: 22566617]

[39] Chen HT, Kim Y. Problematic use of social network sites: the interactive relationship between gratifications sought and privacy concerns. Cyberpsychol Behav Soc Netw 2013; 16(11): 806-12.
[http://dx.doi.org/10.1089/cyber.2011.0608] [PMID: 24053383]

[40] Chen GM. Tweet this: A uses and gratifications perspective on how active Twitter use gratifies a need to connect with others. Comput Human Behav 2011; 27(2): 755-62.
[http://dx.doi.org/10.1016/j.chb.2010.10.023]

[41] Schultz W. Getting formal with dopamine and reward. Neuron 2002; 36(2): 241-63.
[http://dx.doi.org/10.1016/S0896-6273(02)00967-4] [PMID: 12383780]

[42] Panek ET, Nardis Y, Konrath S. Mirror or megaphone? How relationships between narcissim and social networking site use differ on Facebook and Twitter. Comput Human Behav 2013; 29(5): 2004-12.
[http://dx.doi.org/10.1016/j.chb.2013.04.012]

[43] Young KS. Internet addiction: the emergence of a new clinical disorder. Cyberpsychol Behav 2009; 1(3): 237-44.
[http://dx.doi.org/10.1089/cpb.1998.1.237]

[44] Spada MM. An overview of problematic internet use. Addict Behav 2014; 39(1): 3-6.
[http://dx.doi.org/10.1016/j.addbeh.2013.09.007] [PMID: 24126206]

[45] Li W, O'Brien JE, Snyder SM, Howard MO. Characteristics of internet addiction/pathological internet use in U.S. university students: a qualitative-method investigation. PLoS One 2015; 10(2): e0117372.
[http://dx.doi.org/10.1371/journal.pone.0117372] [PMID: 25647224]

[46] Widyanto L, McMurran M. The psychometric properties of the internet addiction test. Cyberpsychol Behav 2004; 7(4): 443-50.
[http://dx.doi.org/10.1089/cpb.2004.7.443] [PMID: 15331031]

[47] Boysan M, Kuss DJ, Barut Y, Ayköse N, Güleç M, Özdemir O. Psychometric properties of the Turkish version of the Internet Addiction Test (IAT). Addict Behav 2015; S0306-4603(15): 30013-7.
[PMID: 26421905]

[48] Sofiah S, Omar SZ. J. B, Osman MN. Facebook addiction among female university students. Revista De Administratie Publica Si Politici Sociale 2011; 2(7): 95-109.

[49] Andreassen CS, Torsheim T, Brunborg GS, Pallesen S. Development of a facebook addiction scale. Psychol Rep 2012; 110(2): 501-17.
[http://dx.doi.org/10.2466/02.09.18.PR0.110.2.501-517] [PMID: 22662404]

[50] Lee ZW, Cheung CM, Thadani DR. An invesrigation into the problematic use of facebook. 45th Hawaii International Conference on System Sciences; 2012 Jan 4-7; Maui, Hawaii: IEEE; 1768-76.

[51] Balakrishnan V, Shamim A. Malaysian Facebookers: Motives and addictive behaviours unraveled. Comput Human Behav 2013; 29(4): 1342-9.
[http://dx.doi.org/10.1016/j.chb.2013.01.010]

[52] Koc M, Gulyagci S. Facebook addiction among Turkish college students: the role of psychological health, demographic, and usage characteristics. Cyberpsychol Behav Soc Netw 2013; 16(4): 279-84.
[http://dx.doi.org/10.1089/cyber.2012.0249] [PMID: 23286695]

[53] Hong F, Huang D, Lin H, Chiu S. Analysis of the psychological traits, Facebook usage, and Facebook addiction model of Taiwanese university students. Telemat Inform 2014; 31(4): 597-606.
[http://dx.doi.org/10.1016/j.tele.2014.01.001]

[54] Giannakos MN, Chorianopoulos K, Gioyopoulos K, Vlamos P. Using Facebook out of habit. Behav Inf Technol 2013; 32(6): 594-602.
[http://dx.doi.org/10.1080/0144929X.2012.659218]

[55] Vishwanath A. Habitual facebook use and its impact on getting deceived on social media. J Comput Mediat Commun 2015; 20(1): 83-98.
[http://dx.doi.org/10.1111/jcc4.12100]

ARTIGO 2 – Social networking, a new online addiction:
a review of Facebook and other addiction disorders.

Eduardo Guedes, Antonio Egidio Nardi, Flavia Melo Campos Leite Guimarães, Sergio Machado, Anna Lucia Spear King.

MedicalExpress

REVIEW

Social networking, a new online addiction: a review of Facebook and other addiction disorders

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INTRODUCTION: Facebook is the world's most widely accessed social network, where millions of people intercommunicate. Behavioral and psychological changes relate to abusive and uncontrolled use creating severe impacts on users' life.
METHOD: A critical revision was performed through MedLine, Lilacs, SciELO and Cochrane databases using the terms: "Facebook Addiction," "Social Network Sites," "Facebook Abuse." The search covered the past 5 years up to January 2015. Articles that examine dependence on Facebook in the general population were included; we analyzed how this concept evolved over the last five years, and hope to contribute to the better understanding of the issue and its impacts.
RESULTS: Although controversial, published reports correlate Facebook addiction to mechanisms of reward and gratification. Some users developed an abusive relationship stimulated by the false feeling of satisfaction or as a way to feel better or more self-assured (increased level of excitement or escape). Studies from several countries indicate different prevalence, probably due to lack of consensus, and the use of different denominations, giving rise to the adoption of different diagnostic criteria.
CONCLUSION: Social Networks are modern communication tools; however, not only benefits, but also subsequent damage caused by its abusive use must be monitored. Many users with abusive usage and dependence recognize significant losses in their personal, professional, academic, social and family lives. Further investigation is needed to determine if abusive Facebook usage is a new psychiatric classification or merely the substrate of other disorders.

KEYWORDS: Facebook Addiction, Facebook Abuse, Social Media Addiction, Social Media Abuse, Social Networking Sites Addiction.

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INTRODUCTION

During a class break, the boy boasted about his record to his friend: "Look at this picture I just posted on Facebook, and it's got more than 150 likes!" The desolate girl replied quietly: "Yeah, that's really nice. My best picture got less than 90 likes." As shown in Figure 1, Facebook is the most widely accessed social network in the world[1] and this constitutes a real case study on gratification and reward mechanisms stimulated by social networks.[2,3]

The adoption of new digital technologies and the virtual universality of internet access, smartphones and social networks are changing peoples' way of life and creating new social dynamics.[3-5] The possibility of instant communication, the reach and speed of messages, videos or images transmitted through social networks creates a powerful weapon with just a click. In fact, apart from being an efficient communication tool and information searcher, it is an important means for social contact.[3-5]

From the moment people wake up, many of them will be checking their social networks as the latest news in Facebook or pictures in Instagram. People no longer need

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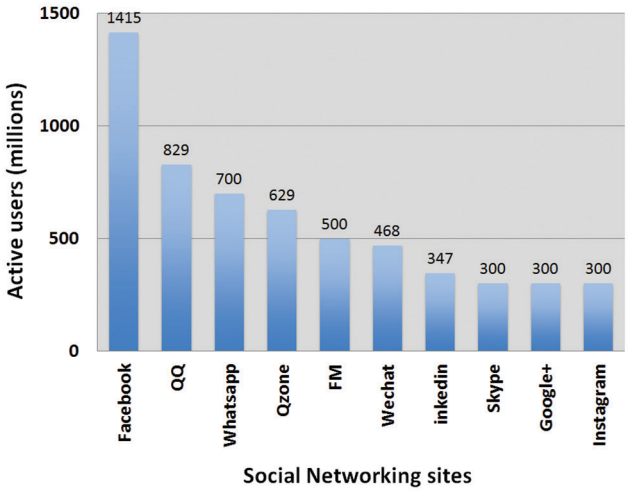

Figure 1 - Number of active users of social media in 2014. QQ: QQ Chat.

to go after the information, the information comes to them through the various social networks. Surely, people who often use these tools have many more contacts and virtual meetings than relationships or personal commitments.[3-5]

Over the last decade, the use of social networking sites has grown exponentially and is promoting constant and uninterrupted changes in society's behavior. New technologies, mainly computers and cellular phones are doubtlessly bringing us into a fantastic and rapid prospect of evolution in every area.[3-5] However, people do not often accompany these transformations at the same speed.

With 1.4 billion active social network users in the world,[6] Facebook is the most popular one in the planet. As a consequence of this popularity, researchers have recently started to examine aspects of its use. Dependency on social networks or Facebook has been defined as the incapability to control the use of the tool in a healthy way causing harm to personal, family or professional life.[7,8] In spite of the fact that many investigators support the hypothesis that the abusive use of social networks can cause dependency, the concept is still controversial.[9] The most recent version of the Diagnostic and Statistical Manual of Mental Disorders[10] did not include it as a dependency disorder.

Social Network Addiction

Facebook and other social networks help to find old friends and to maintain contact with people who are far away. However, with the increase in popularity of these tools, there has also been an increase of reports, both in the press and in scientific literature[11] of individuals who are "dependent" on the virtual reality of social networks, with a resulting damage to their real lives. Some reports[11] indicate that the abusive use increases real life isolation, paradoxically bringing further damage to real life relationships.

It is worth highlighting that a frequent complaint in psychiatric practices is one of patients or even parents worried about their children's increase in social isolation and worsening school performance. Mental Health professionals also point out the consequences of abusive use traduced as an increased level of anxiety[10] among children, as conflicts in relationships, and as an increased incidence of herniated discs and tendinitis in children, these being the result of many hours typing with inadequate posture in front of computers, tablets or smartphones.

The objective of this critical review is to discuss the literature of studies that aim to characterize the dependence on Facebook and social networks, as well as any information (epidemiological aspects, clinical characteristics, treatments, etc.) that aid in the understanding of and in the elaboration of new diagnostic criteria and in the formulation and development of a specific theory about the subject.

METHOD

An electronic search was performed ending January 2015 with articles found over the previous 5 years. Articles with the key words "Facebook Addiction," "Social Network Sites," "Facebook Abuse," "Social Media Abuse," "Social Media Addiction" were searched in the databases of Lilacs, Pubmed, SciELO and The Cochrane Library. For the purposes of this revision 25 articles were selected that evaluate the clinical characteristics and the psychiatric comorbidities related to dependence on Facebook. The reference lists of these selected articles were also included in the search. We found 91 articles, but 66 articles were excluded from this review. Only articles in English and focused on Facebook were included. Research that collected data through on-line questionnaires from websites were excluded in this revision due to possible selection bias.

RESULTS AND DISCUSSION

In 2010, Caplan[12,13] developed a theory about the problematic use of the internet. On-line communication serves as a refuge to escape from negative feelings, such as solitude or anxiety.

In 2012, Andreassen[14] published a scale of Facebook dependency as an instrument for validating dependency. During the same year, Griffiths[15] published an article about Andreassen's scale and revised it to investigate Social Network Site dependency within the framework of six pillars: (i) pattern use, (ii) motivations, (iii) dependency and typical profiles, (iv) negative consequences, (v) evidence of dependency and (vi) comorbidity. On that occasion, only 5 articles about this dependency were found, limiting the conclusions of the review.

In 2014, Griffiths[16,17] again evaluated Social Network Site dependency; this time 17 studies were found. Although the increased number of articles shows a larger focus on the topic, conclusions were limited on account of the the methodology adopted in the retrieved articles. As a result, the question of dependency on social networks must still be looked upon as a not well-defined concept and will remain open to discussion and further investigation. In this sense, the use of Social Networks could be coupled with cyber-relations,[18] while the dependence on social network games (such as, for instance, the Facebook Farmville application) is classified as "game addiction".[19,20]

Examining motivations for Facebook usage

In general, technology has always served man as a way to optimize time and nurture human relationships. During the 18th - 20th century, the establishment of the worldwide modern networks, namely the rail, telegraph and electricity, made this social role possible. "The cyberspace recovers this 'holy trinity' to value telematic networks like the Internet, as a model of free and equal connection".[21-23]

In this sense, social networks are more than simple collaborative platforms of online messages and status updates on the internet. According to Nadkami and Hofman,[24] social networks are directly related to the most intimate needs appertaining to human beings, such as being part of a group, being recognized, loved and special.

The study of Tamir and Michell[25] indicates that 80% of published messages on social networks are related to sharing immediate experiences. But the main question is why so many people share their daily thoughts, actions and opinions on social networks: "the act of giving information about oneself activates the brain's reward system. This results in a pleasant experience, similar to the one we receive from natural rewards, such as food or sex."[25]

Within a neurobiological context, Tamir and Michell[25] identified the activation of neural and cognitive mechanisms associated with gratification related to talking about oneself, through a study that involved magnetic resonance imaging to track brain activity while individuals talked about themselves.

According to Tamir and Michell,[25] at 9 months babies try to draw other people's attention to the parts of the environment that they deem to be most important; this may be seen as a primitive form of self-exposure; adults, on a more developed context, seek to give forward information to others. This is the basis for the argument that humans have an intrinsic motivation for self-exposure and that this behavioral pattern is reinforced in social networks because of the brain's reward system. "People dedicate close to 40% of their time talking about themselves. This increases to 80% in social networks with the possibility of feedback and immediate rewards",[25] which in a certain way explains the success and the huge adoption of these new technologies.

Another important point is the possibility of social media users to show a pattern of idealizing themselves through their profiles. This hypothesis of "virtual idealized identity" was tested by Amichai-Hamburger & Vinitzky.[26] A study by Shayang et al[27] claims that Facebook profiles appear to present socially desired identities, even if these have not yet been reached.

A respected thinker of the computerized contemporary society, Castells[28] attributes social and cultural changes to the phenomenon of the internet: "The emergence of a new electronic system of communication characterized by its global reach, integrating all means of communication and potential interactivity is changing and will forever change our culture."[28] Cyberculture[28] is the field of communication responsible for this new social order, in which there are significant changes in the organizational patterns of contemporary society.

As far as Internet dependence is concerned, the question is whether people become addicted to the platform or to the content of the Internet.[17] Griffiths et al.[17] argued that those addicted to the Internet become so in different aspects of online use. They differentiate three subtypes of Internet addicts: on-line games, sex, and e-mail or text messages.[17] Social networks are a type of online activity in which texting or e-mailing have been predominant; however, the tool is also extensively used for playing games and for sexual purposes.

Social networks[25] are predominantly used to maintain contact off-line, which proves the importance of the tool in the academic, professional or personal scope. Ironically, a side effect of a technology that was created to bring people together has been the object of research that indicates that more than 50% of social network users consider themselves unhappier than their own friends.[25] "In social networks, lives are edited according to a pattern of a false idealism that isn't able to be attained in practice, generating frustration." One quarter of those interviewed talk about symptoms of deep depression upon "discovering that their friend's lives are better than theirs".[25]

The activation of the reward system through self-exposure[29-31] can generate a framework of dependence leading to excessive use of social media. Similarly, many pharmaceutical addictions, such as drug addiction, can raise endogenous dopamine levels in the central nervous system reward area, in order to provide the desired effects to the addicted user.[29]

Measuring Facebook addiction

According to the scale published in 2012 by Andreassen,[14] there are five factors that indicate a dependence level on Facebook: 1. Mood swings; 2. Relevance; 3. Tolerance; 4. Withdrawal and 5. Conflicts in real life.

Mood swing: the social network is a means through which a person feels better or more self-assured (increased level of excitement or escape). This is the first stage usually hidden with a false sensation of satisfaction experienced upon navigating social networks.[14]

Relevance: the user is unable to stop thinking about social networks (even when outside of the network, imagining circumstances of the past or future that must be published), in such a way that the tool slowly starts to dominate his/her life.[14]

Tolerance: this relates to the time devoted to the tool and the control level it has attained. Generally, it is common to spend more time on the social network, updating pictures or posting comments, as a way to look for the same pleasant sensations experienced before in a shorter period of time. Without noticing, the dependent person loses control of the situation slowly, starting to substitute daily activities for more time navigating.[14]

Withdrawal: abstinence and its effects can be cited here; generally, when social network addicts do not have access to the internet, they become irritated, anxious and frightened, and there are changes in sleeping or eating patterns as well as signs of depression.[14]

Conflicts in real life: when use of social networks is excessive it compromises real life relationships with relatives and friends. This is the most common moment to perceive evidence of the problem, but addicts feel incapable of reducing or simply stopping use. This is when there is a loss of control over one's behavior, possibly compromising education or professional performance.[14]

Propensity and Dependency

Two other studies[16,17] evaluated the propensity for dependency based on five main dimensions of personality factors: extroversion (namely, being an extrovert, a talker), socialization (being nice and social), awareness (organization level), neuroticism (related to moods, generally nervous and bad moods), openness to experimentation (creativity and intellectually oriented).

In a more comprehensive work, Kuss et al.[32] claim that it is possible to identify some indicators of potential problematic consumption from similarities in personality features, including characteristics, such as extroversion, introversion and narcissism. Introverts tend to use social networks to compensate for the lack of contacts in real life, while extroverts use it to extend their existing networks. This increased use is associated with high narcissism, neuroticism and low awareness. Therefore, people with these features can be particularly at risk for developing a dependence.[32]

CONCLUSION

Dependence on social networks is already an issue for treatment and research at a worldwide level.[33,34] Research indicates that the main motives for use and reward from Facebook are related to maintaining relationships, occupying time and entertainment.[31] However, some users have developed an abusive relationship stimulated by a false sensation of satisfaction experienced upon navigating social networks, as a way to feel better or more self-assured (increased level of excitement or escape).[35] Dependence on Facebook is associated to reward and gratification mechanisms[36] in the brain and could be more commonly observed in individuals with more anxiety, depression, narcissism or low self-esteem, motivated to seek an increased elevation in mood.[37]

Despite being a current topic, virtual dependence usually goes unnoticed by relatives. However, there are already clinics and programs which specialize in dependence on social networks.[38] Nonetheless, more investigation is necessary to determine if the abusive use of Facebook can be understood as one of the new psychiatric classifications of the 21st century or only a substratum of other disorders.[39] Despite the controversial nature of this theme, everything indicates that dependence on Facebook is not directly associated to time dedicated on the internet, but to a loss of control of real life, bringing damage to personal, professional, family, emotional or social areas of life.[14]

CONFLICT OF INTEREST

Authors declare they have no conflict of interest.

AUTHOR PARTICIPATION

Conceição EG, King ALS and Nardi AE developed the project, contributed in work orientation, discussed the data, wrote the first draft of the article, and reviewed its final form; Guimarães FMCL and Machado S discussed the data and reviewed the final form of the article.

REDE SOCIAL OU NOVO VÍCIO ON-LINE: UMA REVISÃO SOBRE O TRANSTORNO DE DEPENDÊNCIA DE FACEBOOK.

INTRODUÇÃO: O Facebook é a rede social mais amplamente acessada do mundo, onde milhões de pessoas se comunicam entre si. As alterações comportamentais e psicológicos relacionadas com seu uso abusivo e excessivo estão criando sérios impactos sobre a vida dos usuários.

MÉTODO: Uma revisão sistemática foi feita através das bases de dados Medline, Lilacs, SciELO e Cochrane usando os termos: "Facebook Addiction," "Social Network Sites," "Facebook Abuse.". A pesquisa abrangeu os últimos 5 anos até janeiro de 2015. Os artigos que examinam a dependência do Facebook na população em geral foram incluídos; analisamos como esse conceito evoluiu ao longo

dos últimos cinco anos, e espera-se contribuir para o melhor entendimento da questão e seus impactos.

RESULTADOS: Apesar de controversos, relatórios publicados correlacionam a dependência de Facebook a mecanismos de recompensa e gratificação. Alguns usuários desenvolveram um relacionamento abusivo estimulados pela falsa sensação de satisfação ou como uma maneira de se sentir melhor ou mais auto-confiante (aumento do nível de excitação ou fuga). Estudos de vários países indicam prevalência diferente, provavelmente devido à falta de consenso e ao uso de diferentes denominações, dando origem à adopção de critérios de diagnóstico diferentes.

CONCLUSÃO: As redes sociais são ferramentas de comunicação modernas; existem inúmeros benefícios, mas também deve ser monitorado os danos subseqüentes causados por seu uso abusivo. Muitos usuários com o uso abusivo ou dependente declaram perdas significativas em suas vidas pessoais, profissionais, acadêmicos, sociais e familiares. É necessária uma investigação mais profunda para determinar se o uso abusivo do Facebook é uma nova classificação psiquiátrica ou meramente o substrato de outros transtornos.

Palavras-chave: dependência de facebook, abuso de facebook, dependência de mídia social; dependência de sites internet.

