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# Compulsive Use of Social Networking Sites in Belgium: Prevalence, Profile, and the Role of Attitude Toward Work and School

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## Abstract

A representative sample ( $n=1,000$ ) of the Belgian population aged 18 years and older filled out an online questionnaire on their Internet use in general and their use of social networking sites (SNS) in particular. We measured total time spent on the Internet, time spent on SNS, number of SNS profiles, gender, age, schooling level, income, job occupation, and leisure activities, and we integrated several psychological scales such as the Quick Big Five and the Mastery Scale. Hierarchical multiple regression modeling shows that gender and age explain an important part of the compulsive SNS score (5%) as well as psychological scales (20%), but attitude toward school (additional 3%) and income (2.5%) also add to explained variance in predictive models of compulsive SNS use.

## Introduction

THE POPULARITY OF SOCIAL NETWORKING SITES (SNS) such as Facebook and Twitter is still on the rise worldwide. Facebook is the absolute number one, with more than one billion users that are active at least every month.<sup>1</sup> In Belgium, a study by Van Belleghem et al.<sup>2</sup> shows that 4.3 million people (62.2%) of the Belgian online population are active on Facebook. This makes it by far the most popular SNS in Belgium. LinkedIn (19%), Google+ (18%), and Twitter (12%) are also often used. On average, Belgian Internet users own profiles on two SNS.

Not only is the number of participants in SNS growing, also the regular use of SNS has risen over the last few years.<sup>3</sup> The increasing amount of time spent online in general has been pointed out many times in the scientific literature as a reason for concern. Some Internet users are unable to control their Internet use, which can have a negative impact on work, school, relationships with family, and so on.<sup>4</sup> In this respect, several authors<sup>5,6</sup> have examined the concept of Internet addiction. Young<sup>7</sup> states that there are five different types of Internet addiction: cybersexual addiction, computer addiction, net compulsions, information overload, and cyber-relationship addiction. This last category is defined as over-involvement in online relationships. According to Kuss and

Griffiths,<sup>3</sup> an addiction to SNS falls in this category, "because of its main purpose to establish and maintain relationships both offline and online (p. 3523)". According to Karaïskos et al.,<sup>8</sup> Facebook addiction can be seen as a disorder that is "urge-driven" and includes a compulsive component. The authors suggest that this type of addiction is a specific category in the spectrum of addictions related to Internet use.

## Terminology for compulsive Internet use

No consensus has been reached among researchers concerning the terminology that refers to problems related to excessive Internet use. Some authors use the term "Internet addiction,"<sup>5,6</sup> whereas others prefer "compulsive,"<sup>9,10</sup> "problematic,"<sup>11</sup> or "pathological"<sup>12</sup> Internet use. Some authors<sup>13,14</sup> believe that "addiction" is not the appropriate term to refer to a phenomenon of which excessive use can also be fulfilling and rewarding. In this study, we use the term "compulsive Internet use" (CIU) following van den Eijnden and Vermulst<sup>15</sup> who posit that there is still too much dissension in the field concerning the question of whether people can become addicted to behavior like gambling and Internet use. To support their view, they refer to Frenk and Dar<sup>16</sup> who define compulsion as "specific kinds of bad habits, consisting of dysfunctional, purposeful and repetitive behavior

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roultes." It is usually attached to behaviors that carry short-term pleasure or relief of stress, but negative long-term consequences." Meerkerk<sup>17</sup> also prefers to use CIU. According to the author, Internet addiction implies an addiction to the Internet itself, whereas most so-called addicts are rather addicted to a certain Internet application such as pornography and online communication, which is expressed through compulsive use of the Internet.

### *Measuring CIU*

Several instruments for measuring CIU have been developed over the years. Examples are the Internet Addiction Test (IAT),<sup>18</sup> the Generalized Problematic Internet Use Scale (GPIUS),<sup>11</sup> and the Chen Internet Addiction Scale (CIAS).<sup>19</sup> These instruments all consist of more than 20 items, which makes them difficult to combine with several other measures in order to avoid respondent fatigue. Apart from the (possible) issue with their length, few of the scales have been tested in large populations, and none of them has been generally accepted.<sup>10</sup> Meerkerk<sup>10</sup> therefore decided to develop a new and shorter scale in Dutch to assess CIU. The Compulsive Internet Use Scale (CIUS) consists of 14 items that are rated on a 5-point Likert scale ranging from 0="never" to 4="very often." The items focus on loss of control, mental and behavioral pre-occupation, withdrawal symptoms, coping or mood modification, and conflict. To measure compulsive SNS use, we adapted the Bergen Facebook Addiction Scale (BFAS)<sup>20</sup> into a general compulsive SNS scale (CSS) consisting of 18 items.<sup>21</sup> No specific cut-off point has been established for this scale yet. In the present study, we chose to follow Meerkerk<sup>10</sup> and van Rooij et al.<sup>22</sup> who used an average score of 2 or above (on a scale ranging from 0 to 4) as the cut-off point for compulsive use of the Internet and games respectively.

