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Emotion Regulation and Desire Thinking as Predictors of Problematic Facebook Use

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Abstract

Research evidence suggests that problematic Facebook use (PFU) affects large numbers of people worldwide. A variety of studies have investigated the relationship between PFU and psychological dysfunction, revealing that negative mood and cognitive self-regulation are common among problematic Facebook users. The aim of the present study was to examine the role of craving, emotion regulation and desire thinking in predicting PFU. An online survey was administered to 750 participants ($M_{age} = 23.38$ years; $SD_{age} = 5.72$). Correlation analyses indicated that all predictor variables were positively associated with PFU. Path analysis showed that imaginal prefiguration was associated with craving, which, in turn, was associated with verbal prefiguration that was directly linked to PFU, beyond the direct effect of emotion regulation. These findings provide further support for the importance of desire thinking in predicting problematic behaviours. Desire thinking and emotion regulation should be considered in the modification of problematic Facebook use.

Keywords Problematic Facebook use · Desire thinking · Craving · Emotion regulation

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Introduction

Recent research suggests that problematic Facebook use (PFU) is characterized by emotional, cognitive and behavioural factors which negatively impact users' mental health and well-being [19]. A variety of studies have investigated the relationship between PFU and psychological dysfunction, revealing that negative mood and maladaptive cognitive self-regulation [5, 18] are common among problematic Facebook users. Compared to non-problematic users, problematic users of social networking sites report experiencing difficulties in emotion regulation and higher levels of craving [16]. However, an important construct, strongly associated to the ability to regulate one's own emotions, has yet to be investigated in the relationship between craving, emotion regulation and PFU: desire thinking (DT; [7]). Therefore, the aim of the current study was to model the role of emotion regulation, craving, and DT in predicting PFU.

According to the model proposed by Gratz and Roemer [13], emotion regulation refers to the effort to modulate emotional arousal, as well as the ability to behave in accordance with desired goals regardless of emotional state. A substantial body of research has shown that difficulties in emotion regulation, such as lack of awareness, understanding, and acceptance of emotions, are involved in the development and maintenance of addictive behaviours including alcohol use [1], gambling [25], problematic gaming, and Internet use [6]. In view that using Facebook as a means of mood regulation is one of the specific features characterizing PFU, it follows that difficulties in emotion regulation might contribute to maintain PFU via negative reinforcement [16]. Along with difficulties in emotion regulation, Hormes and colleagues [16] have shown that problematic Facebook users tend to also report high levels of craving. Craving is a powerful and automatic experience that motivates people to seek out the craved activity [20, 24] and is characterized by strong physiological 'markers' typically involved in substance and behavioural addictions (e.g., [3, 11, 26]). It follows that a strong urge to access social networking sites might be a predictor of PFU. Recent research has demonstrated that the intensity and escalation of craving may be linked to the voluntary cognitive elaboration (DT) of a desired target or activity [24]. DT has been described as a style of thinking involving the 'positive elaboration' of a craved target [7] and is characterized by two dimensions: (i) Imaginal Prefiguration (DT-IP), which is the conscious and intentional processing of the pleasant consequences of attaining the craved target (the 'film'); and (ii) Verbal Perseveration (DT-VP), which is the reviewing of good reasons for attaining the craved target (the 'self-talk').

The purposes of the present study were to: (1) further confirm the relationship between difficulties in emotion regulation, craving, and PFU; and (2) test the potential mechanism linking DT components to craving and PFU in a general adult sample. Specifically, previous studies have found that DT-IP is proximal to craving which, in turn, is associated to the tendency to process the positive consequences deriving of attaining the craved outcome (DT-VP); moreover, DT-VP has been found to be directly associated to engagement in problematic behaviors [9, 10, 21]. Therefore, it was hypothesized that DT-IP would be associated with craving, which in turn would be associated with DT-VP as a proximal predictor of PFU above and beyond difficulties in emotion regulation.