REFERENCES

1. The Statistics Portal (2015). Retrieved May 25, 2015, from http://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/
2. King ALS, Valença AM, Silva ACO, Baczynski T, Carvalho MR, Nardi AE. Nomophobia: dependency on virtual environments or social phobia? Computers in Human Behavior. 2013;29(1):140-4. http://dx.doi.org/10.1016/j.chb.2012.07.025
3. Boyd DM, Ellison NB. Social network sites: Definition, history, and scholarship. J Computer-Mediated Communication. 2007;13(1):210–30. http://dx.doi.org/10.1111/j.1083-6101.2007.00393.x
4. Ellison NB, Steinfield C, Lampe C. The benefits of Facebook "friends": social capital and college students' use of online social network sites. J Computer-Mediated Communication. 2007;12(4):1143-68. http://dx.doi.org/10.1111/j.1083-6101.2007.00367.x
5. Cheung CMK, Chiu P, Lee MKO. Online social networks: Why do students use Facebook? Comp Human Behav. 2011;27(4):1337-43. http://dx.doi.org/10.1016/j.chb.2010.07.028
6. Facebook (2015). Company info: Facebook newsroom. newsroom.fb.com. Retrieved May 25, 2015, from http://newsroom.fb.com/company-info/
7. LaRose R, Kim J, Peng W. Social networking: Addictive, compulsive, problematic, or just another media habit? In Z. Papacharissi (Ed.), A networked self: Identity, community, and culture on social network sites. New York, NY 2010: Taylor & Francis.
8. LaRose R, Mastro D, Eastin MS. Understanding Internet usage: a social-cognitive approach to uses and gratifications. Social Sci Computer Rev, 2001;19(4):395-413. doi: 10.1177/089443930101900401
9. Kuss DJ, Griffiths MD, Karila L, Billieux J. Internet addiction: A systematic review of epidemiological research for the last decade. Current Pharmaceutical Design. 2014;20(25):4026-52.
10. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA, 2013: American Psychiatric Association.
11. Elphinston RA, Noller P. Time to face it! Facebook intrusion and the implications for romantic jealousy and relationship satisfaction. Cyberpsychol. Behav, Social Networking, 2011;14(11):631-5. http://dx.doi.org/10.1089/cyber.2010.0318.
12. Caplan SE. Relations among loneliness, social anxiety, and problematic Internet use. CyberPsychol Behav. 2007;10(2):234-42. http://dx.doi.org/10.1089/cpb.2006.9963.
13. Caplan, SE. Theory and measurement of generalized problematic Internet use: a two-step approach. Computers in Human Behav. 2010;26(5):1089-97. http://dx.doi.org/10.1016/j.chb.2010.03.012
14. Andreassen CS, Torsheim T, Brunborg GS, Pallesen S. Development of a Facebook Addiction Scale. Psychol Reports. 2012;110(2):501-17. http://dx.doi.org/10.2466/02.09.18.PR0.110.2.501-517
15. Griffiths MD. Facebook addiction: Concerns, criticism, and recommendations – A response to Andreassen and colleagues. Psychol Reports. 2012;110(2):518-20. http://dx.doi.org/10.2466/01.07.18.PR0.110.2.518-520
16. Griffiths MD. Social networking addiction: Emerging themes and issues. J Addict Res Ther, 2013;4(5):1000e118. http://dx.doi.org/10.4172/2155-6105.1000e118
17. Griffiths MD, Kuss DJ, Demetrovics Z. Social networking addiction: An overview of preliminary findings. In KP, Rosenberg LC. Feder (Eds.), Behavioral addictions: Criteria, evidence, and treatment (pp. 119–141). London, 2014: Academic Press.
18. Young KS, Pistner M, O'Mara J, Buchanan J. Cyber disorders: The mental health concern for the new millennium. Cyberpsychol Behav.1999;2(5):475-9. http://dx.doi.org/10.1089/cpb.1999.2.475.
19. Young KS. Internet addiction: The emergence of a new clinical disorder. Cyberpsychol Behav. 1998;1(3):237-44. http://dx.doi.org/10.1089/cpb.1998.1.237.
20. Young KS. Caught in the net: How to recognize the signs of Internet addiction – and a winning strategy for recovery. New York, NY, 1998: John Wiley & Sons.
21. http://pt.wikipedia.org/wiki/Alexander_Graham_Bell. Accessed in 29/04/2013.
22. Dunbar R. Social cognition on the internet: testing constraints on social network size. Phil. Trans. R. Soc. Lond. 2012;367B:2192-201. http://dx.doi.org/10.1098/rstb.2012.0121
23. Musso P. Sociedade Midiatizada. In: Moraes, Dênis de (Org.). Ciberespaço, figura reticular da utopia tecnológica. Rio de Janeiro: Mauad X, 2006. p. 191-224.
24. Nadkarni A, Hofmann SG. Why do people use Facebook? Pers Individ Dif. 2012;52(3):243-9. http://dx.doi.org/10.1016/j.paid.2011.11.007
25. Tamir DI, Mitchel JP. Disclosing information about the self is intrinsically rewarding. Proc Nat Acad Sci. 2012;109(21):8038-43. http://dx.doi.org/10.1073/pnas.1202129109.
26. Amichai-Hamburger Y, Vinitzky G. Social network use and personality. Computers in Human Behav. 2010;26(6):1289-95. http://dx.doi.org/10.1016/j.chb.2010.03.018
27. Shanyang Z, Grasmuck S, Martin J. Identity construction on Facebook: Digital empowerment in anchored relationships. Computers in Human Behaviour. 2008;24(6):1816-36. http://dx.doi.org/10.1016/j.chb.2008.02.012
28. Castells M. A sociedade em rede. São Paulo: Paz e Terra, 1999
29. Schultz W. Getting formal with dopamine and reward. Neuron. 2002;36(2);241-63. http://dx.doi.org/10.1016/S0896-6273(02)00967-4
30. Chen GM. Tweet this: A uses and gratifications perspective on how active Twitter use gratifies a need to connect with others. Computers in Human Behavior, 2011;27(2):755-62. http://dx.doi.org/10.1016/j.chb.2010.10.023
31. Chen H, Kim Y. Problematic use of social network sites: The interactive relationship between gratifications sought and privacy concerns. Cyberpsychol, Behav, Social Networking. 2013;16(11):806-12. http://dx.doi.org/ 10.3390/ijerph8093528.
32. Kuss DJ, Griffiths MD. Online social networking and addiction--a review of the psychological literature. Int J Environ Public Health. 2011;8:3528-52.

33. Koc M, Gulyagci S. Facebook addiction among Turkish college students: The role of psychological health, demographic, and usage characteristics. CyberPsychol, Behav Social Networking. 2013;16(4):279-84. http://dx.doi.org/10.1089/cyber.2012.0249.
34. Leon DT, Rotunda RJ. Contrasting case studies of frequent Internet use. J Coll Student Psychother, 2000;14(4),9-18. DOI:10.1300/J035v14n04_03
35. Giannakos MN, Chorianopoulos K, Giotopoulos K, Vlamos P. Using Facebook out of habit. Behav Information Technology. 2013;32(6):594-602. http://dx.doi.org/10.1080/0144929X.2012.659218
36. Song I, LaRose R, Eastin MS, Lin CA. Internet gratifications and internet addiction: On the uses and abuses of new media. CyberPsychol Behav. 2004;7(4):384-94. http://dx.doi.org/10.1089/cpb.2004.7.384.
37. Panek ET, Nardis Y, Konrath S. Mirror or megaphone?: How relationships between narcissism and social networking site use differ on Facebook and Twitter. Computers Human Behav. 2013;29(5):2004-12. http://dx.doi.org/10.1016/j.chb.2013.04.012
38. Vishwanath A. Habitual Facebook Use and its Impact on Getting Deceived on Social Media. J Computer-Mediated Communication. 2015; 20(1):83-98. http://dx.doi.org/10.1111/jcc4.12100
39. Kuss DJ, Griffiths MD. Online Social Networking and Addiction - A Review of the Psychological Literature. Int. J. Environ. Res. Public Health 2011;8(9):3528-52. http://dx.doi.org/10.3390/ijerph8093528

ARTIGO 3 – Validação da escala para avaliar a dependência do Facebook (EDF)

Eduardo Guedes, Mariana King Pádua, Hugo Kegler dos Santos, Douglas Rodrigues, Lucio Lage Gonçalves, Flávia Leite Guimarães, Antonio Egidio Nardi, Anna Lucia Spear King.

Title

Validação da escala para avaliar a dependência do Facebook (EDF)

Running Title

Validação da escala dependência do Facebook

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Resumo

Background information: O Facebook é uma rede social que se tornou parte do cotidiano da sociedade moderna e é notadamente a mais acessada no mundo, através da qual é possível se relacionar com milhões de pessoas ao mesmo tempo, seja como fonte de informação, comunicação ou entretenimento. **Objetivo:** Validar a escala para avaliar a dependência do Facebook (EDF). **Métodos:** Validação realizada em 5 fases: 1- construção de escala inicial com 20 perguntas, 2- avaliação por especialistas, 3- aplicação em 200 voluntários, 4- análise estatística e dos resultados e 5- elaboração da versão final validada da EDF. **Resultados:** Obtivemos as análises das estatísticas descritivas, os testes de hipóteses de diferenças das médias e a análise fatorial. Os resultados forneceram uma versão aceita da EDF. **Conclusões:** Conseguimos com o estudo construir a versão final validada da EDF com 18 questões adequadas aos contextos clínicos e para ser utilizada na realização de pesquisas sobre dependência do Facebook. A EDF poderá contribuir para pesquisas futuras relativas à dependência digital de redes sociais, redução de danos e melhora da qualidade de vida.

Palavras-chave: Dependência digital; comportamento humano; facebook; rede social.

1 INTRODUÇÃO

Pesquisas indicam[1,2] que existem mais de 2,2 bilhões de usuários do Facebook por todo o mundo, apontando o Brasil como quarto país com maior número de cadastros de Facebook no mundo (só perde para Índia, EUA e Indonésia), com mais de 130 milhões de usuários ativos e frequentes (mais da metade dos usuários no Brasil retornam ao site diariamente), comprovando a relevância da ferramenta no dia a dia da sociedade.

As redes sociais são ferramentas de comunicação modernas; existem inúmeros benefícios, mas também devem ser monitorados os danos subsequentes causados por seu uso abusivo.[3] Muitos usuários com o uso abusivo ou dependente declaram perdas significativas em suas vidas pessoais, profissionais, acadêmicos, sociais e familiares.[3,4]

Relatórios[5,6,7,8] já publicados correlacionam a dependência de Facebook a mecanismos de recompensa e gratificação. Alguns usuários desenvolveram um relacionamento abusivo estimulados pela falsa sensação de satisfação ou como uma maneira de se sentir melhor ou mais auto-confiante (aumento do nível de excitação ou fuga).

Existe uma linha tênue entre os limites da satisfação e da dependência no uso abusivo das redes sociais.[9] Por outro lado, é preciso definir a palavra 'vício' da mesma maneira que é utilizada em manuais de diagnóstico de transtornos mentais por parte da Associação Americana de Psiquiatria e Organização Mundial da Saúde.[10] Estudos já realizados[3,8,9] indicam uma série de critérios de dependência típicos que precisam ser identificados para que uma pessoa possa ser diagnosticada como dependente.

Em primeiro lugar,[11] há alteração de humor, onde a rede social seria um meio da pessoa se sentir melhor ou mais seguro (maior nível de excitação ou fuga). Este é o primeiro estágio normalmente mascarado com a falsa sensação de satisfação experimentada ao navegar nas redes sociais.

Em segundo lugar,[11] o nível de relevância, a partir do qual o usuário não consegue desligar seu pensamento das redes sociais (mesmo fora da rede, imagina circunstâncias do passado ou do futuro que deveriam ser publicadas), de tal forma que a ferramenta começa a lentamente dominar o comando da sua vida.

Em terceiro,[11] a tolerância, que indica o tempo dedicado à ferramenta e o nível de controle que se tem dela. Em geral, é comum gastarem cada vez mais horas na rede social, atualizando fotos ou postando comentários, como forma de buscar as mesmas sensações agradáveis experimentadas anteriormente em um menor período de tempo. Sem perceber, o dependente vai perdendo o controle da situação e aos poucos, começa a substituir os programas reais do dia a dia por um maior tempo de navegação.

Em quarto lugar,[11] podemos citar a abstinência e seus efeitos. Em geral, quando estão sem acesso à internet, tornam-se irritados, ansiosos e com medo, podendo gerar alterações no padrão do sono ou alimentação e ainda sinais de depressão.

Em quinto lugar,[11] a evidência de conflitos na vida, quando o uso excessivo das redes sociais comprometem as relações na vida real com familiares e amigos. Este é o momento mais comum em que percebem a evidência do problema, mas sentem-

se incapazes de reduzir ou simplesmente parar. É quando acontece uma perda de controle sobre o comportamento, podendo comprometer a educação ou desempenho profissional.

O objetivo deste estudo é validar a escala para avaliar a dependência do Facebook (EDF)

2 MATERIAIS E MÉTODO

A validação da escala foi realizada em 5 fases: 1- elaboração de 20 perguntas que definiram a escala inicial, 2- crítica e validação da escala por especialistas, 3- aplicação da escala em 200 voluntários, sendo 100 participantes com uso abusivo e diário do Facebook (Grupo 1 Principal) e 100 participantes sem uso abusivo do Facebook (Grupo 2 Controle), 4- análise estatística dos dados e resultados e 5- ajustes a partir dos dados coletados e construção da versão final validada.

No início do processo de validação de uma escala é necessária a construção do seu conteúdo rigorosamente em linha ao tema e aos objetivos de pesquisa. Na sequência, deve-se submeter a escala a um grupo de especialistas para avaliação. Os especialistas escolhidos foram professores capacitados na área de dependência digital[12] e construíram uma escala inicial com 20 perguntas baseadas em estudos publicados[2,5,7] e a enviaram para validação de outros seis especialistas também professores, diferentes dos primeiros. O segundo grupo de especialistas (6), estavam aptos para revisar o conteúdo da escala quanto à apresentação, clareza, pertinência e a compreensão do instrumento, conferindo validade.

Na literatura não existe uma recomendação específica para se definir a quantidade de especialistas que devem participar da validação de uma escala, esta definição fica a critério do pesquisador. Contudo, quanto maior o número de especialistas, maior a discordância e, quanto menor o número (inferior a 3) maior a chance de a concordância ser de cem por cento.

A EDF foi desenvolvida pelo Instituto Delete – Uso Consciente de Tecnologias, núcleo integrado ao Instituto de Psiquiatria da Universidade Federal do Rio de Janeiro. É um questionário com 20 itens e 3 opções de respostas, sendo: (nunca/raramente (0), frequentemente (1), sempre (2) que medem níveis de dependência do facebook. Depois de ter respondido a todas as questões, a soma de pontos de cada resposta gerou uma pontuação final. Sendo: até 6 pontos com

controle total do uso do facebook; (7 a 6 pontos) leve; (17 a 26) moderado e (27 a 36) grave. Cada pergunta mediu um dos cinco elementos: excitação e segurança, relevância, tolerância, abstinência ou conflitos na vida real. Quanto mais alta a pontuação, maior o nível de dependência do Facebook e os problemas relacionados.

Para participar da pesquisa (critérios de inclusão), foram considerados indivíduos brasileiros de qualquer ocupação, ambos os sexos e idade entre 17 e 65 anos, desde que usuários ativos do Facebook e residentes no país. Foram desconsiderados da pesquisa (critérios de exclusão) voluntários analfabetos ou indivíduos com algum comprometimento mental que impedissem a sua participação.

Para participar do estudo de validação da EDF foram recrutados voluntários aleatoriamente que procuraram o núcleo Delete com uso abusivo, diário e por muitas horas do Facebook. E também, estudantes, funcionários, acompanhantes e todos aqueles que concordaram em participar. A convocação foi por intermédio de cartazes na instituição, comunicação verbal entre pessoas e em redes sociais.

No início da pesquisa, foram aplicadas as escalas em 200 indivíduos divididos em dois grupos: Grupo 1 Principal (100 participantes com uso abusivo e diário do Facebook e o Grupo 2 Controle (100 participantes sem uso diário ou excessivo do Facebook). Para considerarmos o uso abusivo do Facebook e para serem incluídos no grupo 1 (Principal) os voluntários deveriam ter obtido o resultado maior ou igual a 50 pontos na escala Internet Addiction Test (IAT)[13] que significa o início de um comprometimento na vida pessoal, social ou familiar relacionado ao uso excessivo da internet. Para entrar no Grupo 2 (Controle) os voluntários deveriam ter obtido o resultado menor que 50 na escala IAT[13] e não fazer uso diário do Facebook.

No Grupo 1 (Principal) dos 100 participantes pudemos aproveitar 95 voluntários e no Grupo 2 (Controle) dos 100 participantes restaram 90 na pesquisa. Os voluntários descartados em ambos os grupos apresentaram escalas incompletas ou desistiram de participar. Ao final, os resultados obtidos foram inseridos em um banco de dados para as análises estatísticas.

3 RESULTADOS

Na análise dos resultados foram utilizados o Programa REdas[14] dos pacotes “dplyr”,[15] “psy”[16] e “paran”.[17] A seguir apresentamos os resultados das estatísticas descritivas e os resultados dos testes de hipóteses de diferenças das médias e

análise fatorial. Em todo o trabalho, os dados foram divididos em Grupo Controle e Grupo Principal.

1) **Estatísticas Descritivas:** A tabela 1 apresenta os resultados das estatísticas descritivas da amostra. Para cada característica, são apresentados o número absoluto de elementos com a característica e a proporção dentro do seu grupo.

Tabela 1 – Estatísticas Descritivas da Amostra

CATEGORIAS	CONTROLE	PRINCIPAL
Sexo		
Masculino	28 (31.1%)	35 (36.8%)
Feminino	62 (68.9%)	60 (63.2%)
Faixa etária		
15-25	29 (32.2%)	45 (47.4%)
26-36	23 (25.6%)	23 (24.2%)
37-47	11 (12.2%)	20 (21.1%)
48-58	11 (12.2%)	5 (5.3%)
59-69	16 (17.2%)	2 (2.1%)
Grau de instrução		
Médio	21 (23.3%)	54 (56.8%)
Superior	26 (28.9%)	26 (27.4%)
Pós	37 (41.1%)	9 (9.5%)
Mestrado	2 (2,2%)	5 (5.3%)
Doutorado	3 (3.3%)	0 (0%)
NI	1 (1.1%)	1 (1.1%)

NI (Não informou)

Quanto a Diferença de Médias: Os resultados do Teste t de diferença de média entre os grupos denominados Principal e Controle indicaram que existe diferença entre os grupos, isto é, a média do grupo Principal é estatisticamente maior do que a média do grupo Controle, com significância de 1%. A pontuação Média do grupo Controle foi de 5,84 com um desvio padrão de 5,73 enquanto o grupo principal apresentou uma pontuação média 11,8 e desvio padrão de 8,70, resultando em uma estatística t igual a 5,5 e um p-valor menor que 0.001. Esta diferença ratifica as características de um grupo ter dependência (grupo principal) e o outro não ter (grupo de controle).

Análise Fatorial

O primeiro teste realizado foi o teste de esfericidade de Bartlett para verificar se as variáveis são correlacionadas entre si. Neste teste, a hipótese nula é a matriz de correlação ser igual à matriz identidade. Para o conjunto de dados, foi encontrada uma estatística de este igual a 1807.325 e um p-valor menor que 0.001, implicando na matriz de covariância não ser igual à identidade.

O critério seguinte utilizado a fim de verificar a adequação da análise fatorial foi o critério de Kaiser-Meyer-Olkin (KMO). O valor encontrado foi igual a 0.875, sendo acima de 0.8, valor que na, literatura, considera-se bom.

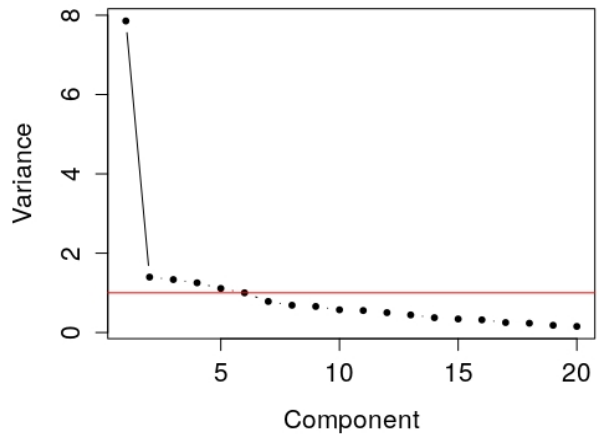
Devido aos resultados encontrados tanto para o teste de Bartlett e para o KMO, consideramos que é adequado realizar a análise fatorial para o questionário. A etapa seguinte foi verificar as cargas fatoriais para determinar o número de fatores relevantes. Utilizamos três critérios: Carga Fatorial, Screeplot e Análise Paralela.

Tabela 2 – Cargas Fatoriais das Componentes Principais

PRINCIPAIS COMPONENTES (PC)	CARGAS FATORIAIS		
	DESVIO PADRÃO	PROPORÇÃO DA VARIÂNCIA	PROPORÇÃO ACUMULADA
PC1	2.80	0.39	0.39
PC2	1.18	0.07	0.46
PC3	1.16	0.07	0.53
PC4	1.12	0.06	0.59
PC5	1.05	0.06	0.65
PC6	1.00	0.05	0.70
PC7	0.88	0.04	0.74
PC8	0.83	0.03	0.77
PC9	0.81	0.03	0.80
PC10	0.76	0.03	0.83
PC11	0.74	0.03	0.86
PC12	0.71	0.03	0.89
PC13	0.67	0.02	0.91
PC14	0.61	0.02	0.93
PC15	0.58	0.02	0.94
PC16	0.56	0.02	0.96
PC17	0.50	0.01	0.97
PC18	0.48	0.01	0.98
PC19	0.43	0.01	0.99
PC20	0.39	0.01	1.00

Na literatura,[15,17,18] recomenda-se utilizar cargas fatoriais cuja soma resulta em um valor acima de 0.9, e no pior dos casos, acima de 0.8. Porém, para o conjunto de dados, teríamos que utilizar, no mínimo, 9 fatores, o que na prática, não resolveria o problema de redução dos dados. Passamos, então, para o critério do Screeplot da matriz de correlação, onde eliminamos os fatores relacionados a autovalores maiores do que 1. O próximo gráfico apresenta esse critério:

Gráfico 1 – Screeplot



Obs. Deve-se observar no gráfico as componentes em que os pontos estão acima da linha vermelha e cuja variância são maiores que 1, pois essas são as componentes consideradas relevantes.

