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Depression, Anxiety and Addiction Related to Social Media

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Abstract: *The article seeks to better understand the negative effects associated with the intensive use of digital communication technologies: addiction and "addiction" to the Internet, depressive symptoms and anxieties associated with social networks and the practice of media multitasking, fear of missing out (FOMO), perception of stressful ghost signals and nomophobia related to the smartphone. In a transdisciplinary perspective, the article analyzes the psychological and psychosocial processes, major effects and determinants of phenomena involving negative effects and intensive uses of digital communication. Finally, it opens up new perspectives and research hypotheses*

Key Words: *Social media, Depressive symptoms, FOMO, Nomophobia, Media psychology, Digital communication.*

1. INTRODUCTION:

Recent socio-cultural trends, relayed by the media, advocate the regular or almost permanent disconnection of digital technologies, in particular because of the negative effects that they would generate. Some talk about anxiety and possible depressive disorders in heavy users of these technologies. Treatments of "digital detoxification" are even offered to the most "addicts". What do scientific research say? What negative emotional effects cause the intensive use of digital communication technologies and content such as smartphone, Internet or digital social networks (DNS)? What processes underpin the effects and what determinants are involved? The purpose of this article is to provide for the first time in French, a synthesis of recent scientific work on these themes and to establish new research perspectives.

However, to answer these questions is not easy for several reasons. First, several disciplines are interested in this area. In this article and in a transdisciplinary logic, we have synthesized the recent works published in peer-reviewed scientific journals, mainly in English, in the main international databases (Psycinfo, Medline, Business Source Complete, Communication & Mass Media Complete (EBSCO), SocINDEX) in a) psychology, social psychology, educational sciences; b) neuroscience and medicine (psychiatry, pediatrics, public health), c) communication science and marketing and Google Scholar.

Second, it is difficult to differentiate between research showing correlations, those showing links of causality between uses of digital communication technologies and negative emotions felt by large users. For this purpose and to grasp the complexity of phenomena in a systemic logic, we have articulated two different but complementary streams of literature: on the one hand, work on individual motivations leading to the use of digital communication technologies and, d on the other hand, work on the effects of intensive use on adults and adolescents.

Thus, the article proposes a synthesis of research on the links between the intensive or excessive use of the Internet, the RSN and the smartphone, and the negative affects felt during or after their use. We systematically highlight the main psychological and psychosocial processes involved, the major effects and determinants of phenomena. To conclude, we also propose some new hypotheses as well as new research perspectives that we think it is a priority to pursue on this topic in information and communication sciences.

2. NEGATIVE AND ADDICTIONS RELATED TO DIGITAL MEDIA AND THE INTERNET:

The study The World Unplugged asked a thousand students from a dozen universities from five continents to experience 24 hours of media disconnection (Moeller et al., 2012). The results were unequivocal: a clear majority of students admitted the outright failure of their disconnection efforts. Many of them then self-declared “addicts” to the media and digital communication technologies.

These conclusions are not surprising considering the work of Hofmann and his colleagues (2012). Indeed, among the many needs and desires that we have daily (eat, drink, sleep, smoke, social contacts, need hygiene, play sports ...), the desire to use the media -mails, surf the Web, go to the RSN, watch TV) is the one for which our ability to resist would be the weakest. Not only would the desire to use the media be stronger and more common in a day than, for example, the desire for tobacco, but it would be, moreover, more difficult to control than the desire to eat or to have activities. sexual intercourse

Four characteristics of digital media-practices could explain the extreme difficulty in controlling the usual desires: strong habits already ingrained, permanent availability of technologies, the considerable appeal of popular activities and the low cost for practice. If going on the Internet has become a habit, sometimes excessive for some, can it lead to addiction or addiction in the pathological sense of the term (LaRose 2010)? This question is currently still debated in the literature since Young's (1996) initial work.

