Strategies for self-controlling social media use: Classification and role in preventing social media addiction symptoms

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Background and aims: Many people present excessive patterns of social networking site (SNS) use and try to self-regulate it. However, little is known regarding the strategies employed by young adult SNS users and their role in preventing the emergence of addiction-like symptoms in relation to SNS use. *Methods:* In Study 1, we employed a naturalistic-qualitative approach for finding commonly employed self-control strategies in relation to SNS use. In Study 2, we examined differences between the frequency and difficulty of the strategies identified in Study 1 and tested the process through which trait self-control exerts influence on reducing SNS addiction symptomology. *Results:* Study 1 revealed six families of self-control strategies, some reactive and some proactive. Study 2 pinpointed the most commonly used and most difficult to enact ones. It also showed that the difficulty to enact self-control strategies in relation to SNS use partially mediates the effect of trait self-control via SNS use habit on SNS addiction symptom severity. *Conclusions:* Taken together, the present findings revealed that strategies for self-controlling SNS use are common and complex. Their theoretical and clinical significance stems from their ability to prevent the translation of poor trait self-control and strong SNS use habit to the emergence of excessive use as manifested in SNS addiction-like symptoms.

Keywords: excessive social media use, addiction symptoms, self-control strategies, trait self-control

INTRODUCTION

The use of social networking site (SNS), such as Facebook, Instagram, Twitter, WeChat, and Snapchat, has dramatically changed the way people socialize, share information, work, perceive others, and present themselves (e.g., Gil-Or, Levi-Belz, & Turel, 2015). One key aspect pertaining to this modern way of interaction is that it is readily available and easy to engage in through the use of computers, tablets, or smartphones. Not only is it possible to use SNS any time and in many places, but the high volume of cues (e.g., notifications and thoughts about others' thrilling experiences) are also there to remind and push people to further use social media, even at the expense of other life domains (e.g., family and work).

With the constant availability, persistent cues, and variable reward mechanisms, SNS use might challenge and redefine humans' self-control abilities (Turel & Qahri-Saremi, 2016), that is, one's capacity to promote his or her abstract and distal goals (e.g., health, well-being, and work/academic performance) when threatened by competing concrete and proximal goals (e.g., using SNS sites while driving, instead of studying, or during meetings) that produce strong immediate rewards or expected rewards,

and are hence difficult to overcome (Fujita, 2011; Tangney, Baumeister, & Boone, 2004).

Self-control has often been referred to as a process that enables reactive inhibition of maladaptive impulses (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Tangney et al., 2004). Accordingly, Baumeister's influential *strength-model* advances that self-control restraint relies on a limited resource equated with a muscle (Baumeister et al., 1998; Baumeister, Vohs, & Tice, 2007). Specifically, Baumeister's model posits that engaging in self-control quickly consumes one's limited resource or energy leaving him or her in a state of "ego-depletion." Hence, when individuals engage in an effortful activity at Time 1 (e.g., such as avoiding facing addiction-related stimuli), ability to exert self-control temporarily diminishes, and consequently performance on a different task at Time 2 typically deteriorates (e.g., higher

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financial risk-taking while gambling; see Brevers et al., 2018; for a meta-analysis, see Hagger, Wood, Stiff, & Chatzisarantis, 2010).

Latest conceptualizations of self-control call this view into questions, and advance that it can take the form of proactively choosing or changing situations in ways that weakens the undesirable impulses (Duckworth, 2011; Duckworth, Gendler, & Gross, 2016; Duckworth & Kern, 2011; Duckworth, Milkman, & Laibson, 2018; Duckworth, White, Matteucci, Shearer, & Gross, 2016; Fujita, 2011; Galla & Duckworth, 2015). More specifically, Duckworth's *process model* of self-control advances that intervening earlier in the cycle of short-term and pleasure-oriented impulse generation, when impulses are still developing, is more effective than intervening later (Duckworth, Gendler, et al., 2016; Duckworth et al., 2018; Duckworth, White, et al. 2016). Accordingly, Duckworth, White, et al. (2016) showed that high-school students more efficiently manage daily-life self-control challenges (e.g., interpersonal conflicts, get academic work done, and eat healthfully) when using situational "proactive" self-control strategies (i.e., situation selection and situation modification) rather than cognitive "reactive" ones (i.e., attentional deployment, cognitive/thinking change, and response modulation). These authors also outlined that students rated situational strategies as more effective than cognitive strategies to resist temptation and achieve long-term goal (Duckworth, White, et al., 2016).