Por esse critério, devemos utilizar 5 fatores, e neste caso, as comunalidades das variáveis são apresentadas na tabela abaixo:

Tabela 3 – Comunalidades dos itens para 5 fatores

EDF.1	**EDF.2**	**EDF.3**	**EDF.4**	**EDF.5**
0.754	0.795	0.744	0.580	0.736
EDF.6	**EDF.7**	**EDF.8**	**EDF.9**	**EDF.10**
0.604	0.661	0.658	0.681	0.568
EDF.11	**EDF.12**	**EDF.13**	**EDF.14**	**EDF.15**
0.458	0.688	0.703	0.757	0.760
EDF.16	**EDF.17**	**EDF.18**	**EDF.19**	**EDF.20**
0.630	0.300	0.599	0.645	0.630

Analisando as comunalidades, observa-se que duas perguntas deveriam ser excluídas por apresentar comunalidade menor que 0.5.

O terceiro critério utilizado para encontrar o número de fatores foi a Análise Paralela. Por esse critério, o número de fatores encontrado foi igual a 1, o que não permite verificar as cargas fatoriais de forma adequada, sendo por isso, deixado de lado.

Assim sendo, após as três análises, optamos pelo resultado do Screeplot que aponta para 5 fatores e a retirada de 2 itens da escala (as questões retiradas constam da "Discussão" deste estudo).

A última etapa do estudo foi calcular o Alfa de Cronbach,[19] a fim de medir a consistência interna do questionário. O valor encontrado foi 0.908, o que pela literatura[17] é considerado bom e que significa que as questões da escala apresentam alinhamento entre si, qualificando-a como positiva para medir a dependência do Facebook.

4 DISCUSSÃO

O conjunto de dados obtidos com a coleta mostrou-se satisfatório considerando o número de itens da escala (inicialmente com 20 itens) e o número de questionários válidos (200).

A consistência interna pelo Alpha de Cronbach[19] apresentou valor de 0,908, indicando alinhamento das perguntas e níveis satisfatórios da estruturação da escala para medir a dependência do Facebook.

A análise fatorial pode ser realizada devido ao baixo valor p-valor no teste de esfericidade de Bartlett, indicando que existe correlação entre as variáveis, permitindo a criação dos fatores.

Pelo critério do KMO foi confirmada a adequação da analise fatorial com 18 dos 20 itens da escala com valores acima de 0.8, que é considerado satisfatório.

Pelo critério da Análise Paralela, as cargas fatoriais apresentaram número de fatores iguais a 1 e não puderam ser verificadas de forma adequada. Por isto, realizamos uma investigação mais precisa através do ScreePlot que indicou 5 fatores e a retirada de 2 itens da escala por apresentarem comunalidade inferior a 0.5.

Após todas as análises realizadas na escala inicial com 20 questões, foram excluídas do questionário original duas perguntas: "Com que frequência você acredita em tudo o que é postado no Facebook?" e "Com que frequência você

costuma jogar no Facebook?", por apresentarem comunalidade inferior a 0.5. A exclusão das duas perguntas citadas não gerou prejuízo ao instrumento, já que as outras questões restantes mediram com eficiência as dimensões da dependência, assim a escala se tornou mais adequada aos objetivos da proposta de avaliar a dependência do facebook.

Consideramos como limitação do estudo a realização da pesquisa no Rio de Janeiro através de atendimento gratuito, uma vez que a amostra poderia apresentar algum viés específico sociodemográfico. Outra limitação é a falta de instrumento similar para que pudéssemos fazer uma comparação.

Sugerimos a realização de estudos futuros para que possamos aperfeiçoar o modelo original, tornando-o mais preciso e eficaz.

5 CONCLUSÃO

Os resultados estatísticos demonstraram que os itens da versão final da escala apresentaram alinhamento entre si, qualificando-a como positiva para medir a dependência do Facebook, agora validada, com 18 itens. A versão final pode ser utilizada como escala para avaliar a dependência do Facebook em pesquisas específicas desta natureza.

Novas pesquisas utilizando a presente escala permitirão a ampliação de sua validade para a avaliação de dependência de usuários do Facebook, além de possibilitar eventuais comparações entre os resultados de cada pesquisa.

Author Contribution

E Guedes: revisou a literatura, aplicou as escalas e escreveu o presente artigo.

M K Pádua: aplicou as escalas, trabalhou no banco de dados e escreveu o presente artigo.

H K Santos: analisou estatisticamente e escreveu o presente artigo.

D Rodrigues: analisou estatisticamente e escreveu o presente artigo.

L L Gonçalves: escreveu o presente artigo.

F L Guimarães: aplicou as escalas, trabalhou no banco de dados e escreveu o presente artigo.

A E Nardi: Co orientou e escreveu o presente artigo.

A L S King: orientou, planejou, aplicou as escalas, trabalhou no banco de dados, escreveu o presente artigo.

Conflict of Interest

All authors declare no conflict of interest.

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Referências

1- Ziaul Haq Abbas, Fazal Muhammad, Lei Jiao, "Analysis of Load Balancing and Interference Management in Heterogeneous Cellular Networks", *Access IEEE*, vol. 5, pp. 14690-14705, 2017, ISSN 2169-3536.

2- Bell telefone Laboratories. Wikipédia. Acess May, 2018. https://pt.wikipedia.org/wiki/Bell_Labs

3- - King ALS, Nardi AE, Cardoso A (Organizadores). Nomofobia - Dependência do computador, internet, redes sociais? Dependência do telefone celular? O impacto das novas tecnologias interferindo no comportamento humano. Editora Atheneu, RJ, 2015.

4- King ALS, Guedes E, Nardi AE. Etiqueta Digital. Porto Alegre: EducaBooks,2017.

5- King AL, Nardi AE. Novas tecnologias: uso e abuso. In: Associação Brasileira de Psiquiatria; Nardi AE, Silva AG, Quevedo JL, organizadores. PROPSIQ Programa de Atualização em Psiquiatria: Ciclo 3. Porto Alegre: Artmed/ Panamericana; 2013. p. 9-27. (Sistema de Educação Médica Continuada a Distância, v. 2).

6- King ALS, Pádua MK, Guedes E, Nardi AE. Ergonomia Digital. Porto Alegre: EducaBooks, 2018.

7- King ALS, Valença AM, Silva AC, Sancassiani F, Machado S, Nardi AE. Nomophobia: Impact of Cell Phone Use Interfering with Symptoms and Emotions of Individuals with Panic Disorder Compared with a Control Group Clinical Practice & Epidemiology in Mental Health, 2014, 10, 28-35.

8- Nardi AE; Silva ACO; Valença AM. ; King ALS; Sardinha, A ; Martiny, C ; Dias, G ; Carvalho M R; Baczynski T; Coutinho F . et al. Transtorno de Pânico Teoria e Clínica. 1ª. ed. Porto Alegre: Artmed, 2012. v. 1. 202p.

9- King ALS, Valença AM, Nardi AE. Nomophobia: The Mobile Phone in Panic Disorder With Agoraphobia Reducing Phobias or Worsening of Dependence? Cog Behav Neurol .(23); 1, 52-54, 2010.

10- Associação Americana de Psiquiatria DSM-IV-TR. Manual Diagnóstico e Estatístico de Transtornos mentais. 5ª edição, Artes Médicas, Porto Alegre, 2000.

11- Guedes E, Nardi AE, Guimarães FMC, Machado S, King ALS. Social networking, a new online addiction: a review of Facebook and other addiction disorders. Medical Express 2016, 3 (1): M 160101. DOI: 10.5935.

12- Gonçalves LL. Dependência Digital: tecnologias transformando pessoas, relacionamentos e organizações. Barra Livros, RJ, 2017.

13- IAT -The Center for Internet Addiction Recovery, Copyright 2009-2010 by The Center for Internet Addiction; Web Site Designed by Next Sunrise Studios, Bradford PA.

14- R Core Team (2017). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.

15- Hadley Wickham, Romain Francois, Lionel Henry and Kirill Müller (2017). dplyr: A Grammar of Data Manipulation. R package version 0.7.4. https://CRAN.R-project.org/package=dplyr

16- Bruno Falissard (2012). psy: Various procedures used in psychometry. R package version 1.1. https://CRAN.R-project.org/package=psy

17- Alexis Dinno (2012). paran: Horn's Test of Principal Components/Factors. R package version 1.5.1. https://CRAN.R-project.org/package=paran.

18- Hatzinger, R., Hornik, K., Nagel, H., & Maier, M. J. (2014). R: Einführung durch angewandte Statistik (2nd ed.). München: Pearson Studium.

19- HAIR et al. Fundamentos de métodos de pesquisa em administração. Tradução: Lene Belon Ribeiro. Porto Alegre: Bookman, 2005.

Anexo 1- Versão final validada:

Escala para avaliar a dependência do Facebook (EDF)

Data:-----/----/------ Idade:----------

Nome Voluntário:- ----------

Sexo: F ( ) M ( )

Trabalha: Sim ( ) Não ( )

Desempregado: Sim ( ) Não ( )

Grau de Instrução: ( ) Médio ( ) Superior ( ) Pós-graduação ( ) Mestrado

( ) Doutorado

Assinatura do Voluntário:----------

E-mail:----------

Tels.----------

Entrevistador**:** ----------

O teste é uma escala com 18 perguntas que medem os níveis leve, moderado e grave de dependência do Facebook.

Insira ao lado da questão o número correspondente à resposta. Sendo:

a- Nunca/Raramente (0)

b- Frequentemente (1)

c- Sempre (2)

Questões:

1. Com que frequência você usa o Facebook ao longo do seu dia?
2. Com que frequência você sente necessidade de acessar o Facebook?
3. Com que frequência você sente ansiedade quando percebe que está sem acesso ao Facebook?

4. Com que frequência você sente algum tipo de desconforto físico, como aperto no peito, bolo na garganta, palpitação, falta de ar ou tontura quando percebe que está sem o acesso ao Facebook?
5. Com que frequência você tem medo de ficar sem o Facebook para se relacionar?
6. Com que frequência você se sente rejeitado quando ninguém “Curte” ou compartilha algo que você postou no Facebook?
7. Com que frequência você se sente desvalorizado ou pouco importante quando vê que seus amigos recebem mais “Curtidas” do que você no Facebook?
8. Com que frequência você deixa de fazer atividades na vida real como praticar exercícios físicos ou outras para ficar na realidade virtual do Facebook?
9. Com que frequência você costuma postar comentários no Facebook?
10. Com que frequência você costuma postar fotos suas em vários locais ou em várias situações no Facebook?
11. Com que frequência você consulta o Facebook no seu dispositivo mesmo quando está com amigos ou com o seu par?
12. Com que frequência você consulta o Facebook mesmo quando está com a sua família?
13. Com que frequência você convida pessoas que conhece para ser seu amigo no Facebook?
14. Com que frequência você aceita ser “Amigo” de quem não conhece ou convida quem não conhece para ser seu “Amigo” no Facebook?
15. Com que frequência você tem a necessidade de se destacar postando fotos do seu corpo no Facebook?
16. Com que frequência você para melhorar a sua autoestima posta fotos mostrando uma realidade um pouco diferente da sua vida real?
17. Com que frequência você se sente deprimido quando vê no Facebook que os seus amigos têm uma vida mais interessante do que a sua?
18. Com que frequência você usa o Facebook para evitar a sensação de estar só?

Resultados:

Depois de ter respondido a todas as questões, some os números que selecionou para cada resposta para obter uma pontuação final. Quanto mais alta for à pontuação, maior será o nível de dependência do Facebook e os problemas relacionados.

Abaixo os valores referentes aos pontos obtidos na sua pontuação:

Até 6 pontos: Você é um utilizador sem sinais de uso abusivo do Facebook e com total controle sobre a sua utilização.

7 - 16 pontos: Leve - Você apresenta sinais de uma possível dependência do Facebook em nível leve. Começa a ter problemas ocasionais devido ao início do uso abusivo do Facebook em certas situações. Pode vir a apresentar impactos futuros na sua vida pessoal, social, familiar, profissional ou acadêmica por ficar utilizando o Facebook com maior frequência do que o necessário. Fique atento para que o uso abusivo do Facebook não traga prejuízos para a sua vida.

17 - 26 pontos: Moderado - Você apresenta sinais de uma possível dependência do Facebook em nível moderado. Começa a ter problemas frequentes devido ao uso abusivo do Facebook em diversas situações. Deve considerar e avaliar os impactos na sua vida pessoal, social, familiar, profissional ou acadêmica por ficar utilizando o Facebook com maior intensidade do que o recomendado. Deve aprender a lidar com o Facebook de modo mais consciente.

27 - 36 pontos: Grave - A utilização do Facebook já está causando problemas significativos na sua vida em nível grave. Deve avaliar as consequências destes impactos que podem já estar causando prejuízos físicos e emocionais nas áreas pessoal, social, familiar, profissional ou acadêmica, comprometendo de modo significativo a sua qualidade de vida. Recomendamos procurar uma orientação através de ajuda profissional em centros especializados.

ARTIGO 4 – Does the excessive use of Internet and Facebook define dependency? A study about the relation between sedentary lifestyle, time of use and internet addiction

Guedes E, Nardi AE, Pádua MSKL, Guimarães FMCL, Campos CMRS, Bertrand E, King ALS.

Does the excessive use of Internet and Facebook define dependency? A study about the relation between sedentary lifestyle, time of use and internet addiction

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Summary

Social networks have brought deep changes in the society behavior. Since we wake up, we have been using our virtual pages as a source of information, communication and entertainment. The Facebook is the most accessed network in the world with more than 2,2 billion registers, while Brazil has more than 130 million users. However, the limits between the recreational use and the pathological are very tenuous and problems in real life have been observed as of its abusive use or dependent use. **Objective:** Identify the associations between time of use and the body mass index (BMI) with the abusive or dependent internet use. **Methods:** The Internet Addiction Test (IAT) and a questionnaire to record age, sex, marital status, schooling level, income level, screen time, weight and height (BMI), occupation, housing (state and city) were applied in a valid randomized sample of 6,698 individuals over 34 months from July, 2015 to April, 2018. **Results:** The results were satisfactory through the statistical evaluations performed in the study, and the attributes Time of Use and Body Mass Index (BMI) have good association with the IAT Score. **Conclusions:** We concluded that there is a tendency of abusive or dependent use of the internet for Facebook users with longer time of usage (range ¨over 10 hours¨) and BMI altered (ranges ¨malnutrition¨, ¨pre-obesity¨ or ¨obesity¨). However, the study didn´t prove a cause-effect relationship among the attributes. In practice, the time spent on internet does not define dependence, but it must work as an alert of a possible indicative of abusive or dependent use.

Keywords: digital dependence; human behavior; Facebook; social network; BMI.

1 INTRODUCTION

Social networks have brought deep changes in the society behavior[1]. Since we wake up, we have been using our virtual pages as a source of information, communication and entertainment[1]. Studies[2,3] show that the Facebook is the most accessed network in the world with more than 2,2 billions of registers. Brazil has more than 130 million active and frequent users of Facebook being the fourth country in number of registers, behind India, EUA and Indonesia[3].

Surely, it is important to register the benefits and progress that these new digital platforms provide. The technologies always served the society with the purpose of

nurturing human relations, reduce distances or optimize the time[1]. However, the abusive use may generate the opposite effect[1,4]. There are clinical reports[5,6,7] of patients that complain about the lack of focus and performance, describing the feeling of ¨pseudo presence¨ when they are in the same physical space, but focused on their smartphone screens. Actually, clinical evidences indicate[6,7] that the problem is not the technology itself, but rather the way that people relate to it: the wife who complained about her husband for the message which was not answered at the same moment he read it; the family that didn´t talk each other during the dinners because each one preferred to stay immersed in the particular world of their devices and apps; the young boy who didn´t graduate because he lost hours of sleep during the dawn in his endless navigations in the Facebook wall.

The limits among satisfaction and dependency are very tenuous, and some studies[8,9] suggested five criteria to identify a person with internet dependence: (i)excitement and security (feeling of satisfaction after browsing on the social networks or even like a way to feel more secure); (ii) relevance (the social networks are considered more important than the real life; iii) tolerance (the time dedicated for internet browsing and how long he can tolerate its lack); (iv) abstinence and its effects (usually, the dependents become angry, anxious or sad when they are offline, generating alterations in the pattern of sleep or feeding, negligence with hygiene and even signs of depression and anxiety); (v) evidence of conflicts in real life (problems of relationship in real life with family or friends. Usually, only at this moment, they do realize the existence of the problem and ask for a professional support). The objective of this study is to define the relation between sedentariness, screen time and internet dependency, identifying if the excessive use or the body mass index (BMI) are parameters that define variations on the Internet Addiction test (IAT).

2 METHOD

This research was developed by the Delete Group - Conscious Use of Technologies, in the psychiatry institute of the Federal University of Rio de Janeiro (UFRJ), aiming to size the population with internet dependence among Facebook users. We used a valid randomized sample of 6,698 individuals during 34 months, from July, 2015 to April, 2018. We considered as inclusion criteria to participate in the

study only active users of Facebook who were born in Brazil and still live in the country, from any occupation, sex and age. As exclusion criteria, we do not consider Brazilian living abroad, illiterate volunteers or individuals with some kind of mental Impairment that prevented their participation.

The Internet Addiction Test (IAT)[4] was used to evaluate Internet dependence and a socio-demographic questionnaire was filled to record age, gender, marital status, schooling, income, time spent on Internet, weight and height (BMI), position, housing (State/City), registration information, and e-mail.

We used the weight and the height informed by each participant to calculate the Body Mass Index (BMI), through the formula [(weight in kg)/(height in m)²] and classified according to the literature classification[11]: malnutrition (under 18,5 points); normal (from 18,5 to 24,9 points); pre- obesity (from 25 to 29,9 points); obesity (over 30 points).

The IAT, developed and validated by Dra. Kimberly Young[11], is a questionnaire with 20 items and 6 options of answer (1= rarely, 2= sometimes, 3= less frequently, 4= usually, 5= Always and 0= not applied) that measures the internet dependence. The sum of points of each answer generates a final score. The level of dependence increases according to the growth in scores.

We defined as a control group all individuals with IAT score up to 49 points, who were considered as "Conscious Use" (Group 1); individuals with an IAT score between 50 to 79 points were classified as "Abusive Use" (Group 2); individuals with an IAT score with 80 points or above were considered as "Dependent Use" (Group 3).

We made available online an electronic form for filling in Facebook, and the average answer time lasted about 5 to 10 minutes per person. The research was released on social networks and websites.

After the volunteer had answered all the questions, the program automatically calculated and reported the result with the IAT score, in addition of registering the score in the database. The volunteer had access to the result of his test only, immediately after completing the research, automatically and online.

An explanation of the study and its objectives was given to all participants, who accepted online their participation and the "Voluntary Informed Term" (TCLE), taking into account all the procedures approved by the Ethics Committee for Research

(CEP) of the Institute of Psychiatry of Federal University of Rio de Janeiro (IPUB/UFRJ) according to the Declaration of Helsinki (1964).

All the volunteers who completed the survey received through internet the instructions for the conscious use of technology through the 10 steps from Delete Group. Volunteers who presented dependence or abusive use also received through internet the information, such as address (Av. Venceslau Brás, 95, Campus da Praia Vermelha, Cep: 22.290-140, Rio de Janeiro-RJ) and working hours, (every Friday from 08:00 a.m. to 11:00 a.m.) for free medical and psychological evaluation at the IPUB/UFRJ, if they were interested in the continuation of a possible treatment in Rio de Janeiro.

3 STATISTICAL ANALYSIS

The chi-square test was used to compare the time spend on screen and the level of digital dependency. Also, the association between the Body Mass Index (BMI) and the time spend on screen was analysed by the Spearman correlation test, separately for each group based on the IAT score (normal, abusive and addiction), For both analysis, significance was defined as a p value <0.05 and calculations were made with the help of SPSS computer software.

4 RESULTS

The table 1 shows the results of the statistics described in the sample. The table presented the absolute number of elements and the proportion in its group for each characteristic.