### *Personality traits*

Several researchers have tried to connect personality traits to qualitative and quantitative parameters of SNS.<sup>23–26</sup> Wilson et al.<sup>26</sup> found that people with high scores on extraversion and low scores on conscientiousness spend more time on SNS and report more addictive tendencies. Research done by Ross et al.<sup>24</sup> shows that university students who score high on extraversion are members of more Facebook groups compared to those with low scores on this dimension. The hypothesis that extraverts have more Facebook friends and spend more time on Facebook was not supported. Amichai-Hamburger and Vinitzky<sup>27</sup> partially based their research on the study of Ross et al.<sup>24</sup> but found opposite results. The results show that an extraverted personality has a positive effect on the number of Facebook friends but not on the number of Facebook groups. The findings indicate that people with high scores on neuroticism are less likely to share personal identifying information on the SNS and make less use of private messages. Moore and McElroy<sup>28</sup> tried to explain the effect of personality on SNS use by using hierarchical regression. The results show that the five dimensions of personality add significantly to the variance explained by gender and Facebook experience concerning time spent on Facebook.

Literature addressing the influence of, for example, self-esteem, loneliness, and depressive feelings on the use of SNS and addictive tendencies toward SNS is still scarce. The influence of these factors on CIU and Internet use in general has

been investigated more extensively. Research shows that low self-esteem is associated with CIU.<sup>29,30</sup> So far, studies have not been able to replicate these results for the relationship between self-esteem and the extent of SNS use.<sup>27,31</sup> Research done by Young and Rogers<sup>32</sup> indicates that individuals that suffer from increased depression levels have a greater chance of becoming addicted to the Internet. They therefore suggest that clinical depression is associated with high levels of personal Internet use. This view is supported by Yen et al.<sup>33</sup> who found higher depression levels in adolescents suffering from Internet addiction than in those who did not.

### *Influence on work and school life*

The Internet has become an important part in the working life of many people. According to Griffiths,<sup>34</sup> it is common for office workers to use the Internet for personal purposes during working hours. Availability is growing, and Internet abuse can easily be hidden. Internet abuse can raise issues concerning work productivity at the company level. Therefore, employers should create awareness with employees and determine which behaviors can be tolerated and which are not acceptable.

Internet use also has an impact on the life of school-age young people. Young and Rogers<sup>32</sup> state that difficulties concerning studying, for instance a drop in grades, and changing sleep patterns can occur when school-age youngsters spend too much time on the web. This view is supported by research conducted by Chen and Peng.<sup>35</sup> Their results indicate that heavy Internet users have lower grades and have less learning satisfaction compared to non-heavy users.

### *Research aim and research questions*

Based on the literature and emerging research gaps, we formulated the following:

*RQ1: What is the prevalence of people scoring high on the Compulsive Social Networking Scale (CSS) in Belgium?*

*RQ2: What is the profile of people scoring high on the CSS in Belgium (compulsive SNS users) compared to people that are not compulsive SNS users (age, gender, psychological characteristics, time spend on the internet and on SNS in particular, etc.)?*

*RQ3: What are, next to age, gender, and psychological characteristics, important predictors of compulsive SNS use?*

## **Method and Data Collection**

### *Survey*

In July 2012, our online survey was administered in Belgium to a panel of 1,000 respondents aged 18 years and older in cooperation with a Belgian research agency. Two reminders were sent in the 2 weeks following the first e-mail. An incentive was raffled in order to encourage people to participate in the online survey. The sample was stratified on gender, age, region, and level of education in order to obtain a sample that was representative of the Belgian adult population based on the data of the Directorate-general Statistics and Economic Information and the Centre for Information about Media (CIM). Since French and Dutch are both official languages in Belgium, 577 respondents filled out the Dutch version of the survey and 423 completed the

French version. In order to reach a large enough subsample of people dealing with online problems such as compulsive use of SNS, we selected respondents who spent more than 16 hours online per week. This allowed us to answer research question 2 regarding the profile of compulsive SNS users. When reporting the prevalence of compulsive SNS use in the general population, we recalculated the proportion of this subgroup by extrapolating our results to the general public, knowing the exact portion of Belgian people who spend more than 16 hours online per week (45.2%). Gender was equally divided in our sample, and the average age was 43. A total of 56.6% of the respondents were Flemish, 33.7% were Walloon, and 9.7% were inhabitants of the Brussels region.