Internet addiction is not included in the latest version of the Diagnostic and Statistical Manual of Mental Disorders (DSM 5; APA, 2015) international reference manual for most psychiatrists and psychologists. To a large extent, these habits are labeled as "excessive behaviors", but are not defined as true mental disorders due to the current lack of data in the literature (DSM 5, APA 2015: 571). For example, there is a lack of neurobiological evidence that is often needed to define a true addiction. MRI brain tests of people with addictive symptoms show that large Internet users are developing common neurobiological processes with addicts and with people with recognized pathological dependencies, such as gambling addiction. In all these cases, their "addictive practices" activate the same amygdala-striatum system, system related to the genesis of pleasure in the brain. However, they also have many differences, especially in the functioning of the inhibitory brain control system, that which allows to inhibit, by the will, some of our behaviors (Turelet al., 2014). Inhibition would seem easier for the Internet. There is also a lack of clinical studies on behavioral criteria, such as weaning or relapse, to really talk about addictive disorders for the Internet.

However, a relatively recent literature has developed around what some researchers still call "behavioral addictions" to the Internet (Griffith et al., 2016). These can be defined as a repetitive habit that is difficult for the individual to avoid and which increases the risk of illness and / or is associated with personal or social problems. It is often negatively perceived as a loss of control in which the individual is aware of the psychological and social risks. By simplifying, there are three major streams of research. However, more research is needed to better understand Internet and social media addictions and their determinants.

3. DEPRESSIVE SYMPTOMS AND ANXIETIES ASSOCIATED WITH INTENSIVE USE OF DIGITAL SOCIAL NETWORKS (RSN) :

If Facebook is the first gesture of the morning for 48% of 18-34-year old, the use of RSN, supposed to bring entertainment and satisfaction, seems to be the object of an astonishing paradox. More people are active on Facebook, without necessarily being "addicts", and their mood is negative after the uses of the RSN (Sagioglou, Greitemeyer, 2014). The genesis of these negative affects is well linked to Facebook because they do not appear during activities of similar duration performed on the Internet outside this RSN. This finding is not only related to Facebook as similar results have also been noticed with Instagram (Lup et al., 2015). More serious, a positive association has even been demonstrated between the use of this RSN and symptoms of depression. Preadolescents and adolescents seem particularly sensitive (O'Keeffe, Clarke-Pearson, 2011). In particular, among adolescents who perceive their offline network as low quality, long periods of time spent on Facebook are associated with more depressive disorders and social anxiety (Selfhout et al., 2009). According to O'Keeffe and Clarke-Pearson (2011), depressions related to intensive use of NSRs do not only make pre-teens and adolescents more likely to experience greater social isolation in which they are often already present. Indeed, suffering from depressive disorders by exposing oneself excessively to the Internet is all the more problematic because the adolescents, then psychologically fragile, think sometimes to find on certain RSN, sites or blogs, of the psychological comfort. The danger is to fall on sites that incite behaviors personally (e.g. addiction) or socially risky or inciting them to adhere to dangerous ideologies.

4. THE FEAR OF MISSING SOMETHING (FOMO):

Recently, some authors have highlighted a very particular fear among the big users of the RSN: the FOMO (Fear Of Missing Out, see Baker et al., 2016). It is "the pervasive fear that others might have rewarding experiences from which we would be absent ..." (Przybylski et al., 2013, 1841). The succinate then has the will to remain permanently connected with the others. This fear led him to want to know as soon as possible new information circulating on the RSN. When elevated, FOMO is often associated with a very frequently negative mood, low life satisfaction in general and more depressive symptoms (Baker et al.., 2016). Recent research has not only led to the design of psychometric scales 8 to measure FOMO (Przybylski et al., 2013), but also to better understand its neurobiological correlates. It would be associated with the activation of a specific brain zone: the right middle temporal gyrus (Lai et al., 2016). The latter authors show that this zone is activated only when individuals are exposed to images showing scenes of social inclusion (e.g. scenes where people are having fun, laughing with their friends, family or colleagues, sharing activities with them) (vs. social exclusion).

5. TWO KEY DETERMINANTS OF FOMO AND NEGATIVE SOCIAL COMPARISON BIAS:

FOMO research and social comparison bias being relatively silent on their determinants, it is in the literature on motivations underlying digital uses that we have found concepts to better understand the causes. This is the case of

the strong desire to satisfy, via the RSN, two social needs that are often unmet in the life of the community: the need for popularity and the need for social recognition.