Table 1 – Sample Descriptive Statistics

SEX	Male	Female	Total
Group 1 (Conscious Use)	3.184 (66,5%)	1.605 (33,5%)	**4.789 (100%)**
Group 2 (Abusive Use)	1.132 (69,2%)	502 (30,7%)	**1.634 (100%)**
Group 3 (Dependent Use)	175 (63,6%)	100 (36,3%)	**275 (100%)**
Total	**4491 (67,1%)**	**2207 (32,9%)**	**6698 (100%)**

AGE RANGE	< = 18	19 - 25	26-30	31-40	41-50	51-70	More than 70 years	Total
Group 1 (Conscious Use)	1783(37,2%)	1379(28,7%)	564 (11,7%)	551 (11,5%)	311(6,4%)	195(4,0%)	6 (0,1%)	**4789 (100%)**
Group 2 (Abusive Use)	785 (48,0%)	495 (30,2%)	155 (9,4%)	137 (8,3%)	29 (1,7%)	29 (1,7%)	4 (0,2%)	**1634 (100%)**
Group 3 (Dependent Use)	143 (52,0%)	73 (26,5%)	24 (8,7%)	20 (7,2%)	11 (4,0%)	1 (0,3%)	3 (1,0%)	**275 (100%)**
Total	**2711(40,4%)**	**1947 (29%)**	**743 (11%)**	**708 (10,5%)**	**351 (5,2%)**	**225 (3,3%)**	**13 (0,1%)**	**6698 (100%)**

EDUCATIONAL LEVEL	Basic Education	Incomplete Higher	Graduated	Post Graduated	Total
Group 1 (Conscious Use)	1.812 (37,8%)	1.647 (34,4%)	796 (16,6%)	534 (11,2%)	**4.789 (100%)**
Group 2 (Abusive Use)	759 (46,4%)	568 (34,7%)	210 (12,8%)	97 (5,9%)	**1.634 (100%)**
Group 3 (Dependent Use)	156 (56,7%)	80 (2,9%)	26 (9,4%)	13 (4,7%)	**275 (100%)**
Total	**2727 (40,7%)**	**2295 (34,2%)**	**1032 (15,4%)**	**644 (9,6%)**	**6698 (100%)**

MARITAL STATUS	Single	Married	Divorced	Widower	Total
Group 1 (Conscious Use)	3.687 (77,0%)	978 (20,4%)	105 (2,2%)	19 (0,4%)	**4.789 (100%)**
Group 2 (Abusive Use)	1382 (84,5%)	225 (13,7%)	22 (1,3%)	5 (0,3%)	**1.634 (100%)**
Group 3 (Dependent Use)	233 (84,7%)	35 (12,7%)	3 (1,0%)	4 (1,4%)	**275 (100%)**
Total	**5302 (79,1%)**	**1238 (18,4%)**	**130 (1,9%)**	**28 (0,4%)**	**6698 (100%)**

INCOME RANGE	Up to R$ 1.000	From R$ 1.001 until 2.500	From R$ 2.501 until 5.000	From R$ 5.001 until 10.000	From R$ 10.001 until a 20.000	Higher than R$ 20.000	Total
Group 1 (Conscious Use)	2130(44,4%)	989 (20,6%)	918 (19,1%)	465 (9,7%)	173 (3,6%)	114 (2,3%)	**4.789(100%)**
Group 2 (Abusive Use)	866 (52,9%)	297 (18,1%)	271 (16,5%)	101 (6,1%)	51 (3,1%)	48 (2,9%)	**1.634(100%)**
Group 3 (Dependent Use)	155 (56,3%)	47 (17,0%)	31 (11,2%)	15 (5,4%)	8 (2,9%)	19 (6,9%)	**275 (100%)**
Total	**3151 (47%)**	**1333(19,9%)**	**1220(18,2%)**	**581 (8,6%)**	**232 (3,4%)**	**181 (2,7%)**	**6698(100%)**

Time on screen and Dependency: The study identified a significant association between the time spend in front of the screen and the dependency level ($\chi 2$ (6) = 887.34, $p < .001$). This seems to represent the fact that the odds of participants presenting a digital addiction were higher when they spent more time in front of the screen (Tables 2 and 3).

BMI, Time on screen and Dependency: For the "Addiction" group, there was a positive correlation between the BMI and the time spend on monitor, which was statistically significant ($r_s = .13$, $p = .02$). For the "Normal" and "Abusive" groups,

there was no correlation between the BMI and the time spend on monitor (r_s < -.01, p = .47 for the “Normal” group; r_s = .03, p = .10 for the “Abusive” group).

Table 2 – IAT, BMI and Percentage of participants in each group of the IAT classification based on the reported time on screen (in hours)

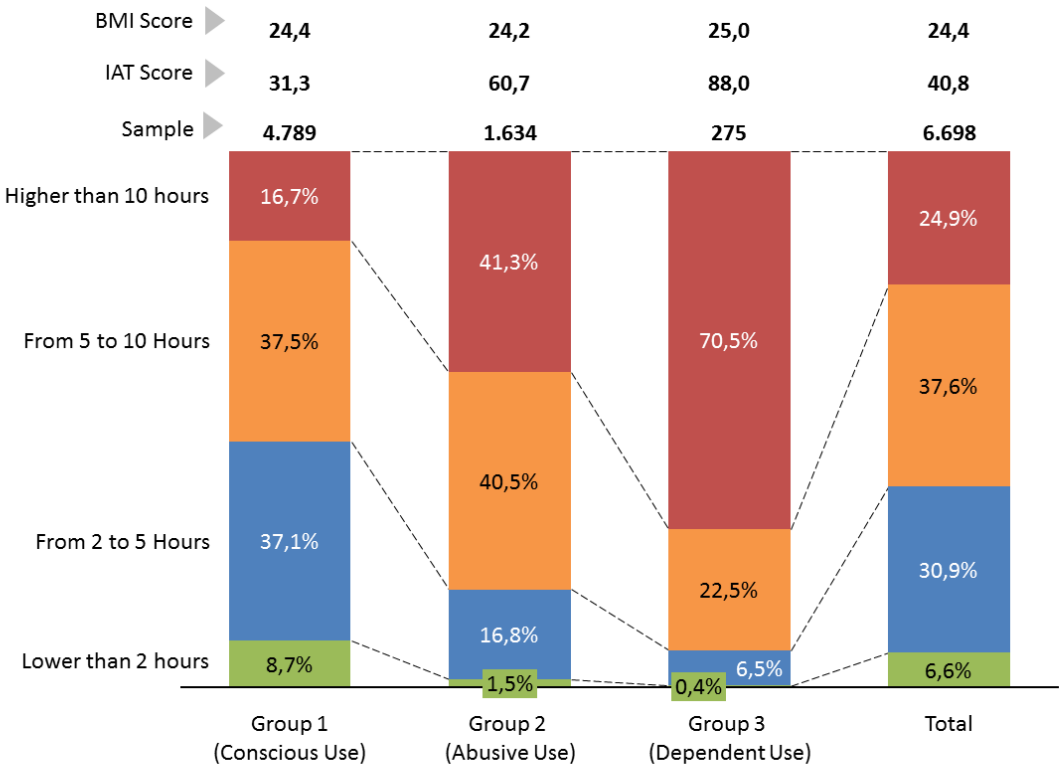
		Lower than 2 hours	From 2 to 5 hours	From 5 to 10 hours	Higher than 10 hours	Total
Distribution by sample	Group 1 (Conscious Use)	415 (8,6%)	1779 (37,14%)	1795 (37,48%)	800 (16,7%)	**4789 (100%)**
	Group 2 (Abusive Use)	24 (1,46%)	274 (16,76%)	661 (40,45%)	675 (41,3%)	**1634 (100%)**
	Group 3 (Dependent Use)	1 (0,36%)	18 (6,54%)	62 (22,54%)	194 (70,54%)	**275 (100%)**
	Total	**440 (6,56%)**	**2071 (30,91%)**	**2518 (37,59%)**	**1669 (24,91%)**	**6698 (100%)**
IAT score by item	Group 1 (Conscious Use)	20,2	29,6	33,8	35,1	**31,3**
	Group 2 (Abusive Use)	57,5	58,7	60,1	62,2	**60,7**
	Group 3 (Dependent Use)	102	86,7	85	89	**88**
	Total	**22,5**	**34**	**42**	**52,3**	**40,8**
BMI Score by Group	Group 1 (Conscious Use)	24,9	24,3	24,2	25,1	**24,4**
	Group 2 (Abusive Use)	22,5	24,2	23,9	24,6	**24,2**
	Group 3 (Dependent Use)	20,7	23,8	24,2	25,4	**25,0**
	Total	**24,8**	**24,3**	**24,1**	**24,9**	**24,4**

Table 3 – IAT and Percentage of participants in each group based BMI classification

		Not Declared	Mal-nutrition	Normal	Pre-Obesity	Obesity	Total
Distribution by Group	Group 1 (Conscious Use)	460 (9,6%)	357 (7,45%)	2282(47,65%)	1127 (23,53%)	563 (11,75%)	**4789 (100%)**
	Group 2 (Abusive Use)	216 (13,21%)	153 (9,36%)	765 (46,81%)	312 (19,09%)	188 (11,5%)	**1634 (100%)**
	Group 3 (Dependent Use)	49 (17,81%)	22 (8%)	106 (38,54%)	63 (22,9%)	35 (12,72%)	**275 (100%)**
	Total	**725 (10,82%)**	**532 (7,94%)**	**3153 (47,07%)**	**1502(22,42%)**	**786 (11,73%)**	**6698 (100%)**
IAt Score by Group	Group 1 (Conscious Use)	31,6	32,2	31,6	30,6	30,5	**31,3**
	Group 2 (Abusive Use)	61,8	60,6	60,2	60,9	61,2	**60,7**
	Group 3 (Dependent Use)	90,7	87,7	87,4	86,7	88,3	**88,0**
	Total	**44,6**	**42,7**	**40,4**	**39,2**	**40,4**	**40,8**

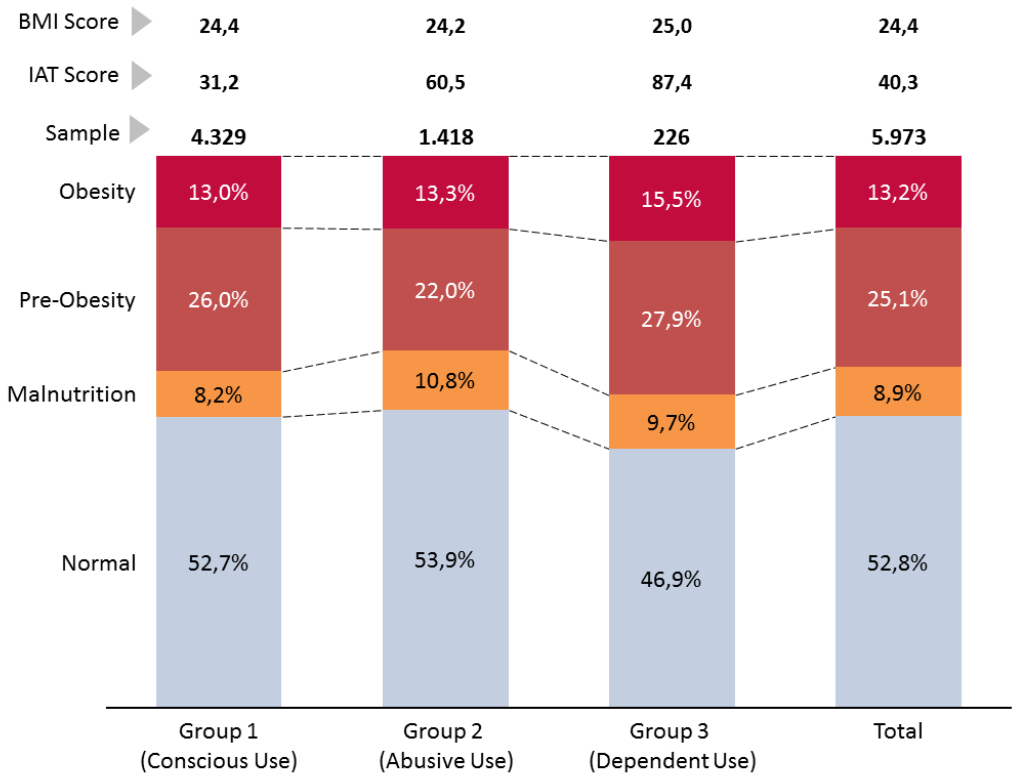
As illustrated in the graphs 1 and 2, there is a relation of tendency between the attributes “time on screen” and “BMI Score” with “IAT Score”: individuals with dependency (Group 3) present a higher proportion of altered BMI and a longer time of use in relation to the other groups.

Graph 1 – IAT, BMI and Sample distributed by Time of Use



Graph 2 - IAT and Sample distributed by BMI Classification

(disregarding the "undeclared" range in the BMI)



5 DISCUSSION

The study validates the obtained results, due to the sample size (6,698 individuals) and the evaluation period (34 months). The statistic tests performed confirmed high level of association between the variables time of use, BMI and the classification in the IAT.

The volunteers were randomized among the groups according to the IAT score resulting of their own answers. The IAT were used as instrument in this research and it was properly translated and validated with an internal satisfactory consistency to measure the internet dependency (0,85).

The results indicated a relation of tendency between the BMI, screen time and dependency. Group 3 (dependent use) presented a higher proportion of individuals with altered BMI and longer time of use. However, it is not correct to declare there is a cause-effect relationship between the attributes. We also found users with opposite relation between these variables (example: individuals with high time of use and low

score on the IAT; low time of use and high IAT score; low score IAT and altered BMI; or height IAT score and normal BMI). In practice, although the tendency found, the time does not define dependency, but must serve as an alert of a possible indicative of abusive or dependent use.

The weight and height information were declared by the participants, what could represent possible bias. For a more secure statistical analysis, we made a treatment in the database, excluding 725 outliers that presented registers of weight and height out of range and reclassified these cases as ¨not declared¨.

The releasing of the internet research for online filling up may generate possible bias in the gathering and interpretation of the datas. To minimize impacts, we reduced the original sample by 50%, excluding registers with incomplete data, blank or repeated. We also excluded questionnaires that were sent from the same IP number of the source device (Smartphone, Notebook, Desktop or Tablet) to avoid counting error. Finally, we included in group 3 (¨dependent¨) only individuals with a high IAT score (above 80 points), as described in the literature, ensuring greater safety in the statistical analysis. Although the current theme is worldwide relevant, we did not find similar researches.

Other studies[12,13,14] indicate that the mechanism of pleasure experimented through social network stimulates a certain area of the brain known as cerebral cortex; and activates a system of reward equivalent to feeding, sleeping or making sex. The abusive use of these technologies activates the neurobiological system similar to the stimulated in the consumption of alcohol and drugs, releasing in the body substances such as dopamine, oxytocin, endorphin and serotonin that a feeling of pleasure. However, in practice, the abusive or dependent user starts to slowly substitute the relations in the real life through the virtual world and starts to have a repetitive behavior on the internet in search of the same sensations of pleasure experienced before depriving from outdoor and real activities, physical exercises and a more balanced feeding. This may explain why the group of users with dependency presented a bigger time on screen and Body Mass index altered.

We consider as a limitation of the study the performance of the research on the internet without performing a clinical assessment in person to confirm the diagnosis suggested from the IAT classification.

6 CONCLUSION

The attributes Time of Use and Body Mass Index presented a good association with the IAT score and we concluded that there is a tendency of abusive or dependent use of the internet for Facebook users with longer time of use (range ¨over 10 hours¨) and BMI altered (ranges ¨malnutrition¨, ¨pre-obesity¨ or ¨obesity¨).

However, we did not find a relation of causality between theses variables. In fact, despite the tendency found, the time does not define dependency, but must serve as an alert for a possible Indication of abusive or dependent use.

Future researches are recommended to find the mechanisms that produce internet dependency on Facebook users. A deeper investigation is necessary to determine if the abusive and dependent use of the internet and Facebook is a new psychiatric classification or simply the substrate of other disorders.

Conflict of interest

Authors declare they have no conflict of interest.

Acknowledgments

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References

(1) King ALS, Nardi AE, Cardoso A (Organizadores). Nomofobia - Dependência do computador, internet, redes sociais? Dependência do telefone celular? O impacto das novas tecnologias interferindo no comportamento humano. Editora Atheneu, RJ, 2014.

(2) The Statistics Portal (2018). Retrieved June 27, 2018, from http:// www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/

(3) Facebook (2018). Company info: Facebook newsroom. newsroom.fb.com. Retrieved June 27, 2018, from http://newsroom.fb.com/company-info/

(4) Guedes E, Sancassiani F, Carta MG, Campos C, Machado S, King ALS, Nardi AE. Internet addiction and excessive social networks use: what about facebook? Clinical Practice & Epidemiology in Mental Health, 2016,12,43-48. DOI: 10.2174/174501790162010043.

(5) Guedes E, Nardi AE, Guimarães FMC, Machado S, King ALS. Social networking, a new online addiction: a review of Facebook and other addiction disorders. Medical Express 2016, 3 (1): M 160101. DOI: 10.5935.

(6) Nadkarni A, Hofmann SG. Why do people use Facebook? Pers Individ Dif. 2012;52(3):243-9. http://dx.doi.org/10.1016/j.paid.2011.11.007

(7) Young K. Facebook Addiction Disorder?. Bradford, PA, USA: The Center for Online Addiction 2009.

(8) Summers A. Facebook Addiction Disorder - The 6 Symptoms of F.A.D: Social Times; 2011

(9) Pies R. Should DSM-V Designate “Internet Addiction” a Mental Disorder? Psychiatry (Edgmont) 2009; 6(2): 31-7.

(10) Young KS. Caught in the net: How to recognize the signs of Internet addiction – and a winning strategy for recovery. New York, NY, 1998: John Wiley

(11) Associação Brasileira de Nutrologia, Retrieved June 27, 2018, from: http://abran.org.br/para-o-publico/calculadoras/artigos-parceiros/

(12) Schultz W. Getting formal with dopamine and reward. Neu¬ron. 2002;36(2);241-63. http://dx.doi.org/10.1016/S0896- 6273(02)00967-4

(13) Young KS. Internet Addiction: The Emergence of a New Clinical Disorder. CyberPsychology & Behavior. 1998 Jan;1(3):237–244. doi: 10.1089/cpb.1998.1.237.

(14) Nadkarni A, Hofmann SG. Why do people use Facebook? Pers Individ Dif. 2012;52(3):243-9. http://dx.doi.org/10.1016/j.paid.2011.11.007.

ARTIGO 5 – Factor Analysis and Validation of Internet Addiction Test (IAT)

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Factor Analysis and Validation of Internet Addiction Test (IAT)

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Abstract

Internet has become essential in our daily life, and social networks are an efficient platform of communication, information, and entertainment. Facebook is the world's most widely accessed social network, with more than 2 billion users and more than 130 million active registers in Brazil. At the same time, we have observed the impact of technology on human behavior from its abusive or dependent use, with serious losses in real life. It is necessary to validate and to adopt the instruments which can assess the level of dependence on new technologies. **Purpose:** To perform a factor analysis to validate the Internet Addiction Test (IAT) as an instrument to measure Internet dependence on Facebook users. **Methods:** Internet Addiction Test (IAT) was applied online jointly with a form to record sociodemographic data in a randomized sample of 6,698 individuals during 34 months. To analyze its reliability and internal consistency, we used Cronbach's alpha coefficient; to test the associations between the established factors and the risk variables, such as age and time spent online (both categorical), we used Spearman's correlation coefficients, which were calculated. **Results:** Results confirmed the IAT as a valid instrument from statistical analysis. The study identified two factors which explained 47.46% of the total variance and they were correlated with r = -68 ($p < 0.001$). The reliability of the total scale was very high with Cronbach's $\alpha total = 0.93$. **Conclusions:** The study validated the IAT 20-question Brazilian Portuguese version as a measurement tool to be used in the searches regarding Internet dependence on Facebook users.

Keywords: IAT; Digital dependence; human behavior; Facebook; Social media.

1 INTRODUCTION

Nowadays we are continuously exposed to the Internet and new digital platforms[1]. We use social networks as a mechanism of information, communication and entertainment[1]. Facebook has more than 2 billion users in the world and more than 130 million registers in Brazil, being the most accessed social network in the planet[2,3]. According to the studies[5,6], the dependence on social media, especially Facebook, is at the top of the digital addiction ranking and it is one of the most wanted topics on Internet search tools, being above searches concerning cigarette or alcohol addiction.

We are connected through our electronic devices, whether inside or outside home[1]. From these new platforms, the increasing use of Internet and social networks has created a new dynamic in social relationship[7]. However, the fine line between recreational and pathological use is very tenuous and it has been the subject of researches around the world[4,8].

Ivan K. Goldberg[7], an American psychiatrist, was one of the first researchers to talk about a possible Internet abuse in the 1990s and, later, he created the term Internet Addiction Disorder (IAD)[7], with references to real life problem, such as "idealizations and fanciful thoughts", "loss or abandonment of social and professional activities", among others.

Kimberly Young[4], Psychologist, published one of the first conceptual schemes on Internet dependence in the world, suggesting the beginning of a new disorder[4]. The survey was conducted with 496 individuals, of whom 396 reported losses with excessive time spent on Internet.

Internet Addiction Test (IAT)[4] was developed to assess the impact of excessive Internet use on an individual's life. It is composed of 20 questions with 6 answer options, ranging from 0 (not applicable) to 5 (always).

The purpose of this study is to perform a factor analysis in Brazilian Portuguese instrument to validate IAT scale as an instrument to measure Internet dependence on Facebook users.

2 METHOD

This research was developed at Delete Group - Uso Consciente de Tecnologi@s, in the Institute of Psychiatry of the Federal University of Rio de Janeiro (UFRJ), aiming to size the population with Internet dependence among Facebook users. We used a valid randomized sample of 6,698 individuals during 34 months, from July, 2015 to April, 2018. To participate in the study, we considered as inclusion criteria: Brazilian individuals of any position, gender and age, provided they active Facebook users and Brazilian resident. As exclusion criteria, Brazilian residents abroad, illiterate volunteers or individuals with some mental disability that impeded their participation were disregarded.

The Internet Addiction Test (IAT)[4] was used to evaluate Internet dependence and a socio-demographic questionnaire was filled to record age, gender, marital

status, schooling, income, time spent on Internet, weight and height (BMI), position, housing (State/City), registration information, and e-mail.

IAT, developed and validated by Dr. Kimberly Young[4], is a questionnaire with 20 items and 6 options of answers (1 = rarely, 2 = sometimes, 3 = often, 4 = usually, 5 = always and 0 = does not apply) which measures the dependence on Internet. The sum of points of each answer generates a final score.