### Measures

**General SNS use.** Respondents were asked to indicate whether they had a SNS profile, on which SNS they had a profile, how much time they spent on SNS on an average working or school day, and how much time they spent on SNS on nonschool or nonworking days.

**Compulsive use.** Specific scales measuring compulsive media behavior such as the CIUS scale developed by Meerkerk<sup>10</sup> were integrated in the survey in order to measure CIU in general, the VAT scale (for measuring compulsive gaming), and our adapted version of the BFAS scale (for measuring SNS "addiction"/compulsive use: Compulsive Social Networking Scale). All these scales consisted of different items that were measured on a "never" to "very often" scale. A cut-off point of 2 was used to dichotomize respondents as compulsive and noncompulsive users.

**Attitude toward school or work.** This measured the respondents' attitude toward work or school, depending on their current situation. Respondents could indicate on a 10-point scale "how much they liked going to work" or "how much they liked going to school" where 1="not at all" and 10="very much."

**Psychosocial well-being and personality.** Psychological and personality measures formed another important part of the questionnaire. The selected scales were the Rasch-Type Loneliness Scale, Rosenberg Self Esteem Scale, Mastery Scale, Depressive Mood List, and Quick Big Five.

### Statistical analyses

Several correlation analyses (see Table 1) and hierarchical stepwise multiple regressions were conducted with scores on the CSS as the dependent variable. In the regression models, age and gender of the respondents were entered in the first block, psychological scales in the second block, and additional possible explaining variables such as private use of the Internet during working hours and attitude toward work or school were entered in following steps. In order to compare compulsive SNS users to noncompulsive users, several *t* tests were calculated.

## Results

### Prevalence of compulsive SNS use in Belgium

Respondents had an average score of 0.62 on the CSS with a range from 0 to 4. A cut-off score of 2 and more was es-

tablished to determine compulsive use of SNS. This results in a prevalence of 6.5% among the 1,000 respondents in our sample that spent more than 16 hours online per week. In line with Meerkerk,<sup>10</sup> we assume that compulsive use is not prevalent among non-heavy users of the Internet. Extrapolated to the general Belgian population aged 18 years and older, this results in a prevalence of 2.9% compulsive SNS users. To compare, results of the VAT show that compulsive gaming is prevalent among 5.8% of the respondents in our sample. This corresponds with 2.6% when extrapolated to the entire Belgian adult population.

### Profile of people scoring high on CSS

A total of 79.2% of our respondents have a profile on one or more SNS. The most popular network sites in Belgium are, in order of popularity, Facebook, Twitter, LinkedIn, Netlog, and MySpace. Google+, Hyves, Pinterest, and MSN are far less popular. The average age within the group of compulsive SNS users is 35, and the majority (61.5%) is female. In line with expectations, compulsive SNS users spend considerably more time on this kind of Internet application than other users. On a school or working day, this means an average of 2 hours and 40 minutes for compulsive users, and 1 hour and 32 minutes for noncompulsive users,  $t(70.204) = -3.645$ ,  $p < 0.05$ . Per day during the weekend or holidays, this rises to 3 hours and 7 minutes on average for compulsive SNS users, and 1 hour and 51 minutes for noncompulsive respondents,  $t(70.224) = -3.514$ ,  $p < 0.05$ . When we look at psychological measures, both groups do not differ regarding extraversion and resourcefulness. Compulsive SNS users do score significantly lower on emotional stability ( $M = 15.32$ ) compared to noncompulsive users ( $M = 18.23$ ),  $t(790) = 5.080$ ,  $p < 0.05$ . The same lower score reoccurs when considering agreeableness ( $M = 22.45$  vs.  $M = 24.01$ ,  $t(71.002) = 3.379$ ,  $p < 0.05$ ), conscientiousness ( $M = 19.05$  vs.  $M = 21.05$ ,  $t(790) = 3.695$ ,  $p < 0.05$ ), perceived control ( $M = 20.82$  vs.  $M = 24.57$ ,  $t(83.051) = 7.198$ ,  $p < 0.05$ ), and self-esteem ( $M = 31.26$  vs.  $M = 36$ ,  $t(790) = 6.805$ ,  $p < 0.05$ ). When we focus on feelings of loneliness ( $M = 33.74$  vs.  $M = 29.03$ ,  $t(79.032) = 4.370$ ,  $p < 0.05$ ) and depressive feelings ( $M = 14.17$  vs.  $M = 9.90$ ,  $t(790) = -7.031$ ,  $p < 0.05$ ), compulsive SNS users score higher than the noncompulsive group.<sup>a</sup>