According to Utz, Tanis and Vermeulen (2012), who have studied a large number of psychosocial needs and motivations leading to a strong activity on the NSR (need of social belonging, self-esteem, vanity, feeling felt by the individual according to which "everything is due to him"), it is the need for popularity that is the most powerful and constant predictor. Stable individual variable, it is the need to be loved and recognized by the greatest number. To satisfy this need, people are motivated to comply with the pressure of their peers (Santor, 2000) and to adopt behaviors that give the impression that they are actually "popular" (e.g. very careful choice of the photo of profile, self-esteem) (Utz et al., 2012). The latter authors believe that the RSN are an ideal space of expression for the Net surfers having a strong need of popularity because they make it possible to be exposed easily to the greatest number and facilitate the implementation of self-centered strategies of presentation of oneself (eg improving your profile to give the impression of being popular, self-disclosure ...) while communicating with others. People already popular offline and with high self-esteem are looking for and often manage to gain some popularity on RSNs. But gaining popularity may also be possible for people with low self-esteem and who consider themselves unpopular offline. A social compensation mechanism is then put in place leading them to seek to be more popular on RSN (Zywica, Danowski, 2008). No doubt it is their unpopular offline, frustrating and negative emotions that prompt them to return frequently to RSNs to gain more and more popularity online, with the risk, however, of triggering the vicious circle of which we have already spoken.

Sustained activity on NSRs can also be explained by a strong need for social recognition (Dang-Nguyen et al., 2015) that social partners do not necessarily have in offline life. RSNs could then, again, act as a social compensation scheme. The desire to satisfy this need first encourages the social mates to make their image highly visible by having in particular the maximum of contacts. Then they will look for multiple signs of this social recognition. Meshi and his colleagues (2013) believe that likes, tweets, sharing and other messages are all signs of social recognition and become a real emotional exchange between people in contact.

6. RUMINATIONS AND NEGATIVE EMOTIONS ALWAYS MAINTAINED:

Let us illustrate this process with the results of a qualitative empirical research that we carried out on the reactions of the fans to the death of Michael Jackson (Fourquet-Courbet, Courbet, 2012). We have shown that RSNs play an ambivalent role in their grief management. While RSNs have been psychologically helpful to fans in the early days of death to obtain information and share their emotions socially, it seems that in the longer term, their frequent and prolonged use has hindered the resolution of grief at home. some. Returning frequently and for a long time after death on RSNs and fan pages, as did many fans, leads to regularly re-generate and ruminate negative thoughts, to increase the frequency and intensity of negative emotions felt. If communicating and expressing sadness is necessary in the early stage of grief, especially to gain empathy and social support to "mourn", this phase should not be too long maintained. RSNs encouraging the extension of this phase seem to slow down the management of bereavement (Courbet, Fourquet-Courbet, 2014). While bereavements are fortunately rare in everyday life, the maintenance of ruminations and negative emotions can be found in other circumstances, for example, following a separation of love. Frequent visits to the pages of the loved one lost on the NSNs may prevent acceptance of the end of the relationship. this phase should not be maintained too long. RSNs encouraging the extension of this phase seem to slow down the management of bereavement (Courbet, Fourquet-Courbet, 2014). While bereavements are fortunately rare in everyday life, the maintenance of ruminations and negative emotions can be found in other circumstances, for example, following a separation of love. Frequent visits to the pages of the loved one lost on the NSNs may prevent acceptance of the end of the relationship. this phase should not be maintained too long. RSNs encouraging the extension of this phase seem to slow down the management of bereavement (Courbet, Fourquet-Courbet, 2014). While bereavements are fortunately rare in everyday life, the maintenance of ruminations and negative emotions can be found in other circumstances, for example, following a separation of love. Frequent visits to the pages of the loved one lost on the NSNs may prevent acceptance of the end of the relationship. following a romantic separation. Frequent visits to the pages of the loved one lost on the NSNs may prevent acceptance of the end of the relationship. following a romantic separation. Frequent visits to the pages of the loved one lost on the NSNs may prevent acceptance of the end of the relationship.