We defined as a control group all individuals with IAT score up to 49 points, who were considered as "Conscious Use" (Group 1); individuals with an IAT score between 50 to 79 points were classified as "Abusive Use" (Group 2); individuals with an IAT score with 80 points or above were considered as "Dependent Use" (Group 3).

We made available online an electronic form for filling in Facebook, and the average answer time lasted about 5 to 10 minutes per person. The research was released on social networks and websites.

After the volunteer had answered all the questions, the program automatically calculated and reported the result with the IAT score, in addition of registering the score in the database. The volunteer had access to the result of his test only, immediately after completing the research, automatically and online.

An explanation of the study and its objectives was given to all participants, who accepted online their participation and the "Voluntary Informed Term" (TCLE), taking into account all the procedures approved by the Ethics Committee for Research (CEP) of the Institute of Psychiatry of Federal University of Rio de Janeiro (IPUB/UFRJ) according to the Declaration of Helsinki (1964).

All the volunteers who completed the survey received through internet the instructions for the conscious use of technology through the 10 steps from Delete Group. Volunteers who presented dependence or abusive use also received through internet the information, such as address (Av. Venceslau Brás, 95, Campus da Praia Vermelha, Cep: 22.290-140, Rio de Janeiro-RJ) and working hours, (every Friday from 08:00 a.m. to 11:00 a.m.) for free medical and psychological evaluation at the IPUB/UFRJ, if they were interested in the continuation of a possible treatment in Rio de Janeiro.

3 STATISTICAL ANALYZES

A reliability and internal consistency analysis was performed using Cronbach's alpha coefficient. To test the associations between the established factors and risk variables, such as age and time spent online (both categorical), the Spearman's correlation coefficients were used and calculated. To conduct the statistical analyzes, IBM SPSS version 21 and IBM AMOS version 24 were used.

The sample was then divided into two random sub-samples, one of which was used to investigate the factor structure with exploratory factor analysis and the other to cross-validate the factor solution using confirmatory factor analysis. IAT scores ranged from 19 to 102 (50.89 ± 19.53) in the total sample, from 19 to 102 (50.35 ± 19.73) in the "developmental" sample and also from 19 to 102 (51.46 ± 19.30) in the "validation" sample.

Although the IAT scale is strictly speaking ordinal, factor analyses were based on correlation matrices computed using Pearson's correlation coefficients. Pearson correlation coefficients would appear higher when calculated for continuous variables in comparison to the same variables when restricted to an ordinal scale, and factor loadings, as well as factor correlations could be modestly underestimated. Nevertheless, the alterations that result from the failure to address the ordinality of the data is negligible if the number of categories is five or more and the data approximates a normal distribution (particularly skewness < 1.0; Byrne, 2009), which is both true for the present data set.

The suitability of data for factor analysis was tested using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. Because the skewness (mean = 0.47, range = 1.01 to -0.16) and kurtosis (mean = -1.06, range = -1.52 to -0.31) of IAT items indicated moderate deviation from normal distribution but without showing severe violations of normality, Maximum Likelihood (ML) was chosen as extraction method (Olsson, Foss, Troye & Howell, 2000). The appropriate numbers of factors to extract was examined by means of Cattell's scree test (Cattell, 1966), Horn's parallel-analysis (Horn, 1965) and Velicer's minimum average partial (MAP) test (Velicer, 1976).

In order to distinguish underlying constructs, direct oblimin oblique rotation was employed to determine factor loadings. Items were assigned to the factor that produced the highest factor loading. We decided for a cut off > .30 which indicates at least 9 % of shared variance between the item and the factor.

Following the initial EFA, a CFA was conducted to test the fit of our factor structure in the other half-sample (N2 = 886) using ML estimator. Goodness-of-fit was tested with Chi-Square (χ2; a good model fit would provide a non-significant result), relative χ2 (χ2/df; Wheaton, Muthen, Alwin & Summers, 1977), Standardized Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI) and the Tucker Lewis Index (TLI). A good model fit is represented by a value smaller than 2.0 for the relative χ2 (Tabachnick & Fidell, 2007), a SRMR close to .08 or below, RMSEA values close to .06 or below and CFI and TLI values close to .95 or greater (Hu & Bentler, 1999).

4 RESULTS

Descriptive Statistics

Table 1 shows the results of the descriptive statistics of the sample. For each feature, the absolute number of elements with the feature and the proportion within its group was presented.

Table 1 – Sample Descriptive Statistics

SEX	Male	Female	Total
Group 1 (Conscious Use)	3.184 (66,5%)	1.605 (33,5%)	**4.789 (100%)**
Group 2 (Abusive Use)	1.132 (69,2%)	502 (30,7%)	**1.634 (100%)**
Group 3 (Dependent Use)	175 (63,6%)	100 (36,3%)	**275 (100%)**
Total	**4491 (67,1%)**	**2207 (32,9%)**	**6698 (100%)**

AGE RANGE	< = 18	19 - 25	26-30	31-40	41-50	51-70	More than 70 years	Total
Group 1 (Conscious Use)	1783(37,2%)	1379(28,7%)	564 (11,7%)	551 (11,5%)	311(6,4%)	195(4,0%)	6 (0,1%)	**4789 (100%)**
Group 2 (Abusive Use)	785 (48,0%)	495 (30,2%)	155 (9,4%)	137 (8,3%)	29 (1,7%)	29 (1,7%)	4 (0,2%)	**1634 (100%)**
Group 3 (Dependent Use)	143 (52,0%)	73 (26,5%)	24 (8,7%)	20 (7,2%)	11 (4,0%)	1 (0,3%)	3 (1,0%)	**275 (100%)**
Total	**2711(40,4%)**	**1947 (29%)**	**743 (11%)**	**708 (10,5%)**	**351 (5,2%)**	**225 (3,3%)**	**13 (0,1%)**	**6698 (100%)**

EDUCATIONAL LEVEL	Basic Education	Incomplete Higher	Graduated	Post Graduated	Total
Group 1 (Conscious Use)	1.812 (37,8%)	1.647 (34,4%)	796 (16,6%)	534 (11,2%)	**4.789 (100%)**
Group 2 (Abusive Use)	759 (46,4%)	568 (34,7%)	210 (12,8%)	97 (5,9%)	**1.634 (100%)**
Group 3 (Dependent Use)	156 (56,7%)	80 (2,9%)	26 (9,4%)	13 (4,7%)	**275 (100%)**
Total	**2727 (40,7%)**	**2295 (34,2%)**	**1032 (15,4%)**	**644 (9,6%)**	**6698 (100%)**

MARITAL STATUS	Single	Married	Divorced	Widower	Total
Group 1 (Conscious Use)	3.687 (77,0%)	978 (20,4%)	105 (2,2%)	19 (0,4%)	**4.789 (100%)**
Group 2 (Abusive Use)	1382 (84,5%)	225 (13,7%)	22 (1,3%)	5 (0,3%)	**1.634 (100%)**
Group 3 (Dependent Use)	233 (84,7%)	35 (12,7%)	3 (1,0%)	4 (1,4%)	**275 (100%)**
Total	**5302 (79,1%)**	**1238 (18,4%)**	**130 (1,9%)**	**28 (0,4%)**	**6698 (100%)**

The initial analysis of the “developmental” sample (N_1 = 927) produced a KMO index of .96 and the Bartlett test of sphericity was significant (χ^2 = 8827.73; df = 190; $p < 0.001$), showing that the sub-sample is adequate for use in the EFA.

Parallel analysis suggested two and twenty factors, depending on whether the analysis was based on principal component (PA-PCA) or principal factor (PA-PFA) eigenvalues, respectively. The eigenvalue of the second factor of the PA-PCA was only minimally smaller than the eigenvalue of the second factor of the real data (1.22 compared to 1.26). The difference was even smaller when the observed eigenvalue was compared with the 95th percentile instead of the mean of the eigenvalue generated from random data (1.25). The scree test supported the results of the PA-PCA by also suggesting a two-factorial solution. The results of the MAP-test indicated one component to retain according to the original MAP-test (Velicer, 1976), but two factors according to the revised MAP-test with the partial correlations raised to the fourth power instead of squared (Velicer, Eaton & Fava, 2000).

When analyzing the pattern matrix, item 7 did not load above .30 on one of the two factors and also showed very low communality of .15. Thus, the item was excluded from the analysis and a second EFA was computed, including only nineteen items.

This time, PA-PCA suggested the extraction of two factors, whereby the difference between random data and real data eigenvalues for the second factor was again very small (1.21 compared to 1.22). When considering the 95th percentile of the random data eigenvalue, only the first factor should be extracted. PA-PFA again indicated to retain all twenty factors. The scree test favored the extraction of two factors and thus supported the PA-PCA solution of the mean of the eigenvalues. The original as well as the revised MAP-test suggested the extraction of only one factor. In case of error, the MAP-test tends to underestimate the number of factors that should be extracted, whereas parallel analysis tends to overestimation (O’Connor, 2000). Therefore, we decided to extract two factors in the EFA, but to test both models, the one- and the two-factor solution, using a CFA.

The two factors explained 47.46 % of the total variance and were correlated with r = -.68 ($p < 0.001$). Factor loadings and characteristics are presented in table 1. Factor 1 (“Level of Satisfaction and Relevance”) consisted of fifteen items and explained 43.54 % of the total variance. Factor 2 (“Lost of Interest”) explained 3.92 % of the total variance and consisted of item 1, 2, 6 and 8.

Table 2 – Item characteristics and factor loadings after the EFA

Item	Mean	SD	Rotated factor loadings	
			Factor 1	Factor 2
Item 15	2.31	1.41	**.799**	.063
Item 11	2.62	1.50	**.789**	.040
Item 12	2.91	1.57	**.756**	.147
Item 13	2.43	1.46	**.749**	.048
Item 20	2.37	1.47	**.738**	.002
Item 10	2.62	1.51	**.692**	-.043
Item 19	2.49	1.48	**.691**	.008
Item 5	2.81	1.44	**.672**	-.018
Item 14	2.47	1.48	**.559**	-.172
Item 4	2.24	1.38	**.518**	.009
Item 16	3.05	1.47	**.514**	-.243
Item 9	2.36	1.47	**.497**	-.156
Item 18	2.41	1.49	**.492**	-.257
Item 3	2.07	1.34	**.444**	-.165
Item 17	2.72	1.47	**.399**	-.325
Item 8	2.36	1.35	-.007	**-.796**
Item 6	2.24	1.37	.026	**-.786**
Item 2	3.08	1.36	.370	**-.405**
Item 1	3.26	1.35	.227	**-.351**
Eigenvalues			8.79	1.22
% of variance			43.54	3.92

The higher of the two factor loadings are printed in bold.
Factor 1 = Level of Satisfaction and Relevance"
Factor 2 = "Lost of Interest"

Following this, two models were tested using CFA in the "validation" sub-sample based on the nineteen items (without item 7). Goodness-of-fit indices of Model 1 with one dimension and of model 2 (figure 1) with the two factors that were extracted in the EFA are shown in table 2.

Table 3 – Goodness-of-fit indices obtained from the CFA

Model	X^2	df	X^2/df	SRMR	RMSEA (90% CI)	CFI	TLI
Model 1 (one factor)	1198.43**	152	7.88	.06	.088 (.084 - .093)	.87	.85
Model 2 (two factors)	925.50**	151	6.13	.05	.076 (.071 - .081)	.90	.89

**p < 0.001

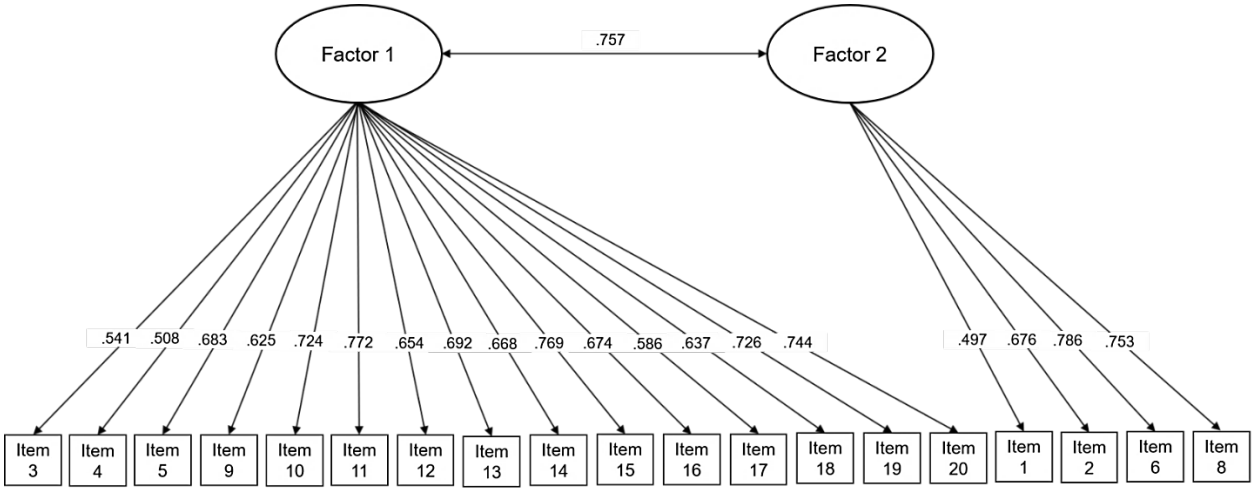

Figure 1 - CFA of IAT. Factor 1 = Level of Satisfaction and Relevance; Factor 2 = Lost of Interest. All standardized estimations were significant at $p < .001$.

Internal consistency was good for all scales. Factor 1 and factor 2 showed reliabilities of Cronbach's $\alpha_{factor\ 1} = .92$ and Cronbach's $\alpha_{factor\ 2} = .78$. The reliability of the total scale was very high with Cronbach's $\alpha_{total} = .93$.

In relation to the other variables factor 1 correlated negatively with age and positively with hours per day spent on monitor and factor 2 correlated positively with age, but negatively with hours per day spent on monitor (table 3).

Table 4 – Correlation between IAT factors and other variables

	Factor 1	**Factor 2**
Age (years)	-.331**	.185**
Time[a] (hours per day)	.496**	-.415**

**p < 0.001
[a] Time spent on monitor

5 DISCUSSION

The results confirmed the IAT as a valid instrument based on the statistics analysis, and it validates the obtained results, considering the sample size (6,698 individuals) and the evaluation period (34 months).

Cronbach's Alpha internal consistency presented the 0.93 value, indicating high reliability of the scale and alignment of the questions.

The study identified two factors which explained 47.46% of the total variance and were correlated with r = -68 (p <0.001).

Factor analysis can be performed due to the low p-value value in the Bartlett's test, indicating there is a correlation between the variables, allowing the creation of the factors.

IAT was adapted for different languages and it was translated into Portuguese in 2011, presenting an internal satisfactory consistency value of 0.85 using Cronbach's alpha coefficient.

In the literature, we found two studies of IAT validation. The first one, conducted in Switzerland, the factor analysis showed good psychometric features, although a single factor was responsible for all variance of the scale (45%). An Italian study demonstrated the existence of the six factors similar to the original study, explaining 55.6% of the total variance.

In the original IAT study, a factor analysis was performed and it found six attributes which explained 62.8% of the variance: excessive use (items 1, 2, 14, 18, 20); loss or neglect of work (items 6, 8, 9); feeling of satisfaction (items 10, 12, 13, 15, 19); loss of control (items 5, 16, 17); recurrence (items 7, 11) and losses in social relationships (items 3,4). The internal consistency ranged from 0.54 to 0.82 for the six attributes.

We considered the performance of the research on Internet as a limitation because a clinical evaluation to confirm the diagnosis suggested from IAT classification was not performed.

6 CONCLUSION

The study confirmed satisfactory levels regarding IAT scale structuring and validated the 20-question Brazilian Portuguese version as a measurement tool to be used in the searches on Internet dependence on Facebook users.

The reliability of the full scale was very high with the internal consistency by Cronbach's Alpha19 = 0.93.

New research will allow improving the instrument, besides making possible the comparisons between the results of each research.

Conflict of Interest

Authors declare they have no conflict of interest.

Acknowledgments

This work was supported by: Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro (FAPERJ); Instituto de Psiquiatria (IPUB) da Universidade Federal do Rio de Janeiro (UFRJ); Delete - Uso Consciente de Tecnologias; Dr. Daniel C. Mograbi, PhD in Psychology and Neuroscience by Institute of Psychiatry, King's College London.

References

(1) King ALS, Nardi AE, Cardoso A (Organizadores). Nomofobia - Dependência do computador, internet, redes sociais? Dependência do telefone celular? O impacto das novas tecnologias interferindo no comportamento humano. Editora Atheneu, RJ, 2014.

(2) The Statistics Portal (2018). Retrieved June 27, 2018, from http:// www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/

(3) Facebook (2018). Company info: Facebook newsroom. newsroom.fb.com. Retrieved June 27, 2018, from http://newsroom.fb.com/company-info/

(4) Young KS. Internet Addiction: The Emergence of a New Clinical Disorder. CyberPsychology & Behavior. 1998 Jan;1(3):237–244. doi: 10.1089/cpb.1998.1.237.

(5) Olhar Digital, Retrieved June 27, 2018, from: https://olhardigital.com.br/noticia/internautas_procuram_mais_ajuda_para_vicio_do_facebook_do_que_de_sexo/16236

(6) The Internet Machine, Retrieved June 27, 2018, from; http://www.theinternettimemachine.com/

(7) King ALS; Valença AM; Silva ACO; Baczynski T; Carvalho MR; Nardi AE. Nomophobia: dependency on virtual environments or social phobia? Computers in Human Behavior, 2012, Volume 29, issue 1, 2013 p.140-144.

(8) King AL, Nardi AE. Novas tecnologias: uso e abuso. In: Associação Brasileira de Psiquiatria; Nardi AE, Silva AG, Quevedo JL, organizadores. PROPSIQ Programa de Atualização em Psiquiatria: Ciclo 3. Porto Alegre: Artmed/ Panamericana; 2013. p. 9-27 (Sistema de Educação Médica Continuada a Distância, v. 2).

ARTIGO 6 – Internet abuse and dependence on Facebook users: How big is the population under these conditions and how it has evolved?

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Internet abuse and dependence on Facebook users: How big is the population under these conditions and how it has evolved?

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Abstract

Facebook has revolutionized social relationships as a source of information, communication and entertainment and is the most accessed social network in the world. There are more than 2.2 billion Facebook users worldwide, and Brazil is the fourth country with the largest number of registrations with more than 130 million users. At the same time that it has become part of the daily life of modern society, we have observed behavioral and psychological changes related to its abusive and dependent use. Some have used the social network as a source of leisure and work and others have become dependent, with serious losses in real life. **Purpose:** Identify internet dependency levels in the Facebook user population and verify the evolution of dependency over the time. **Methods:** We applied online the Internet Addiction Test (IAT) and a questionnaire to register age, sex, marital status, education, income, screen time, weight and height, occupation, housing (state and city) and cadastral data in a valid sample and randomized study of 6,698 individuals over 34 months from July, 2015 to April, 2018. **Results:** The results indicate that 28.5% of the Facebook user population had internet addiction or abusive use (4.1% and 24.4%, respectively), with an increase in the IAT score and growth of 38.4% in the proportion of dependents in 34 months. **Conclusions:** The study confirms that the damage with the abusive use of the internet has reached a worrisome dimension that deserves more attention. About 3 out of 10 Facebook users have developed addiction or abusive use of the internet. Through a simple extrapolation method, we estimate that more than 37 million Brazilians and 630 million Facebook users around the world use the internet in an abusive or dependent way.

Keywords: Digital dependence; human behavior; Facebook; social network.

1 INTRODUCTION

With the smartphones popularization and the internet networks massification, we are connected at any time, whether inside or outside the home[1]. The internet has become an essential service in our lives as a source of information, entertainment and communication and therefore, social networks have an important role to cherish human relations, reduce distances or optimize time[1].

Studies[2,3] indicate that Facebook is the most accessed social network in the world with more than 2.2 billion registrations. Brazil has more than 130 million active and frequent users, being the fourth country in number of registrations (only loses to India, USA and Indonesia).

It is certainly important to record the benefits and advances that these new digital platforms provide. However, the boundary between recreational or pathological use is very tenuous[5,6]. References in the literature[1] classify the use of the Internet in 3 types of behaviors: Conscious Use, Abusive Use or Dependent Use.

Conscious Use is related to use for leisure or work where the virtual does not disturb the real[7,8]. Abusive Use happens when the virtual disrupts the real, but the individual still has control of the situation. Dependent Use is when the virtual harms real life, affecting personal, family or professional relationships and there is a level of loss of control on the part of the individual. Generally, at this stage, there are common clinical problems[5,6] reports such as changes in sleeping or eating patterns, poor hygiene, physical pain in the neck, spine or tendonitis in the hands, and signs of depression and anxiety.

Through evidences observed in appointments[1] of the Group Delete within the Instituto de Psiquiatria da Universidade Federal do Rio de Janeiro (UFRJ), we realize the existence of 5 criteria that define the level of loss of control in individuals with internet addiction: (i) Excitement and Safety (indicates how technology is an exclusive haven of pleasure, belonging and false security over other real-life activities, such as playing online abusively or constantly changing Facebook photos to keep up with the amount of likes); (ii) Relevance (it represents how much technology is relevant in your daily life, for instance, if the person sleeps with the cell phone in the bed or takes the smartphone to the bathroom); (iii) Tolerance (it measures how much an individual can be disconnected from their electronic devices or the internet, such as cell phone use at the wheel. There are reports of children who do not go to the grandparents' house because the signal from the internet is not adequate or individuals cut back on the traveling so they do not get disconnected); (iv) Abstinence (indicates how the individual reacts and what he feels when he is not connected, and may present anger, bad mood, aggression or even sadness, fear, anguish, anxiety, etc.) and (v) Real Life Conflict (refers to direct or indirect relational problems whether it is loss of income at work or study, or conflicts between persons,

whether parents and children, husband and wife, official and employee and any other person because of the technologies).