Methods

Procedure and Participants

Participants were recruited via online advertisements on Facebook. Seven hundred and fifty respondents completed an on-line questionnaire during the academic year 2016–2017. This took approximately 15 min to complete. Participants were aged between 18 and 62 years (M_{age} = 23.38; SD = 5.72; 71.9% females; 97% Italian). They were informed about the study aims and consented to participate prior to the online survey. Inclusion criteria were: being of age, ability to complete questionnaires in Italian, and having a Facebook account. The ethics committee of the University of Padova provided approval for the study.

Measures

Problematic Facebook Use PFU was measured with 15 items of the Problematic Facebook Use Scale [18]. The items are rated on a 8-point scale (from (1) "definitely disagree" to (8) "definitely agree") and include five dimensions: preference for online social interactions, mood regulation, cognitive preoccupation, compulsive use, and negative outcomes. Scores on the five dimensions were averaged to obtain a continuous score for PFU. The Cronbach's alpha for the scale was .86 (95% CI .85–.88).

Emotion Regulation Emotion regulation was assessed using the Italian version of the Difficulties in Emotion Regulation Strategies (DERS) [23]. The items are rated on a 5-point scale (from (1) "almost never" to (5) "almost always") and include six dimensions, labeled: lack of emotional awareness, lack of emotional clarity, difficulties controlling impulsive behaviors when distressed, difficulties engaging in goal-directed behavior when distressed, non-acceptance of negative emotional responses, and limited access to effective emotional regulation strategies. Scores on the six dimensions were averaged to obtain a continuous score for emotion regulation. The Cronbach's alpha for the scale was .93 (95% CI .92–.94).

Craving Craving was assessed using the Modified Penn Alcohol Craving Scale (PACS-FB; [16]) which measures the frequency, intensity and strength of craving for Facebook. The 5 items were rated on different 7-point scales (from (1) to (7)). The items were averaged to obtain a continuous score for craving. The Cronbach's alpha for the scale was .83 (95% CI .81–.85).

Desire Thinking DT was measured using the Desire Thinking Questionnaire [8] consisting of two dimensions of 5 items each: DT-IP (Desire Thinking – Imaginal Prefiguration) and DT-VP (Desire Thinking – Verbal Perseveration. Items were rated on a 4-point scale (from (1) "almost never" to (4) "almost always"). The scores on the two dimensions were averaged to obtain a continuous score for DT-IP and DT-VP. The Cronbach's alpha for the DT-IP subscale was .88 (95% CI .87–.90), and .84 (95% CI .82–.86) for the DT-IP subscale.

Statistical Analysis

First, correlation analyses were conducted in order to test the associations between the variables of interest. Then, we proposed a summary model of the inter-relationships between

the variables under study based on previous research findings [9]. A path analysis using the Lavaan package [22] of R software was conducted. The covariance matrix of the observed variable was analyzed with a Maximum Likelihood method estimator and the Sobel tests for mediation, also known as the product of coefficients approach [2, 15], was used to test for mediation.

To evaluate the goodness of fit of the model we considered the R^2 of each endogenous variable and the total coefficient of determination (TCD; [4, 17]).

Results

As expected, PFU was found to be positively associated with difficulties in emotion regulation and craving (Table 1). Moreover, a moderate association was observed between PFU and the two dimensions of DT, with the strongest link found with DT-VP.

As shown in Fig. 1, a path analysis revealed that DT-IP was associated to craving which, in turn, was associated to DT-VP as proximal antecedent of PFU, above and beyond the effect of emotion regulation. Moreover, two indirect effects were found significant: the effect of DT-IP on DT-VP via craving ($\beta = .07$, $p < .001$), and the effect of craving on PFU via DT-VP ($\beta = .08$, $p < .001$). The squared multiple correlations for the endogenous variables indicated that the model accounted for 18% of the variance in PFU. Less variance was explained for craving (5%) and DT - VP (10%). Finally, the total amount of variance explained by the model (TCD = .17) indicated a good fit to the observed data that corresponds to a correlation of $r = .41$. According to Cohen's [12] traditional criteria for evaluating effect sizes, this is a medium to large effect size.