In our adult sample, a subsample of people that still study ( $n = 133$ ) were asked to indicate how much they liked going to school. Compulsive SNS users score significantly lower ( $M = 5.1$  on a scale from 1 to 10) compared to noncompulsive users ( $7.3/10$ ,  $t(13) = 2.88$ ,  $p < 0.05$ ). Attitude toward school ( $-0.27$ ) and attitude toward work ( $-0.12$ ) are both negatively correlated to CSS. Within the working adult group ( $n = 573$ ), compulsive users agreed more on the statement "I believe I spend too much time on the Internet for private matters during working hours" ( $t(455) = -2.720$ ,  $p < 0.05$ ), and they were more likely to have been reprimanded for it by their boss than noncompulsive users ( $t(32.282) = -3.456$ ,  $p < 0.05$ ).

### Important predictors in CSS outcome

In our last research question, we looked for extra predictors of compulsive SNS use next to age, gender, and psychological measures. In two regression models with the whole sample of SNS users or a subsample as basis, we found two variables that added significantly to explained variance of our models

TABLE 1. INTERCORRELATION MATRIX

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. CSS score	—																
2. Agreeableness	-0.085*	—															
3. Conscientiousness	-0.126**	0.287**	—														
4. Emotional stability	-0.280**	0.032	0.059	—													
5. Resourcefulness	0.009	0.321**	0.152**	-0.004	—												
6. Extraversion	-0.029	0.225**	0.063*	0.268**	0.224**	—											
7. Loneliness	0.222**	-0.163**	-0.104**	-0.346**	-0.144**	-0.386**	—										
8. Self-esteem	-0.287**	0.320**	0.237**	0.416**	0.296**	0.431**	-0.550**	—									
9. Perceived control	-0.271**	0.196**	0.181**	0.456**	0.201**	0.386**	-0.562**	0.684**	—								
10. Depressive feelings	0.376**	-0.087**	-0.152**	-0.610**	-0.041	-0.294**	0.518**	-0.596**	-0.607**	—							
11. Attitude toward work	-0.119*	0.165**	0.211**	0.235**	0.044	0.157**	-0.187**	0.285**	0.301**	-0.324**	—						
12. Attitude toward school	-0.268**	0.249**	0.193*	0.090	0.215*	0.206*	-0.153	0.302**	0.281**	-0.218**	0.118	—					
13. Internet use during work hours	0.201**	0.024	-0.144**	-0.066	0.092*	0.031	-0.057	0.003	0.024	0.075	-0.144**	0.039	—				
14. Remarks from employer	0.293**	-0.072	-0.016	-0.079	0.029	-0.005	-0.010	-0.075	-0.042	0.107*	-0.061	0.122	0.398**	—			
15. Income	0.130**	0.010	0.039	0.178**	0.013	0.186**	-0.295**	0.292**	0.375**	-0.288**	0.104*	0.079	0.134**	-0.029	—		
16. CIUS Score	0.611**	-0.096**	-0.153**	-0.315**	-0.034	-0.177**	0.287**	-0.316**	-0.313**	0.438**	-0.195**	-0.235**	0.244**	0.263**	-0.124**	—	
17. VAT Score	0.553**	-0.143**	-0.190**	-0.222**	-0.040	-0.121**	0.215**	-0.342**	-0.266**	0.362**	-0.102	-0.084	0.164**	-0.309**	-0.162**	0.667**	—
M	0.6185	23.777	21.126	18.096	20.275	18.096	29.267	36.717	24.259	10.088	7.27	7.1	1.91	1.26	3.77	0.9879	0.8852
SD	0.7187	2.9843	4.1653	4.4561	3.7397	5.0558	8.9473	6.5302	4.8873	4.7713	1.934	2.001	1.132	0.661	1.174	0.7068	0.0765
$\alpha$	0.97	0.80	0.83	0.80	0.75	0.87	0.91	0.88	0.81	0.87	/	/	/	/	/	0.91	0.94

\*Correlation is significant at the 0.05 level (two-tailed); \*\*correlation is significant at the 0.01 level (two-tailed).  
 CSS, compulsive social network site scale; CIUS, compulsive Internet use scale.



in which the scores on CSS serve as the outcome variable. Next to gender and age, the variable income brings in an additional 2.5% explained variance (Table 2, left part). The lower a respondent's score on the income variable, the higher her or his score on the CSS.