7. A LOSS OF GUILT TIME:

The social partners sometimes feel that they are doing nothing meaningful and wasting time unnecessarily on the RSNs. Many videos circulate there, as for example the famous videos of cats, object of a study of Myrick (2015). If social users find them entertaining in the short term, they are likely to experience, in the end, guilt linked to either neglecting other more important tasks to perform, or negative feelings close to those felt. during procrastination behaviors. Watching entertaining videos causes guilty pleasure within a triple relationship of "procrastination-guilt-

pleasure". More generally, the procrastination trend resulting from the use of the RSN has effects on the well-being of the social partners (Meieret al., 2016)

This impression generates negative effects. If the most active social partners continue to go on Facebook, according to Sagioglou and Greitemeyer (2014, p 359), they tend to make an "emotional forecast error": they always hope to feel better after using Facebook when, in fact, the opposite often happens.

8. RISKS AND NEGATIVE AFFECTS RELATED TO AN OMNIPRESENT SMARTPHONE:

The smartphone has become omnipresent in the daily life of the French: in 2015 nearly 70% of them had a 9 and 58% said they had it permanently with them 10, including at night. The user-mobile interaction system encourages mobile users 11 to set up frequent consultations of the screen in order to establish a watch of the information received, which is difficult to discard. If these habits are not addictions in the pathological sense and if they are not annoying for all, many mobile users find them still embarrassing every day, as they feel "prisoners" of this habit (Oulasvirta et al.,2012). Seventy percent of French view their smartphone every 5 minutes Thus, a smartphone is operated 221 times per day 12. For some, these verification habits are even more annoying that they are likely to increase the overall time of use of the mobile. Indeed, when mobile users check it, many are tempted to use it longer, thinking to find small pleasures or stimulations that animate their daily lives. Yet, in the end, they often feel like they have lost time and done things that are not very significant. Beyond this discomfort, in the literature, five types of disorders associated with negative affects concern the smartphone. Let us examine them.

9. THE DEPENDENCE ON THE SMARTPHONE:

In the study conducted in 2015, 59% of mobile users consulted them within one hour of waking to peruse messages. One in three even consulted his SMS at night. The smartphone is so important for some mobile users that they have become "dependent", in a sense very similar to that we have already spoken for the Internet. Several scientific surveys have shown that if this dependence is a phenomenon affecting a large number of countries, there are intercountry differences: for example, 38% of students would be dependent in Spain and 67% in the United Arab Emirates (Khoury et al., 2017). In the Smart. Use scientific survey 14 (2016), 21.1% of 12-18-year old in Belgium reported being "addicted" to the smartphone, 33.4% not dependent and 45.5% would be in an intermediate state. In France, among the oldest, in 2016, two-thirds of those under 35 felt dependent and more than a third of mobile users, regardless of age, considered themselves "addicted" and unable to part with it. Research on smartphone addiction has made relatively little progress in view of the scale of the phenomenon due to the lack of tools to objectify the problem. Two main scales with good psychometric qualities have recently made it possible to measure this dependence, described as a real addiction by their authors: The "Smartphone Addiction Inventory" (SPAI, Lin and Chang, 2014) containing 26 items and the "addiction scale" Smartphone "with a 10-item version that can be used with adolescents (SAS-SV, Kwon et al. , 2013). It is therefore expected that knowledge will be advanced on these addictive phenomena in the coming years.

10. MEDIA MULTITASKING, DEPRESSIVE SYMPTOMS AND SOCIAL ANXIETY:

The smartphone is one of the digital devices most often involved in the practice of multimedia multitasking 19. Media multitasking refers to two types of behavior. First, it is the use of multiple media simultaneously. For example, in 2015, 46% of 18-24-year old use their smartphone very often while watching television. Secondly, it is the use of a media while performing a non-media activity. For example, 25% of 25-34 years consult their smartphone while walking in the street and 23% of 18-25 invited mobiles to table. Although this practice has become commonplace in recent years, it is not trivial for mobile users. In fact, an intensive practice of media multitasking is associated with depressive symptoms, social anxiety (Becker et al., 2013) and, in adolescents, an increase in impulsivity (Cain et al., 2016).