Discussion

The present study provides further support for the role of DT in problematic behaviours [9]. Indeed, results from the path analysis linking DT components, craving and PFU were overall in line with previous findings in other forms of addictive behaviour, like problematic Internet use, binge drinking, and gambling [9]. In the specific case of PFU, it could be that the

Table 1 Bivariate correlations among the study variables

	Mean	SD	PFU	Gender	Age	Craving	EM	DT-IP
PFU	2.10	.90	–					
Gender	–	–	.10*	–				
Age	23.38	5.72	−.07*	.15**	–			
Craving	2.89	1.07	.53**	.10*	.07*	–		
EM	2.37	.59	.39**	−.07*	−.25**	.25**	–	
DT-IP	1.39	.56	.21**	−.04	−.02	.23**	.16**	–
DT-VP	1.38	.51	.34**	−.03	−.05	.31**	.23**	.67**

PFU, Problematic Facebook Use; *EM*, Difficulties in Emotion regulation; *DT-IP*, Desire thinking – Imaginal Prefiguration; *DT-VP*, Verbal perseveration
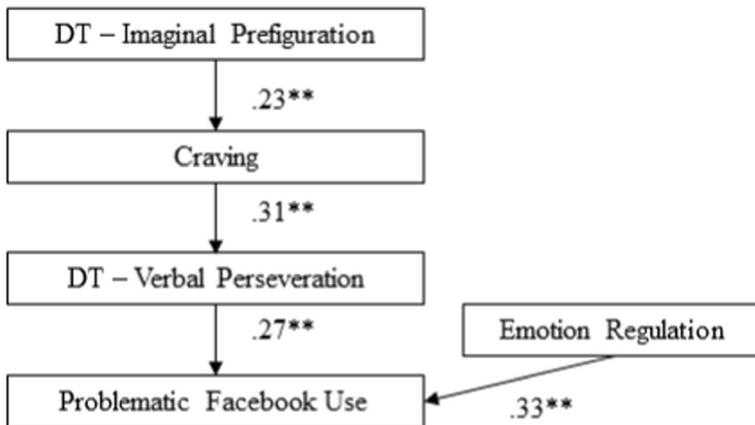
N = 750, *p < .05; **p < .01

Fig. 1 Model of the inter-relationships between the study variables. Notes: $N = 750$; $**p < .01$

construction of mental images of one-self using Facebook and the anticipation of the sensations that one would feel online on the site (DT-IP) might bring to the escalation of craving for accessing the site, thus making it difficult to resist checking Facebook [16]. Such urge to log on or check Facebook is likely to be associated to the repetitive self-talk regarding the need to use Facebook (DT-VP), especially if the desired activity (i.e. using Facebook) is not achieved or the user had made an effort to stay off the site. Indeed, the user stuck in thinking about Facebook continuously may experience higher levels of PFU in terms of deficient cognitive and behavioral regulation leading to negative consequences for daily life [18]. Along with the cognitive mechanisms leading to PFU, results from this study also confirm that Facebook users with difficulties in emotion regulation have higher levels of PFU [16]. For example, users experiencing emotional avoidance, lack of awareness and acceptance for their own emotional response, or poor impulse control [14] may tend to modify their mood by using Facebook, thus maintaining the problematic behavior via negative reinforcement [16].

The present study has some limitations that need to be acknowledged. First, the cross-sectional design hampers the possibility to establish causality among the variables and, therefore, longitudinal/experimental studies are needed. Second, this study uses a self-selected sample and self-report methods to collect data. Future research should focus on nationally representative sample and using other experimental methodologies.

However, taken together, findings from the present study show preliminary support for the role of regulation of desires, emotions, and behaviors in predicting PFU. In terms of clinical implications, treatment for PFU may consider: (1) improving emotion regulation strategies [1]; (2) improving 'on-line' meta-awareness about desire thinking, its impact on craving and decision making, and improving metacognitive control (e.g. postponing desire thinking, improving attentional flexibility, enhancing detached mindfulness; [24]).

In conclusion, the results suggest that both emotion regulation and desire thinking are involved in PFU. Therefore, these constructs should be considered in the modification of problematic Facebook behavior.

Compliance with Ethical Standards

Conflict of Interest   The authors declare no conflict of interest.

Inform Consent   All participants were informed about the aims of the study and gave their informed consent prior to starting the online survey.

Ethical Approval   The ethical committee of the University of Padova gave ethical approval for the study.

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