When we look at adults that still study, we see that next to age and gender, psychological measures add a lot in the explanation of variance (additional 20%), but when we enter attitude toward school in the model, we are able to explain an additional 3% of the explained variance in the model (Table 2, right part). The attitude toward school is therefore an extra important factor that predicts a more or less problematic use of SNS.

## Conclusion

The current study is the first to address the topic of the compulsive use of SNS among adults in Belgium. Moreover, it is one of the few studies linking the compulsive use of SNS to personality dimensions and aspects of psychosocial well-being. One of the main goals of this study was to estimate the prevalence of compulsive SNS use among adults. In the sample of people who spent at least 16 hours online per week, a prevalence of 6.5% was found, which can be extrapolated to 2.9% of the adult population in Belgium. Although many of the previous studies on the topic of compulsive computer and Internet use have focused on adolescents, the findings of the present study show that compulsive SNS use is clearly not solely occurring among youngsters. The CSS may serve as a short but valuable instrument for caretakers in the health or welfare sector, as problematic use of SNS often does not immediately come to the surface and is less notable than, for instance, problematic gaming. Adults scoring high on the CSS are mostly female (61.5%) and have a mean age of 35. Consistent with previous research, this study shows that personality variables and variables indicating psychosocial well-being are associated with SNS use. The compulsive group scores lower than the noncompulsive group on emotional stability, agreeableness and conscientiousness, perceived control, and self-esteem. Also, compulsive SNS users score higher on feelings of loneliness and depression. Pre-

vious studies have already shown that personality traits and psychosocial well-being explain a significant amount of the variance when looking at, for example, the time spent on Facebook.<sup>28</sup> The current study contributes to the research domain by adding income and attitude toward school to the model. Next to age, gender, and psychological characteristics, our study shows that income (2.5%) adds to the explanation in a regression model with the score on the CSS as an outcome variable and attitude toward school also offering additional explanation (3%) of variance in a predictive model. Income as well as attitude toward school and attitude toward work are negatively correlated to the CSS. Furthermore, compulsive users indicate more often that they spend too much time on the Internet for personal purposes during work hours and that they have been reprimanded for this reason in comparison with their noncompulsive counterparts.

## Limitations of the study and suggestions for future research

As the length of a questionnaire is limited, we had to make strict choices during the development of our study. We are therefore aware of the lack of certain variables measuring personality and psychosocial well-being. Variables such as shyness and narcissism may help to sketch a profile of compulsive SNS users and to build predictive models of compulsive SNS use. The present study showed that compulsive users of SNS indicate that they use the Internet at work for personal purposes and have been reprimanded for it by their boss to a higher degree than noncompulsive users. Future research should therefore look more extensively at problematic Internet use at work. Extra questions focusing on the working life of respondents could help shed light on CIU and SNS in particular. For example, information on the type of online content that is used during working hours could allow researchers to gain more insight into how compulsive SNS use is interwoven with the professional part of life. This study showed that a considerable proportion of the adults in Belgium deal with compulsive SNS use, but due to space constraints, it was not possible to examine the specific content of the SNS use. It might be helpful to look at what adults do on SNS in order to assess if certain functions are more likely to lead to compulsive behavior. Furthermore, a longitudinal approach could contribute to the field in order to describe the short- or long-term character of compulsive SNS use. Finally, the link with attitude toward school needs further exploration among younger respondents.

## Notes

a. When low df is reported, the result is based on a correction for the lack of homogeneity of variance. The Levene's test produced a significant result meaning that "equal variances are not assumed." In that case, adjustments are made to the df using the Welch-Satterthwaite method. The effect of not being able to assume equal variances can lead to a large reduction in the df.

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TABLE 2. HIERARCHICAL MULTIPLE REGRESSION ANALYSIS FOR VARIABLES PREDICTING COMPULSIVE SNS SCALE OUTCOME

	SNS users (n = 792)	School (n = 133)
Step 1		
Gender <sup>a</sup>	0.13**	0.16
Age	-0.20**	-0.11
Adjusted R <sup>2</sup>	0.055	0.025
Step 2		
Psychometric scales	/	0.20
f.i. Loneliness		
Income	-0.15**	/
R <sup>2</sup> change	0.025	0.20
Step 3		
Attitude toward school	/	-0.21*
R <sup>2</sup> change	/	0.03
Total adjusted R <sup>2</sup>	0.076	0.20

Note: <sup>a</sup>Sex: male=0; female=1. \* $p < 0.01$ ; \*\* $p < 0.001$ .

### Author Disclosure Statement

No competing financial interests exist.

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