The objective of this study is giving a describiction of the evolution of Internet dependence among Facebook users in Brazil in the last years (from July, 2015 to April, 2018) in a survey conducted exclusively on the Internet, identifying the number of abusive and dependent users, and making it possible to compare future research from other countries. Despite the current and relevant theme worldwide, no similar research has been found. The research seeks to contribute to the development of specific theory in the international scientific community regarding the adoption of new technologies by society and its impact on human behavior and family, professional or social relations.

2 METHOD

This research was developed at Delete Group - Uso Consciente de Tecnologi@s, in the Institute of Psychiatry of the Federal University of Rio de Janeiro (UFRJ), aiming to size the population with Internet dependence among Facebook users. We used a valid randomized sample of 6,698 individuals during 34 months, from July, 2015 to April, 2018. To participate in the study, we consider as inclusion criteria, Brazilian individuals of any occupation, gender and age, if they active Facebook users and residents in the country. As exclusion criteria were discounted from the research Brazilian living abroad, illiterate volunteers or individuals with some kind of mental Impairment that prevented their participation.

The instruments used were the Internet Addiction Test (IAT) to evaluate internet dependence and a socio-demographic questionnaire for registration of age, sex, marital status, education, income, screen time, weight and height (BMI), occupation, housing (State / City), cadastral data and e-mail.

The IAT[4], developed and validated by Dra. Kimberly Young[4], is a questionnaire with 20 items and 6 response options (1 = rarely, 2 = sometimes, 3 = frequently, 4 = usually, 5 = always and 0 = does not apply) that measures dependence on the internet. The sum of points of each response generates a final score. The level of dependence increases according to the growth in scores.

We defined as a control group all individuals with IAT scores up to 49 points, considered as "Conscious Use" (Group 1). Individuals with an IAT score of 50 to 79

points were classified as "Abusive Use" (Group 2). Individuals with an IAT score equivalent or above 80 points were considered as "Dependent Use" (Group 3).

We divided the time of data collection into 3 periods according to the completion date of the forms: records from July/2015 to June/2016 were classified as period I (12 months); records from July/2016 to June/2017 were classified as period II (12 months); and records from July/2017 to April/2018 were classified as period III (10 months).

We made available online an electronic form for filling in Facebook, and the average answer time lasted about 5 to 10 minutes per person. The research was released on social networks and websites.

After the volunteer answered all the questions, the program automatically calculated and reported the result with the IAT score; besides registering the score in the database. The volunteer had access only to the result of own test, immediately after completing the research, automatically and online.

An explanation of the study and its objectives were given to all participants, who accepted online their participation and the "Voluntary Informed Term" (TCLE), taking into account all the procedures approved by the Ethics Committee for Research (CEP) of the Institute of Psychiatry of Federal University of Rio de Janeiro (IPUB/UFRJ) according to the Declaration of Helsinki (1964).

All the volunteers who completed the survey received online instructions for the conscious use of technology through the “10 steps from Delete Group”. The volunteers who presented addiction or abusive use also received online the indication of the address (Av. Venceslau Brás, 95, Campus da Praia Vermelha, Cep: 22.290-140, Rio de Janeiro-RJ) and working hours (every Friday from 08 a.m. to 11 a.m.) for free medical and psychological evaluation at IPUB / UFRJ, if they had an interest in the continuity of a possible treatment in Rio de Janeiro.

3 STATISTICAL ANALYZES

Differences in socio-demographic variables (age, sex and schooling) between the groups were measured using the chi-square test. A One - Way ANOVA with the variables "Total Score IAT" and "Periods" was calculated for the verification of differences in the level of dependence over the periods. Three ANCOVAs have been taken, one for sex variable, one for age-group variable and another for variable education, in order to control eventual differences. In addition, the percentile

calculation was performed to verify the total percentage of each groups over the periods.

4 RESULTS

The table 1 shows the results from descriptive statistics of the sample. For each characteristic, were presented the absolute number of elements with the characteristic and the proportion within its group.

Table 1 – Sample Descriptive Statistics

SEX	Male	Female	Total
Group 1 (Conscious Use)	3.184 (66,5%)	1.605 (33,5%)	**4.789 (100%)**
Group 2 (Abusive Use)	1.132 (69,2%)	502 (30,7%)	**1.634 (100%)**
Group 3 (Dependent Use)	175 (63,6%)	100 (36,3%)	**275 (100%)**
Total	**4491 (67,1%)**	**2207 (32,9%)**	**6698 (100%)**

AGE RANGE	< = 18	19 - 25	26-30	31-40	41-50	51-70	More than 70 years	Total
Group 1 (Conscious Use)	1783(37,2%)	1379(28,7%)	564 (11,7%)	551 (11,5%)	311(6,4%)	195(4,0%)	6 (0,1%)	**4789 (100%)**
Group 2 (Abusive Use)	785 (48,0%)	495 (30,2%)	155 (9,4%)	137 (8,3%)	29 (1,7%)	29 (1,7%)	4 (0,2%)	**1634 (100%)**
Group 3 (Dependent Use)	143 (52,0%)	73 (26,5%)	24 (8,7%)	20 (7,2%)	11 (4,0%)	1 (0,3%)	3 (1,0%)	**275 (100%)**
Total	**2711(40,4%)**	**1947 (29%)**	**743 (11%)**	**708 (10,5%)**	**351 (5,2%)**	**225 (3,3%)**	**13 (0,1%)**	**6698 (100%)**

EDUCATIONAL LEVEL	Basic Education	Incomplete Higher	Graduated	Post Graduated	Total
Group 1 (Conscious Use)	1.812 (37,8%)	1.647 (34,4%)	796 (16,6%)	534 (11,2%)	**4.789 (100%)**
Group 2 (Abusive Use)	759 (46,4%)	568 (34,7%)	210 (12,8%)	97 (5,9%)	**1.634 (100%)**
Group 3 (Dependent Use)	156 (56,7%)	80 (2,9%)	26 (9,4%)	13 (4,7%)	**275 (100%)**
Total	**2727 (40,7%)**	**2295 (34,2%)**	**1032 (15,4%)**	**644 (9,6%)**	**6698 (100%)**

MARITAL STATUS	Single	Married	Divorced	Widower	Total
Group 1 (Conscious Use)	3.687 (77,0%)	978 (20,4%)	105 (2,2%)	19 (0,4%)	**4.789 (100%)**
Group 2 (Abusive Use)	1382 (84,5%)	225 (13,7%)	22 (1,3%)	5 (0,3%)	**1.634 (100%)**
Group 3 (Dependent Use)	233 (84,7%)	35 (12,7%)	3 (1,0%)	4 (1,4%)	**275 (100%)**
Total	**5302 (79,1%)**	**1238 (18,4%)**	**130 (1,9%)**	**28 (0,4%)**	**6698 (100%)**

INCOME RANGE	Up to R$ 1.000	From R$ 1.001 until 2.500	From R$ 2.501 until 5.000	From R$ 5.001 until 10.000	From R$ 10.001 until a 20.000	Higher than R$ 20.000	Total
Group 1 (Conscious Use)	2130(44,4%)	989 (20,6%)	918 (19,1%)	465 (9,7%)	173 (3,6%)	114 (2,3%)	**4.789(100%)**
Group 2 (Abusive Use)	866 (52,9%)	297 (18,1%)	271 (16,5%)	101 (6,1%)	51 (3,1%)	48 (2,9%)	**1.634(100%)**
Group 3 (Dependent Use)	155 (56,3%)	47 (17,0%)	31 (11,2%)	15 (5,4%)	8 (2,9%)	19 (6,9%)	**275 (100%)**
Total	**3151 (47%)**	**1333(19,9%)**	**1220(18,2%)**	**581 (8,6%)**	**232 (3,4%)**	**181 (2,7%)**	**6698(100%)**

Continuation from Table 1 – Sample Descriptive Statistics

HABITATION (States)	Group 1 (Conscious Use)	Group 2 (Abusive Use)	Group 3 (Dependent Use)	Total
AC	33 (0,7%)	15 (0,9%)	5 (1,8%)	53 (0,8%)
AL	57 (1,2%)	29 (1,8%)	6 (2,2%)	92 (1,4%)
AM	38 (0,8%)	10 (0,6%)	2 (0,7%)	50 (0,7%)
AP	16 (0,3%)	8 (0,5%)	2 (0,7%)	26 (0,4%)
BA	172 (3,6%)	67 (4,1%)	8 (2,9%)	247 (3,7%)
CE	144 (3%)	40 (2,4%)	8 (2,9%)	192 (2,9%)
DF	141 (2,9%)	48 (2,9%)	6 (2,2%)	195 (2,9%)
ES	113 (2,4%)	32 (2%)	6 (2,2%)	151 (2,3%)
GO	115 (2,4%)	44 (2,7%)	9 (3,3%)	168 (2,5%)
MA	45 (0,9%)	13 (0,8%)	6 (2,2%)	64 (1%)
MG	479 (10%)	181 (11,1%)	22 (8%)	682 (10,2%)
MS	43 (0,9%)	19 (1,2%)	4 (1,5%)	66 (1%)
MT	49 (1%)	11 (0,7%)	1 (0,4%)	61 (0,9%)
PA	53 (1,1%)	19 (1,2%)	5 (1,8%)	77 (1,1%)
PB	70 (1,5%)	21 (1,3%)	4 (1,5%)	95 (1,4%)
PE	136 (2,8%)	54 (3,3%)	12 (4,4%)	202 (3%)
PI	29 (0,6%)	11 (0,7%)	0 (0%)	40 (0,6%)
PR	315 (6,6%)	111 (6,8%)	19 (6,9%)	445 (6,6%)
RJ	818 (17,1%)	261 (16%)	47 (17,1%)	1126 (16,8%)
RN	60 (1,3%)	24 (1,5%)	1 (0,4%)	85 (1,3%)
RO	13 (0,3%)	10 (0,6%)	0 (0%)	23 (0,3%)
RR	4 (0,1%)	1 (0,1%)	0 (0%)	5 (0,1%)
RS	316 (6,6%)	101 (6,2%)	20 (7,3%)	437 (6,5%)
SC	201 (4,2%)	58 (3,5%)	9 (3,3%)	268 (4%)
SE	41 (0,9%)	18 (1,1%)	5 (1,8%)	64 (1%)
SP	1267 (26,5%)	423 (25,9%)	68 (24,7%)	1758 (26,2%)
TO	21 (0,4%)	5 (0,3%)	0 (0%)	26 (0,4%)
Total	**4789 (100%)**	**1634 (100%)**	**275 (100%)**	**6698 (100%)**

We distributed the valid total sample (6,698 individuals) by "Period" according to the month of response; and by "Group", according to the IAT Score and the level of dependence (table 3). In this table are presented the absolute number of individuals and the corresponding proportion, as well as the IAT score corresponding to each range.

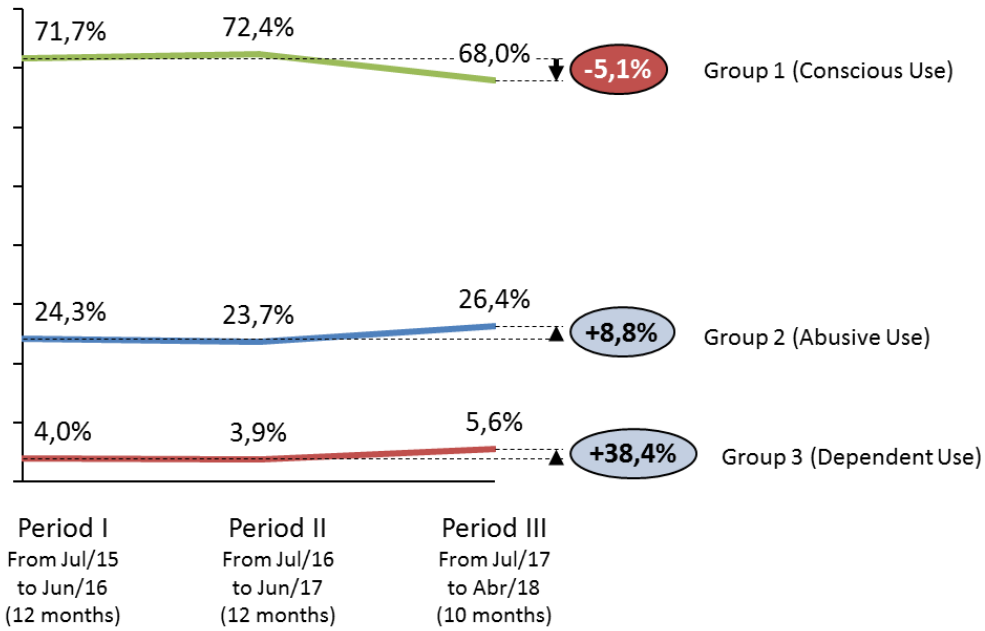
In the total period (34 months), we found 275 (4.1%) individuals with a severe dependency score; 1,634 (24.4%) with abusive use; and 4,789 (71.5%) with conscious use, as shown in table 2. The mean IAT score of the population surveyed is 40.8, equivalent to an abusive level of dependence in the IAT classification.

Table 2 – IAT Score and Sample Distribution by Group and by Period

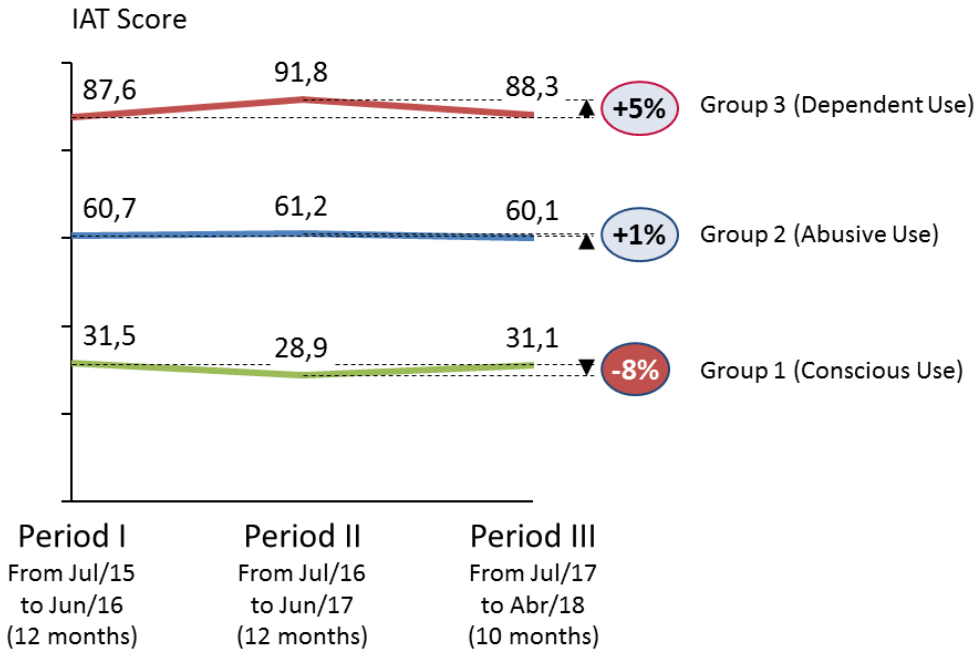
		Period I From Jul/15 to Jun/16 (12 months)	Period II From Jul/16 to Jun/17 (12 months)	Period III From Jul/17 to Abr/18 (10 months)	Total From Jul/15 to Abr/18 (34 months)
Sample Distribution by Group	Group 1 (Conscious Use)	4089 (71,7%)	394 (72,4%)	306 (68,0%)	4789 (71,5%)
	Group 2 (Abusive Use)	1386 (24,3%)	129 (23,7%)	119 (26,4%)	1634 (24,4%)
	Group 3 (Dependent Use)	229 (4,0%)	21 (3,9%)	25 (5,6%)	275 (4,1%)
	Total	**5704 (100,0%)**	**544 (100,0%)**	**450 (100,0%)**	**6698 (100,0%)**
IAT Score by Group	Group 1 (Conscious Use)	31,5	28,8	31,1	31,3
	Group 2 (Abusive Use)	60,6	61,2	60,1	60,7
	Group 3 (Dependent Use)	87,6	91,7	88,3	88,0
	Total	**40,8**	**38,9**	**41,9**	**40,8**

We observed a growth in the proportion of users with dependence and abusive use over the course of 34 months as shown in Graph 2. We also observed a trend of increase in the IAT score corresponding to these groups (Dependence and Abusive Use) over 24 months, as demonstrated in Graph 3.

Graph 1 – Proportion of Groups in the Period



Graph 2 - Evolution of the IAT Score in the Period



Inferential statistics: In general, sociodemographic data were not similar between the groups. The chi-square test for the sex variable X^2 (1) = 779,636, p <.001 showed a tendency towards the female-male sense; in turn, the chi-square test for the variable schooling X^2 (3) = 1771.186, p <.001 showed a tendency for individuals with high school education; Finally, the chi-square test for the variable age X^2 (7) = 8053.931, p <.001 revealed a trend of users up to 25 years of age.

Score IAT

The IAT Score was calculated using a One - Way ANOVA that showed no significant effect *F* (22, 252) = 1,342, *p*=.144, η^2 = .10, when verifying differences in the mean value of the total IAT score over the estimated periods, without any significant group effect or interaction between the factors. One ANCOVA was calculated for the educational variable *F* (1,6697) = 3.327, p=.073, another for the age variable *F* (1, 727,15) = 14.825, p<.001 and one more for the gender variable *F* (7, 3058.055) = .799 p=.588. Differences were not controlled for gender variable. The inclusion of variables gender, age and schooling as covariates did not change the results.

5 DISCUSSION

The research proved to be reliable and validated the results obtained, considering the sample size (6,698 individuals) and the period used (34 months). We used as an instrument the IAT, duly translated and validated, and with satisfactory internal consistency to measure internet dependency (0.85).

Despite the current and relevant theme worldwide, no similar research has been found. On the other hand, comparisons with studies of other additions[9] confirm the severity of internet addiction: while 3% of people developed alcoholism in Brazil according to OMS data[9], the results indicate that about 3 individuals in 10 Facebook users developed addiction or abusive use (4.1% and 24.4% respectively) and indicate a trend of growth over time.

The mechanisms that produce dependence on the Internet are not yet fully understood, but references in the literature[1,5,6] indicate that there is a cause-effect relationship between dependence on the internet and other primary disorders that could act as a trigger for abusive use such as anxiety, depression, panic, OCD among others.

The dissemination of research on the internet for online filling may generate possible bias in the collection and interpretation of data. To minimize impacts, we reduced the initial sample by 50% (out of 13,429 individuals who answered the questionnaire, we considered 6.698 as a valid sample, excluding records with incomplete, blank or repeated data). We also excluded questionnaires that were sent from the same IP number of the source device (Smartphone, Notebook, Desktop or Tablet) to avoid counting error. Finally, we included in Group 3 ("Dependent") only individuals with a high IAT score (above 80 points), as described in the literature, ensuring greater safety in the statistical analysis.

We consider as a limitation of the study the performance of the research on the internet without performing a clinical assessment in person to confirm the diagnosis suggested from the IAT classification.

6 CONCLUSION

The results indicate that 28.5% of Facebook users have Internet addiction or abusive use (4.1% and 24.4% respectively) and with a tendency to increase their score over time. If we consider the simple extrapolation method, considering there

are 130 million active users of Facebook in Brazil and 2.2 billion Facebook users worldwide[2,3], we can estimate about 37 million Facebook users with abusive or dependente use on the Internet in Brazil and 630 million individuals with some kind of loss around the world.

Further investigation is needed to determine if abusive and dependent use of the Internet and Facebook is a new psychiatric classification or merely the substrate of other disorders. New researches will broaden the discussion and verify the dependence of internet on Facebook users in other countries, allowing comparisons between the results found.

We also emphasize the importance of public-private initiatives with the government, schools and companies in the development of projects for the application of digital etiquette[8] in the training of conscious digital users; besides the treatment of internet addiction near the society.

Conflict of Interest

Authors declare they have no conflict of interest.

Acknowledgments

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References

(1) King ALS, Nardi AE, Cardoso A (Organizadores). Nomofobia - Dependência do computador, internet, redes sociais? Dependência do telefone celular? O impacto das novas tecnologias interferindo no comportamento humano. Editora Atheneu, RJ, 2014.

(2) The Statistics Portal (2018). Retrieved June 27, 2018, from http:// www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/

(3) Facebook (2018). Company info: Facebook newsroom. newsroom.fb.com. Retrieved June 27, 2018, from http://newsroom.fb.com/company-info/

(4) Young KS. Caught in the net: How to recognize the signs of Internet addiction – and a winning strategy for recovery. New York, NY, 1998: John Wiley

(5) King ALS; Valença AM; Silva ACO; Baczynski T; Carvalho MR; Nardi AE. Nomophobia: dependency on virtual environments or social phobia? Computers in Human Behavior, 2012, Volume 29, issue 1, 2013 p.140-144.

(6) King AL, Nardi AE. Novas tecnologias: uso e abuso. In: Associação Brasileira de Psiquiatria; Nardi AE, Silva AG, Quevedo JL, organizadores. PROPSIQ Programa de Atualização em Psiquiatria: Ciclo 3. Porto Alegre: Artmed/ Panamericana; 2013. p. 9-27 (Sistema de Educação Médica Continuada a Distância, v. 2).