11. CONCLUSION:

From a methodological point of view, it would be interesting to implement more research that shows causal links between intensive use of digital technologies and negative effects, while also studying the mediation effects involved. In the literature, the majority of researches essentially highlight correlations, quite limited epistemologically. For example, people with depressive tendencies may spend much more time on social networks than others. Only experimental methods are appropriate when testing deterministic hypotheses involving the effect of variables on others with the aim of establishing refutable scientific knowledge, in the sense of Popper (1975) (Courbet, 2013). However, developing experimental methodologies to study causal links is complex in this area. The reasons are both practical and ethical. For the purposes of a study it seems indeed difficult to ask experimental subjects to expose themselves intensively to social networks at the risk of causing them a depressive syndrome.

On the theoretical level, researchers will find it useful to articulate, on the one hand, the theories explaining the motivations, the psychosocial needs satisfied by the use of technologies and certain contents (often before effects) with,

of on the other hand, the theories explaining the consequences and emotional effects caused by the intensive use of digital communications.

On the epistemological level, the researches could be interested in phenomena in their complexity and in a logic more interactionist, systemic and circular. Complexity and circular systemic logic would take into account, firstly, the multiple individual determinants (personality traits, particular personality -e.g. of avoidant or narcissistic type), pre-existing disorders such as anxiety, depressive symptoms, maladaptive cognitions -e.g. unfavourable comparisons, narcissistic deficiencies ...), contextual (e.g. related to the communication situation, its stakes ...), technological (e.g. properties and constraints specific to digital media), semiotics (e.g. from what semiotic elements put on the profile of others, photos,

12. MORE CRITICAL RESEARCH PERSPECTIVES:

It is essential to question why users are so strongly attached to the Internet, the RSNs and the smartphone and why they are so afraid of not being able to use them. We propose some avenues and hypotheses of research that it would be important to further dig. First, it seems to us that digital communication offers the possibility of filling many existential, narcissistic and social needs that are difficult to satisfy in offline phenomena. These are often generated or amplified by an ever more individualistic and ambivalent society. On the one hand, it generates new, ever more narcissistic needs, to which adolescents and young adults are so sensitive (e.g. the need for popularity) and, on the other hand, it causes many frustrations. As the child separated from his mother finds in her "cuddly toy" a way to reassure herself, the smartphone, a transitional object, would it not be possible to fight against the frustrations and negative effects caused by the social world? By being permanently connected to his friends and being able to "hang up" on familiar online environments, like his Facebook or Instagram page, the mobile user, away from his familiar environment, would not feel more secure in emotional terms, as in his home where he has his bearings and reassuring habits? The permanent connection, especially to the RSN, would ensure that it belongs to social groups. A strong activity on the RSN, it would not give him the impression that it is a socially central actor and important? New research is therefore needed to better understand how the formation of these representations takes place and the role they play in digital communication.

Some other avenues to explore concern motivations for the use of ICTs. If the permanent connection makes it possible to fight against the fear of the user to miss something (FOMO) and to be excluded socially, it can also reassure him on his popularity. She sends him instantly, by like, retweet and other notifications, signs of recognition of others that help to satisfy personal and social needs of narcissistic and identity building through digital social interactions. However, it would be interesting to study the possible function of digital communication leading to filling with artefacts an "existential gap" in heavy users. For example, it seems that the permanent connection is particularly appreciated because it offers the possibility of responding immediately and permanently to needs of stimulation and entertainment in the short term during the many moments of boredom felt by the user suffering from an existential problem. How does this deficiency evolve based, for example, on the intensive use of RSN?

Mobile technologies have become so intimately part of us that they represent an extension of our physical body, "an umbilical cord that anchors the digital infrastructure of the information society to our bodies" (Harkin, 2003). 16). Moreover, a large number of teenagers consider their smartphone as their "second skin" 21. The more people have the opportunity to exercise control over their material assets as they control their bodies, the more these goods become closely related to their selves. Consciously or not, these material goods then produce an "increased self" (Belk, 2013). To what extent can the inability to use the smartphone or its loss be perceived as a distressing decrease of the self? Does this decrease affect the narcissistic, social, or more corporeal part of the self? In the latter case, could the smartphone be integrated into the body diagram and treated by the brain as incarnated in it (Clark, 2008)? So many questions that new research will have to answer.

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