(7) King ALS, Guedes E, Nardi AE. Cartilha Digital. Porto Alegre: EducaBooks,2017.

(8) King ALS, Guedes E, Nardi AE. Etiqueta Digital. Porto Alegre: EducaBooks,2017.

(9) World Health Organization, Retrieved June 27, 2018, from: http://www.who.int/news-room/fact-sheets/detail/alcohol.

ARTIGO 7 – A study on the prevalence of internet addiction among Facebook users according to demographic data

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A study on the prevalence of internet addiction among Facebook users according to demographic data

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Summary

Internet is present in the daily life of modern society and today is considered an essential service for communication, information and entertainment. Social networks, in turn, allow people to organize collectively from affinities and interests in common, or simply from a set list of contacts. Facebook is notably the most accessible social network with more than 2.2 billion users worldwide and Brazil has more than 130 million users, taking the fourth place in numbers of active registrations. However, clinical evidences indicate reports of people with problems and commitment in their real life from their excessive and abusive use, with damage in family, social and professional relationships. **Objective:** Mapping the profile of internet addiction on Facebook users by identifying the socio-demographic prevalence with the percentages of the results obtained in relation to age, gender, marital status, education, income and housing (State). **Methods:** We applied online the Internet Addiction Test (IAT) and a questionnaire to record the age, gender, marital status, education, income, time, weight and height (BMI), occupation, housing (state and city) and registration data in valid and randomized sample of 6,698 people, over 34 months, from July 2015 to April 2018. We conducted the Chi-square independence test of Pearson to investigate the dependence between the variables and the V parameter of Cramer (φc) to estimate the level of association between them. **Results:** The results indicated association among the prevalence of dependence and the ranges of age, income level, schooling level, marital status and gender. **Conclusions:** The study indicates a trend of abuse and addiction for female users until 25 years old, single, with less schooling (primary education) and lower income (up to R$ $1,000).

Keywords: digital addiction; human behavior; Facebook; social network.

1 INTRODUCTION

Experts compare the digital revolution to the impact caused by the industrial revolution in the 19th century[1]. Modern society access the internet anytime, anywhere and from different devices[1]. It is necessary to recognize the benefits of technology[1]. Nowadays, the way to establish relationships somehow uses the internet to meet, reconnect or simply stay in touch and communicate[10]. The social

networks allowed communication with distant people, have created a kind of content curating, facilitated the organization of information such as birthdays and reminders and allow you to share events and daily moments through a single posting in a few seconds.

Emoticons and emojis themselves also reorganized the communication and allow more timid people to express a feeling without having to type any message. An image of "heart" or "smiley face" is sufficient to demonstrate affection virtually.

Reports[2,3] indicate that there are more than 2.2 billion Facebook users around the world, Brazil as the fourth country with the highest number of entries of Facebook in the world (behind only of India, USA and Indonesia), with more than 130 million active and frequent users (more than half of users in Brazil return to the site every day).

The internet conveys a sense of control over the situation[9], because it is not necessary to leave home to attract new opportunities for communication, information or entertainment.

Therefore, if on the one hand, the social networks have made it possible to reorganize the society with a new form of communication[1], we need to reflect on the side effects of misuse in these new technologies[10], not to avoid them (as is inevitable), but with the intention to establish a healthy relationship with these new media[11].

In general, in the virtual environment, people breed an improved or recreated version of themselves[12], since the digital persona can overcome limitations of your real persona. For that, it is common to see people more determined, questioning, tossed and assertive, because the internet acts as a shield that lets you protect yourself socially[12].

People choose the best photos, the best angles and activities that do not always correspond to the routine or real-life preferences[12]. At first impression, that shouldn't be a problem, because we prefer to share the best moments. However, clinical reports[10] indicate that someone can't sustain it in real life and it has been generated angst, sadness, anxiety and frustration.

It is also more difficult to capture or reproduce key elements such as tone of voice, facial expression, mood and personality traits (shyness, outgoing etc) that a meeting in real life could provide[12,13].

The mechanisms that produce internet addiction are not yet fully understood, but the literature review articles[4,5,13] indicate that there is a cause- effect relationship between internet addiction and other primary disorders that could work as trigger of the abuse, such as anxiety, depression, panic, OCD among others.

Researches[6,7,8] related to internet addiction among Facebook users the mechanisms of reward and gratification, indicating that some users have developed an abusive relationship spurred by false sense of satisfaction or as a way of feel better or more self-confident (increase of level of excitement or escape).

The objective of this study is to describe the evolution of internet addiction among Facebook users in Brazil in recent years (July 2015 to April 2018) in a research carried out exclusively on the internet, identifying the prevalence and profile of abusive users and dependent from the percentages of results obtained in respect of age, gender, marital status, education, income and housing (States) and allowing comparison with future surveys from other countries.

2 METHOD

This research was developed within the Delete Group - Uso Consciente de tecnologi@as, in the Institute of Psychiatry of the Federal University of Rio de Janeiro (UFRJ), in order to scale the socio-demographic profile of the population with internet addiction among Facebook users. We used a valid random sample of 6,698 individuals, collected over 34 months, from July 2015 to April 2018. To participate in the study, we consider as criteria for inclusion, Brazilian individuals of any occupation, gender and age, since active users of Facebook and residents in the country. As exclusion criteria, were disregarded in the research Brazilian individuals living abroad, illiterate volunteers or individuals with a mental impairment that would prevent their participation.

The instruments used were the Internet Addiction Test (IAT)[8] to evaluate internet dependence and socio-demographic questionnaire to record the age, gender, marital status, education, income, time, height and weight, occupation, housing (state/City), register data and e-mail.

The IAT, developed and validated by Dra. Kimberly Young[8], is a questionnaire with 20 items and 6 options of responses (1 = rarely, 2 = sometimes, 3 = often, 4 = very often, 5 = always and 0 = does not apply) that measures internet addiction. The

sum of points for each answer generates a final score. The higher the score, the greater the level of addiction and related problems.

We define as the control group all individuals with scores on IAT up to 49 points, considered as "Conscious use" (Group 1). Individuals with score of 50 to 79 IAT points were classified as "Abusive use" (Group 2). Individuals with equivalent or IAT score above 80 points were considered as "Dependent use" (Group 3).

We divided database in 3 periods according to the date of completion of forms: records held on July 2015 until June 2016 were classified as 1st period (12 months); records held on July 2016 until June 2017 were classified as II period (12 months); and records held on July 2017 until April 2018 were classified as period III (10 months).

We made available the instruments online through an electronic form to fill on Facebook and the average response time lasted about 5 to 10 minutes per person. The research was published on social networks and websites.

After the volunteer answer all the questions, the program automatically calculated and reported the result with the score of the IAT; also recording the score to the database. The volunteer had access only to the result of his own test, immediately after completing the search, automatically and online.

All participants received an explanation of the study and their objectives and accepted the online participation form and the "informed consent" taking notice of all procedures, approved by the Ethics Committee for Researches (CEP) of the Institute of Psychiatry of the Federal University of Rio de Janeiro (IPUB/UFRJ) in accordance with the Declaration of Helsinki (1964). All volunteers who finished the research received online the instructions for the conscious use of technology through the 10 steps of Delete Group. Volunteers identified with addiction or abuse status, also received online the indication of the address (Venceslau Brás Avenue, 95, Praia Vermelha Campus, zip code: 22.290-140, Rio de Janeiro-RJ) and opening hours (every Friday, from 08:00 to 11:00) for free medical and psychological assessment in IPUB/UFRJ, if they had interest in continuity of a possible treatment in Rio de Janeiro.

3 STATISTICAL ANALYSES

To compare the various socio-demographic variables (gender, age, income, marital status, State and education) and the classification in the IAT (conscious use,

Abuse, dependence) the following tests were performed: Chi-square test of independence from Pearson to investigate the existence of dependency between variables and the V parameter of Cramer (φc) to estimate the level of association between them.

We opted for the categorization of the "States" in the "country regions", because the "age", "States" and "marital status" did not meet the requirement of the Chi-square of not having cells with less than 5 cases. We also adopt the index of waste set as parameter, where statistically significant values are the biggest of 1.96 or smaller than-1.96. (Field, 2009).

4 RESULTS

Descriptive Statistics

Table 1 presents the results of the descriptive statistics of the sample. For each feature, the absolute number of elements with the characteristic and the proportion within your group is presented.

Table 2 presents the results of the IAT score for each variable, computed by a weighted average of the records of all the groups in the database.

Graphic 1 presents the absolute number of participants by State and the distribution of the sample per group (the sum of the groups in each State totals 100%), in addition to the results of the IAT score calculated by a weighted average of the records in the database.

Table 1 – Sample Descriptive Statistics

SEX	Male	Female	Total
Group 1 (Conscious Use)	3.184 (66,5%)	1.605 (33,5%)	**4.789 (100%)**
Group 2 (Abusive Use)	1.132 (69,2%)	502 (30,7%)	**1.634 (100%)**
Group 3 (Dependent Use)	175 (63,6%)	100 (36,3%)	**275 (100%)**
Total	**4491 (67,1%)**	**2207 (32,9%)**	**6698 (100%)**

AGE RANGE	< = 18	19 - 25	26-30	31-40	41-50	51-70	More than 70 years	Total
Group 1 (Conscious Use)	1783(37,2%)	1379(28,7%)	564 (11,7%)	551 (11,5%)	311(6,4%)	195(4,0%)	6 (0,1%)	**4789 (100%)**
Group 2 (Abusive Use)	785 (48,0%)	495 (30,2%)	155 (9,4%)	137 (8,3%)	29 (1,7%)	29 (1,7%)	4 (0,2%)	**1634 (100%)**
Group 3 (Dependent Use)	143 (52,0%)	73 (26,5%)	24 (8,7%)	20 (7,2%)	11 (4,0%)	1 (0,3%)	3 (1,0%)	**275 (100%)**
Total	**2711(40,4%)**	**1947 (29%)**	**743 (11%)**	**708 (10,5%)**	**351 (5,2%)**	**225 (3,3%)**	**13 (0,1%)**	**6698 (100%)**

Continuation from Table 1 – Sample Descriptive Statistics

EDUCATIONAL LEVEL	Basic Education	Incomplete Higher	Graduated	Post Graduated	Total
Group 1 (Conscious Use)	1.812 (37,8%)	1.647 (34,4%)	796 (16,6%)	534 (11,2%)	**4.789 (100%)**
Group 2 (Abusive Use)	759 (46,4%)	568 (34,7%)	210 (12,8%)	97 (5,9%)	**1.634 (100%)**
Group 3 (Dependent Use)	156 (56,7%)	80 (2,9%)	26 (9,4%)	13 (4,7%)	**275 (100%)**
Total	**2727 (40,7%)**	**2295 (34,2%)**	**1032 (15,4%)**	**644 (9,6%)**	**6698 (100%)**

MARITAL STATUS	Single	Married	Divorced	Widower	Total
Group 1 (Conscious Use)	3.687 (77,0%)	978 (20,4%)	105 (2,2%)	19 (0,4%)	**4.789 (100%)**
Group 2 (Abusive Use)	1382 (84,5%)	225 (13,7%)	22 (1,3%)	5 (0,3%)	**1.634 (100%)**
Group 3 (Dependent Use)	233 (84,7%)	35 (12,7%)	3 (1,0%)	4 (1,4%)	**275 (100%)**
Total	**5302 (79,1%)**	**1238 (18,4%)**	**130 (1,9%)**	**28 (0,4%)**	**6698 (100%)**

INCOME RANGE	Up to R$ 1.000	From R$ 1.001 until 2.500	From R$ 2.501 until 5.000	From R$ 5.001 until 10.000	From R$ 10.001 until a 20.000	Higher than R$ 20.000	Total
Group 1 (Conscious Use)	2130(44,4%)	989 (20,6%)	918 (19,1%)	465 (9,7%)	173 (3,6%)	114 (2,3%)	**4.789(100%)**
Group 2 (Abusive Use)	866 (52,9%)	297 (18,1%)	271 (16,5%)	101 (6,1%)	51 (3,1%)	48 (2,9%)	**1.634(100%)**
Group 3 (Dependent Use)	155 (56,3%)	47 (17,0%)	31 (11,2%)	15 (5,4%)	8 (2,9%)	19 (6,9%)	**275 (100%)**
Total	**3151 (47%)**	**1333(19,9%)**	**1220(18,2%)**	**581 (8,6%)**	**232 (3,4%)**	**181 (2,7%)**	**6698(100%)**

Table 2 - Mean IAT Score by Variable

SEX	Male	Female	Total
Total	41,5	39,3	40,8

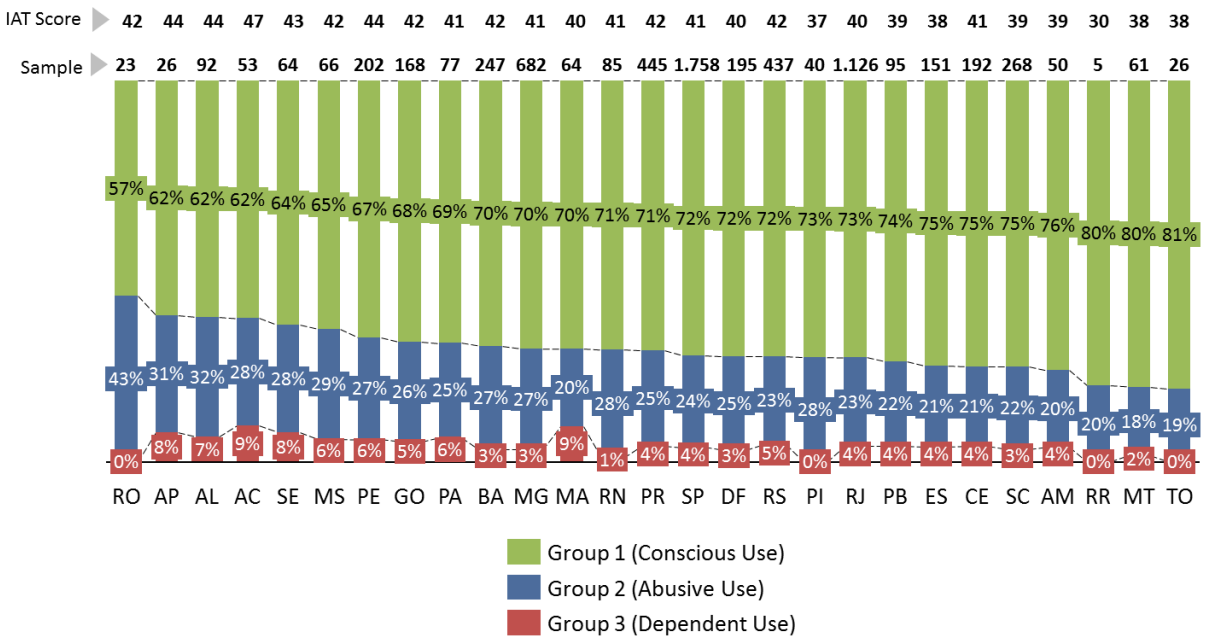
AGE RANGE	< = 18	19 - 25	26-30	31-40	41-50	51-70	More than 70 years	Total
Total	44,1	41,7	38,7	36,2	30,5	29,8	54,2	40,8

EDUCATIONAL LEVEL	Basic Education	Incomplete Higher	Graduated	Post Graduated	Total
Total	43,2	40,9	37,9	34,6	40,8

MARITAL STATUS	Single	Married	Divorced	Widower	Total
Total	42,2	35,3	35,9	43,8	40,8

INCOME	Up to R$ 1.000	From R$ 1.001 until 2.500	From R$ 2.501 until 5.000	From R$ 5.001 until 10.000	From R$ 10.001 until a 20.000	Higher than R$ 20.000	Total
Total	42,8	39,2	39,0	36,2	38,9	46,3	40,8

Graph 1 - Distribution of Groups and IAT Score by State



IAT score and associations with other variables

In general, there is association between the IAT score and other variables, indicating a tendency for lower age groups (up to 25 years of age); lower educational level (high school); and lower income ranges (up to R$ 1,000).

In relation to age, we found difference $[\chi(10) = 147.155;\ p = .00]$, indicating approximately 11% of association between age and IAT Score ($\varphi c = .11;\ p = .00$). The IAT score and proportion of dependents are inversely proportional to age: individuals aged up to 25 years is more and more concentrated IAT dependents than other ranges. We decided to merge the categories "51-60" and "61-70" and disregard the cases of category "above 70 years" for presenting insignificant sample for statistical analysis.

In relation to gender, we found difference $[\chi(2) = 5.812;\ p = .05]$, indicating approximately 3% of association between gender and IAT Score ($\varphi c = .03;\ p = .05$). The IAT score between men and women is very close (and 41.5 and 39.3 respectively). On the other hand, the proportion of dependents is greater in the Group of women in comparison to the men.

In relation to income, we found difference [$\chi(10) = 83.242$; $p = .00$], indicating approximately 8% of association between income level and IAT Score ($\varphi c = .08$; $p = .00$). The IAT score and dependent ratio grow in the initial range (up to R$1,000). We chose to disregard the case of category "above R$ 20,000" for presenting insignificant sample for statistical analysis.

In relation to education, we found difference [$\chi(6) = 101.960$; $p = .00$], indicating approximately 9% of association between schooling level and IAT Score ($\varphi c = .09$; $p = .00$). The IAT score and dependent ratio is inversely proportional to education: individuals with basic education has a higher score and concentrate IAT higher proportion of dependence on at other ranges.

In relation to marital status, Facebook users classified as Bachelors appear to have greater damage with the abuse and dependent on the internet: the single individuals have higher score combining IAT higher proportion of dependents in relation to married and divorced. We chose to disregard the case of category "widower" for presenting insignificant sample for statistical analysis.

In relation to country region, we did not find significant difference [$\chi(8) = 4.988$; $p = .78$]. However, despite the difference between the samples, we have identified that some States in the North and Northeast regions have higher IAT score and percentage of abuse or dependent (graphic 1).

As the age group showed a strong association with the IAT score with a tendency towards lower ages, we performed a cross-analysis with the variables gender, education and income to isolate the effects and avoid possible bias, shown in table 3.

Table 3 - IAT and Cross-Dependence by Age with Gender / Educational Level / Income

	Up to 25 years		Above 25 years		Total	
	IAT	% addicts	IAT	% addicts	IAT	% addicts
Single	43,0	4,6%	37,4	3,2%	42,2	4,4%
Married	42,5	3,6%	34,2	2,7%	35,3	2,8%
Basic Graduated	44,2	5,9%	37,1	4,4%	43,2	5,7%
Grad. or Post Graduated	41,9	3,3%	35,2	2,5%	39,1	3,0%
Up to R$ 2.500	43,0	4,8%	37,2	3,5%	41,7	4,5%
Above R$ 2.500	43,4	4,2%	34,0	1,1%	38,9	2,7%

5 DISCUSSION

The study validates the obtained results, considering the significant size of the sample and the period used (6,698 participants over 34 months). The tests of Chi-square independence test of Pearson confirmed dependency between socio-demographic variables and classification in the IAT; and the V parameter of Cramer (φc) identified high level of association between them. The volunteers were randomized between groups according to the score resulting from IAT own answers, so the socio-demographic attributes were distributed randomly. The IAT used as a tool in this research, was properly translated and validated, and presents satisfactory internal consistency to gauge internet addiction (0.85).

Although we have not found significant difference in IAT score association with regions of the country; we identified greater concentration of users with dependence and abuse in the States of the North and Northeast region, possibly due to the profile of the regions with the highest concentration of lower income and education tracks that pull the score IAT up (1 graphic) .

Individuals aged up to 25 years old has a natural tendency of concentration for the single group, with lower income and less education. Then, the age group could influence the outcome of the other variables, since the "age" showed up as high statistical sensitivity variable. To counteract this effect, we did a cross-analysis of age with income, education and marital status, grouping on tracks "until 25 years" and "over 25 years" as illustrated in table 3. The results indicate that the IAT score and the proportion of dependents of all attributes vary even in the upper age groups, which eliminates possible bias.

Despite the relevant and current theme worldwide, there were not found similar researches. In a more extensive work[12,13], it is possible to identify some potential problematic use indicators from similarity in personality traits, including features such as extroversion, Introversion and narcissism. Introverts tend to use social networks to compensate for the lack of real-life contacts, whereas extroverts use it to expand its already extensive networks. The largest use is associated with high narcissism, neuroticism and low consciousness. Therefore, people with these traits may be particularly at risk of developing addiction[12]. This study assessed the propensity to addiction based on five main dimensions of personality factors: extroversion (be outgoing, talkative), socialization (be nice and sociable), consciousness (organizational level), neuroticism (related to mood status, in general nervousness and bad mood), openness to experience (creativity and intellectually oriented).

The dissemination of research on the internet for online completion can generate possible bias in the collection and interpretation of data. To minimize impacts, we reduced the initial sample at 50% (of the total of 13,429 individuals who answered the questionnaire, we consider as valid sample 6,698, deleting records with incomplete, blank or repeated data). We ruled out questionnaires that were sent from the same IP number of the source device (Smartphone, Laptop, Desktop, or Tablet) to avoid counting error. Finally, we have included in Group 3 ("dependent") only individuals with a high score on the IAT (above 80 points), as described in the literature, ensuring greater safety in the statistical analysis.

We considered the performance of the research on Internet as a limitation because a clinical evaluation to confirm the diagnosis suggested from IAT classification was not performed.

6 CONCLUSION

The socio-demographic variables showed good association with the IAT score and we concluded that there is a variation in the prevalence of addiction or abuse according to the attributes age, income level, schooling level, marital status and gender, with a tendency for users to up to 25 years old, women, single with lower schooling level and income in lower ranges.

We recommend future researches to study the mechanisms that produce dependence on the internet and Facebook. A further investigation is required to

determine whether the abuse and dependent use on the Internet and Facebook is a new psychiatric classification or merely the substrate of other disorders.

Conflict of interest

Authors declare they have no conflict of interest.

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References

(1) King ALS, Nardi AE, Cardoso A (Organizadores). Nomofobia - Dependência do computador, internet, redes sociais? Dependência do telefone celular? O impacto das novas tecnologias interferindo no comportamento humano. Editora Atheneu, RJ, 2014.

(2) The Statistics Portal (2018). Retrieved June 27, 2018, from http:// www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/

(3) Facebook (2018). Company info: Facebook newsroom. newsroom.fb.com. Retrieved June 27, 2018, from http://newsroom.fb.com/company-info/

(4) Guedes E, Sancassiani F, Carta MG, Campos C, Machado S, King ALS, Nardi AE. Internet addiction and excessive social networks use: what about facebook? Clinical Practice & Epidemiology in Mental Health, 2016,12,43-48. DOI: 10.2174/174501790162010043.

(5) Guedes E, Nardi AE, Guimarães FMC, Machado S, King ALS. Social networking, a new online addiction: a review of Facebook and other addiction disorders. Medical Express 2016, 3 (1): M 160101. DOI: 10.5935.

(6) Pies R. Should DSM-V Designate “Internet Addiction” a Mental Disorder? Psychiatry (Edgmont) 2009; 6(2): 31-7.

(7) Buffardi, E. L., & Campbell, W. K. (2008) Narcissism and social networking web sites. Personality and Social Psychology Bulletin, 34, 1303-1314.

(8) Young KS. Caught in the net: How to recognize the signs of Internet addiction – and a winning strategy for recovery. New York, NY, 1998: John Wiley &

(9) Kuss DJ, Griffiths MD, Karila L, Billieux J. Internet addiction: A systematic review of epidemiological research for the last decade. Current Pharmaceutical Design. 2014;20(25):4026-52.

(10) Song I, LaRose R, Eastin MS, Lin CA. Internet gratifications and internet addiction: On the uses and abuses of new media. CyberPsychol Behav. 2004;7(4):384-94. http://dx.doi.org/10.1089/cpb.2004.7.384.

(11) Vishwanath A. Habitual Facebook Use and its Impact on Getting Deceived on Social Media. J Computer-Mediated Communication. 2015; 20(1):83-98. http://dx.doi.org/10.1111/jcc4.12100

(12) Panek ET, Nardis Y, Konrath S. Mirror or megaphone?: How relationships between narcissism and social networking site use differ on Facebook and Twitter. Computers Human Behav. 2013;29(5):2004-12. http://dx.doi.org/10.1016/j. chb.2013.04.012

(13) Kuss DJ, Griffiths MD. Online Social Networking and Addiction - A Review of the Psychological Literature. Int. J. Environ. Res. Public Health 2011;8(9):3528-52. http://dx.doi.org/10.3390/ ijerph8093528

3 DISCUSSÃO

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Podemos validar os resultados encontrados neste estudo, considerando o significativo tamanho da amostra e o período utilizados (6.698 participantes ao longo de 34 meses). Os testes estatísticos realizados de independência Qui-Quadrado de Pearson e o parâmetro do V de Cramer (φc) confirmaram elevado nível de associação entre as variáveis sociodemográficas e a classificação no IAT.

Os voluntários foram randomizados entre os grupos de acordo com o score IAT resultante das próprias respostas. O IAT utilizado como instrumento nesta pesquisa foi devidamente traduzido e validado, e apresenta consistência interna satisfatória para medir a dependência de internet (0,85).

Os resultados encontrados indicam que 28,5% da população de usuários de Facebook desenvolveram dependência ou uso abusivo da internet (4,1% e 24,4% respectivamente) e as variáveis sócio-demográficas apresentaram boa associação com o score IAT, indicando que existe prevalência de dependência ou uso abusivo com tendência para usuários de até 25 anos, sexo feminino, solteiros, menor escolaridade (ensino médio) e renda nas faixas inferiores.

A idade apresentou elevada associação com o score IAT e, para neutralizar o seu efeito como influência para os demais atributos, fizemos uma análise cruzada da idade com renda, escolaridade e estado civil, eliminando possível viés na análise estatística.

Os mecanismos que produzem dependência de internet ainda não são totalmente compreendidos, mas artigos de revisão da literatura[21,22] indicam que existe uma relação de causa-efeito entre a dependência de internet e outros transtornos primários que poderiam funcionar como gatilho do uso abusivo, como ansiedade, depressão, pânico, TOC entre outros.

Pesquisas[28] correlacionam a dependência de internet entre usuários do Facebook a mecanismos de recompensa e gratificação, indicando que alguns usuários desenvolveram um relacionamento abusivo estimulados pela falsa sensação de satisfação ou como uma maneira de se sentir melhor ou mais auto-confiante (aumento do nível de excitação ou fuga).

A divulgação da pesquisa na internet para preenchimento online pode gerar possível viés na coleta e interpretação dos dados. Para minimizar impactos, reduzimos a amostra inicial em 50% (do total de 13.429 indivíduos que responderam o questionário, consideramos 6.698 como amostra válida, excluindo registros com dados incompletos, em branco ou repetidos). Excluímos ainda questionários que foram enviados a partir do mesmo número de IP do dispositivo de origem (Smartphone, Notebook, Desktop ou Tablet) para evitar erro de contagem. Por fim, incluímos no Grupo 3 (“Dependente”) apenas indivíduos com alto score no IAT (acima de 80 pontos), conforme descrito na literatura[21], garantindo maior segurança na análise estatística.

4 CONCLUSÃO

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A partir do conjunto de estudos presentes nesta dissertação, é possível confirmar o impacto no comportamento humano e nas relações familiares, profissionais ou sociais a partir da adoção abusiva ou dependente da internet entre usuários do Facebook.

Os resultados encontrados indicam que 3 em cada 10 usuários de Facebook (4,1% e 24,4% respectivamente) apresentaram dependência ou uso abusivo de internet e observamos um crescimento de 38,4% na proporção de dependentes em 34 meses, além de tendência de aumento no score do IAT ao longo do tempo.

O prejuízo com o uso abusivo da internet atingiu dimensões preocupantes que merecem maior investigação. Através de um método de extrapolação simples[2,3], estimamos que mais de 37 milhões de brasileiros e 630 milhões de usuários do Facebook em todo o mundo usam a internet de forma abusiva ou dependente.

As variáveis sócio-demográficas apresentaram boa associação com o score IAT, indicando que existe prevalência de dependência ou uso abusivo com tendência para usuários de até 25 anos, sexo feminino, solteiros, menor escolaridade (ensino médio) e renda nas faixas inferiores. Não identificamos diferença significativa em relação a região do país, entretanto, apesar da diferença entre as amostras, identificamos que alguns estados da região norte e nordeste têm maior score IAT e percentual de uso abusivo ou dependente.

Tempo de uso não define diretamente a dependência de internet, embora exista alta correlação com o score IAT. É necessária uma investigação mais profunda para determinar se o uso abusivo e dependente da Internet e Facebook é uma nova classificação psiquiátrica ou meramente o substrato de outros transtornos.

Novas pesquisas permitirão ampliar a discussão e verificar a dependência de internet em usuários do Facebook de outros países, possibilitando comparações entre os resultados encontrados.

Ressaltamos ainda a importância de iniciativas público-privadas junto ao governo, escolas e empresas no desenvolvimento de projetos para aplicação de

etiqueta digital[25] na formação de usuários digitais conscientes; além do tratamento da dependência de internet junto a sociedade.

REFERÊNCIAS

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(1) King ALS, Nardi AE, Cardoso A (Organizadores). Nomofobia - Dependência do computador, internet, redes sociais? Dependência do telefone celular? O impacto das novas tecnologias interferindo no comportamento humano. Editora Atheneu, RJ, 2014.

(2) The Statistics Portal (2018). Retrieved June 27, 2018, from http://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/

(3) Facebook (2018). Company info: Facebook newsroom. newsroom.fb.com. Retrieved June 27, 2018, from http://newsroom.fb.com/company-info/

(4) Guedes E, Sancassiani F, Carta MG, Campos C, Machado S, King ALS, Nardi AE. Internet addiction and excessive social networks use: what about facebook? Clinical Practice & Epidemiology in Mental Health, 2016,12,43-48. DOI: 10.2174/174501790162010043.

(5) Guedes E, Nardi AE, Guimarães FMC, Machado S, King ALS. Social networking, a new online addiction: a review of Facebook and other addiction disorders. Medical Express 2016, 3 (1): M 160101. DOI: 10.5935.

(6) Nadkarni A, Hofmann SG. Why do people use Facebook? Pers Individ Dif. 2012;52(3):243-9. http://dx.doi.org/10.1016/j.paid.2011.11.007

(7) Young K. Facebook Addiction Disorder?. Bradford, PA, USA: The Center for Online Addiction 2009.

(8) Summers A. Facebook Addiction Disorder - The 6 Symptoms of F.A.D: Social Times; 2011.

(9) Associação Americana de Psiquiatria DSM-IV-TR. Manual Diagnóstico e Estatístico de Transtornos mentais. 5a edição, Artes Médicas, Porto Alegre, 2000.

(10) Pies R. Should DSM-V Designate “Internet Addiction” a Mental Disorder? Psychiatry (Edgmont) 2009; 6(2): 31-7.

(11) Buffardi, E. L., & Campbell, W. K. (2008) Narcissism and social networking web sites. Personality and Social Psychology Bulletin, 34, 1303-1314.

(12) Ellison NB, Steinfield C, Lampe C. The benefits of Facebook “friends”: social capital and college students’ use of online social network sites. J Computer-Mediated Communication. 2007;12(4):1143-68. http://dx.doi.org/10.1111/j.1083-6101.2007.00367.x

(13) Cheung CMK, Chiu P, Lee MKO. Online social networks: Why do students use Facebook? Comp Human Behav. 2011;27(4):1337-43. http://dx.doi.org/10.1016/j.chb.2010.07.028

(14) Young KS. Caught in the net: How to recognize the signs of Internet addiction – and a winning strategy for recovery. New York, NY, 1998: John Wiley &

(15) Associação Brasileira de Nutrologia, Retrieved June 27, 2018, from: http://abran.org.br/para-o-publico/calculadoras/artigos-parceiros/

(16) Schultz W. Getting formal with dopamine and reward. Neu¬ron. 2002;36(2);241-63. http://dx.doi.org/10.1016/S0896- 6273(02)00967-4

(17) Young KS. Internet Addiction: The Emergence of a New Clinical Disorder. CyberPsychology & Behavior. 1998 Jan;1(3):237–244. doi: 10.1089/cpb.1998.1.237.

(18) Nadkarni A, Hofmann SG. Why do people use Facebook? Pers Individ Dif. 2012;52(3):243-9. http://dx.doi.org/10.1016/j.paid.2011.11.007

(19) Olhar Digital, Retrieved June 27, 2018, from; https://olhardigital.com.br/noticia/internautas_procuram_mais_ajuda_para_vicio_do_facebook_do_que_de_sexo/16236

(20) The Internet Machine, Retrieved June 27, 2018,from; http://www.theinternettimemachine.com/

(21) King ALS; Valença AM; Silva ACO; Baczynski T; Carvalho MR; Nardi AE. Nomophobia: dependency on virtual environments or social phobia? Computers in Human Behavior, 2012, Volume 29, issue 1, 2013 p.140-144.

(22) King AL, Nardi AE. Novas tecnologias: uso e abuso. In: Associação Brasileira de Psiquiatria; Nardi AE, Silva AG, Quevedo JL, organizadores. PROPSIQ Programa de Atualização em Psiquiatria: Ciclo 3. Porto Alegre: Artmed/ Panamericana; 2013. p. 9-27 (Sistema de Educação Médica Continuada a Distância, v. 2).

(23) Gonçalves LL. Dependência Digital: tecnologias transformando pessoas, relacionamentos e organizações. Barra Livros, RJ, 2017.

(24) King ALS, Guedes E, Nardi AE. Cartilha Digital. Porto Alegre: EducaBooks,2017.

(25) King ALS, Guedes E, Nardi AE. Etiqueta Digital. Porto Alegre: EducaBooks,2017.

(26) World Health Organization, http://www.who.int/news-room/fact-sheets/detail/alcohol.

(27) Kuss DJ, Griffiths MD, Karila L, Billieux J. Internet addiction: A systematic review of epidemiological research for the last decade. Current Pharmaceutical Design. 2014;20(25):4026-52.

(28) Song I, LaRose R, Eastin MS, Lin CA. Internet gratifications and internet addiction: On the uses and abuses of new media. CyberPsychol Behav. 2004;7(4):384-94. http://dx.doi.org/10.1089/cpb.2004.7.384.

(29) Vishwanath A. Habitual Facebook Use and its Impact on Getting Deceived on Social Media. J Computer-Mediated Communication. 2015; 20(1):83-98. http://dx.doi.org/10.1111/jcc4.12100

(30) Panek ET, Nardis Y, Konrath S. Mirror or megaphone?: How relationships between narcissism and social networking site use differ on Facebook and Twitter. Computers Human Behav. 2013;29(5):2004-12. http://dx.doi.org/10.1016/j. chb.2013.04.012.

(31) Kuss DJ, Griffiths MD. Online Social Networking and Addiction - A Review of the Psychological Literature. Int. J. Environ. Res. Public Health 2011;8(9):3528-52. http://dx.doi.org/10.3390/ ijerph8093528.

ANEXOS

ANEXO 1 – Termo de Consentimento Livre e Esclarecido

Comitê de Ética em Pesquisa (CEP/IPUB/UFRJ)

Pesquisa: Efeito Facebook: Rede Social ou Dependência Digital?

Responsável: Eduardo Guedes da Conceição

Orientadora: Prof[a]. Dr[a]. Anna Lucia Spear King

Co orientador: Prof. Dr. Antonio Egidio Nardi

Delete – Uso Consciente de Tecnologi@s – Instituto de Psiquiatria (IPUB) da Universidade Federal do Rio de Janeiro (UFRJ) - Av. Venceslau Brás, 71 CEP 22290-140, tel. (21) 22955549 – Botafogo- Rio de Janeiro- RJ- Brasil

Consentimento Livre e Esclarecido **Data:**_____

Desejo participar do estudo quantitativo e descritivo, sem intervenções físicas ou uso de medicamentos, através de pesquisa realizada exclusivamente na internet.

O estudo é composto pela aplicação de questionário, com duração total de 5 a 10 minutos. A participação é voluntária e não obrigatória. Consiste em avaliar a dependência da internet em usuários do Facebook. O voluntário que concordar em participar poderá interromper a pesquisa a qualquer momento. O conhecimento adquirido com o estudo pode, no futuro, distinguir os usuários abusivos ou dependentes do facebook, dos usuários por trabalho ou lazer. Todos os participantes que concluírem a pesquisa receberão orientação para o uso consciente da tecnologia através dos 10 passos Grupo Delete. Os voluntários que apresentarem dependência ou uso abusivo também receberão via web a indicação do endereço e horário de atendimento para avaliação médica e psicológica gratuita no IPUB / UFRJ, caso tivessem interesse na continuidade de um possível tratamento no Rio de Janeiro.

Os dados obtidos durante a pesquisa são confidenciais e de acordo com o Comitê de Ética em Pesquisa em seres humanos do Instituto de Psiquiatria CEP/ IPUB/UFRJ.

Caso concorde em participar, basta clicar em aceitar.

Nome do Voluntário:_____

Recebi todas as informações necessárias e aceito participar da pesquisa ( )

ANEXO 2 – Instrumentos Utilizados

(1) Questionário para Coleta de Dados Sócio Demográficos:

Sexo: ( ) Masculino; ( ) Feminino

Idade: ( ) Até 18 anos; ( ) Entre 19 e 25 anos; ( ) Entre 26 e 30 anos; ( ) Entre 31 e 40 anos; ( ) Entre 41 e 50 anos; ( ) Entre 51 e 60 anos; ( ) Entre 61 e 70 anos; ( ) Mais de 70 anos.

Estado Civil: ( ) Solteiro; ( ) Casado; ( ) Divorciado; ( ) Viúvo.

Escolaridade: ( ) Ensino Básico; ( ) Superior incompleto; ( ) Superior Completo; ( ) Pós-Graduação.

Renda Mensal: ( ) Até R$ 1.000; ( ) De R$ 1.001 a 2.500; ( ) De R$ 2.501 a 5.000; ( ) De R$ 5.001 a 10.000; ( ) De R$ 10.001 a 20.000; ( ) Acima de R$ 20.000.

Moradia: Cidade em que Mora: ( ) Estado em que mora: ( )

Peso: ( ) **Altura:** ( )

Ocupação: ( )

Quanto tempo você utiliza a internet ao longo do seu dia (Tempo de Tela)? ( ) Menos de 2 horas; ( ) Entre 2 e 5 horas; ( ) Entre 5 e 10 horas; ( ) Mais de 10 horas

(2) Internet Addiction Test (IAT):

O IAT, desenvolvido pelo Dra. Kimberly Young e traduzido em 2011 para língua portuguesa por pesquisadores do Hospital das Clínicas da USP, é um questionário com 20 itens e 6 opções de respostas (1=raramente, 2=às vezes, 3=frequentemente, 4=geralmente, 5=sempre e 0=não se aplica) que mede a dependência da internet.

1. Com que frequência você acha que passa mais tempo na internet do que pretendia?
2. Com que frequência você abandona as tarefas domésticas para passar mais tempo na internet?

3. Com que frequência você prefere a emoção da internet à intimidade com seu/sua parceiro(a)?
4. Com que frequência você cria relacionamentos com novo(a)s amigo(a)s da internet?
5. Com que frequência outras pessoas em sua vida se queixam sobre a quantidade de tempo que você passa na internet?
6. Com que frequência suas notas ou tarefas da escola pioram por causa da quantidade de tempo que você fica na internet?
7. Com que frequência você acessa seu e-mail antes de qualquer outra coisa que precise fazer?
8. Com que frequência piora o seu desempenho ou produtividade no trabalho por causa da internet?
9. Com que frequência você fica na defensiva ou guarda segredo quando alguém lhe pergunta o que você faz na internet?
10. Com que frequência você bloqueia pensamentos perturbadores sobre sua vida pensando em se conectar para acalmar-se?
11. Com que frequência você se pega pensando em quando vai entrar na internet novamente?
12. Com que frequência você teme que a vida sem a internet seria chata, vazia e sem graça?
13. Com que frequência você explode, grita ou se irrita se alguém o(a) incomoda enquanto está na internet?
14. Com que frequência você dorme pouco por ficar conectado(a) até tarde da noite?
15. Com que frequência você se sente preocupado(a) com a internet quando está desconectado(a) imaginando que poderia estar conectado(a)?
16. Com que frequência você se pega dizendo “só mais alguns minutos” quando está conectado(a)?
17. Com que frequência você tenta diminuir o tempo que fica na internet e não consegue?

18. Com que frequência você tenta esconder a quantidade de tempo em que está na internet?
19. Com que frequência você opta por passar mais tempo na internet em vez de sair com outras pessoas?
20. Com que frequência você se sente deprimido(a), mal-humorado(a) ou nervoso(a) quando desconectado(a) e esse sentimento vai embora assim que volta a se conectar à internet?

Depois de ter respondido a todas as questões, some os números que selecionou para cada resposta para obter uma pontuação final. Quanto mais alta for à pontuação, maior será o nível de dependência do Facebook e os problemas relacionados. Abaixo os valores referentes aos pontos obtidos na sua pontuação:

Igual ou abaixo de 19 pontos: Você praticamente não usa a internet

De 20 a 49 pontos: Você é um usuário médio da Internet. Pode ser que às vezes você surfe um pouco demais na Web, mas você tem controle sobre seu uso. Você é um usuário médio da Internet. Pode ser que às vezes você surfe um pouco demais na Web, mas você tem controle sobre seu uso.

De 50 a 79 pontos: Você tem passado por problemas ocasionais ou frequentes por causa da Internet. Você deve avaliar seu impacto total em sua vida.

Igual ou acima de 80 pontos: O uso que você faz da Internet está provocando problemas significativos em sua vida. Você deve avaliar o impacto da Internet em sua vida e abordar os problemas causados diretamente por seu uso da Internet.

ANEXO 3 – 10 Passos do Grupo Delete

1) Bom senso para que o uso não se torne abuso no cotidiano;

2) Fique atento às consequências físicas (como privação de sono, dores na coluna, problemas de visão) e psicológicas (como depressão, angústia, ansiedade) devido ao uso abusivo;

3) Dose a prática de uso de tecnologias no cotidiano. Verifique se seu desempenho acadêmico ou no trabalho estão sendo prejudicados;

4) Reflita sobre seus hábitos cotidianos e faça diferente;

5) Não troque atividades ao ar livre para ficar conectado;

6) Prefira uma vida social real à virtual, escolhendo relacionamentos/amizades reais ao invés de virtuais;

7) Pratique exercícios físicos regularmente/Faça intervalos regulares durante o uso das tecnologias;

8) Não abale o seu humor com publicações virtuais/não acredite em tudo o que é postado;

9) Valorize suas relações familiares;

10) Pense no meio ambiente, recicle os aparelhos e evite a troca frequente sem necessidade.