With regard to SNS use, it has been highlighted that individuals with lower self-control dispositions are more prone to engage in excessive SNS use (Błachnio & Przepiorka, 2016; Osatuyi & Turel, 2018). Nevertheless, little is known regarding the nature of self-control strategies (e.g., situational vs. cognitive) that are used by individuals to regulate their level of SNS use. Understanding these strategies and approaches is critical, because it can inform therapists and serve as a basis for future intervention studies aimed at diminishing the potential negative consequences induced by excessive SNS use (e.g., Bielefeld et al., 2017).

The present paper aims to make initial strides toward this objective. In Study 1, we build on the process model of self-control (Duckworth, Gendler, et al., 2016; Duckworth et al., 2018; Duckworth, White, et al., 2016) to explore the types of strategies that are used by young adults to regulate their use of SNS. In Study 2, three potential mediators are considered (based on Galla & Duckworth, 2015) to examine antecedents and consequences of the use of SNS self-control strategies (as identified in Study 1). The underlying model suggests that (a) trait self-control is associated with stronger healthy habits and with lower self-control efforts, and (b) the automaticity of healthy habits mediates the association between trait self-control and the effortful inhibition of temptation. Extending this model to the domain of self-control of SNS use, we hypothesize that trait self-control is associated with reduced SNS use habit, effortful enactment of SNS self-control strategies, and excessive SNS use as manifested in addiction symptoms in relation to SNS use. We further hypothesize that SNS use habit and the effortful enactment of SNS self-control strategies mediate the association between trait self-control and addiction symptoms in relation to SNS use.

STUDY 1: A NATURALISTIC INVESTIGATION OF SNS SELF-CONTROL STRATEGIES

Methods

Participants. A sample of 751 undergraduate students in a university of the United States were selected for this study (age: $M = 23.55$, $SD = 4.48$, range from 18 to 49; 48% of female).

Procedure and measures. Participants were asked to complete an online survey (using LimeSurvey, Hamburg, Germany) in exchange for bonus points in a class. After having provided demographics status (gender and age), participants were asked to elaborate with one sentence on the specific action/thinking and context attached to each strategy (e.g., "Set a time limit. For example, I will set up time that I will concentrate on doing homework for 1–2 hr, then check social media later after I finished my tasks").

Data analysis and coding. Data analyses and coding procedures were based on a previous naturalistic investigation of self-control strategies by Duckworth, White, et al. (2016). Specifically, three trained coders categorized participants' self-control strategies. Based on an initial collective reading of responses from a subsample of the participants ($n = 200$), the coders arrived at a consensus. They reduced and categorized responses into eight categories, each pertaining to the same specific theme of SNS self-control action. More specifically, each strategy could belong to one family independently of the others. For instance, for undertaking the strategy "finish important tasks before checking my phone" (which refers here to strategy category: "straightforward self-control"), the individual can first put his/her phone on an airplane mode (which refers to the strategy category: "modify a feature on the device") or just resists to use social media using "in-the-moment" straightforward self-control while not employing another strategy. The labels and definitions of the eight types of self-control strategies are as follows (e.g., responses in each category; Table 1):

1. No strategy – little need to control: the individual has no (or very low) interest in social media (e.g., "never had social media").
2. No strategy – little motivation to control: the individual is interested in and use social media, but do not want to control access to it (e.g., "I don't want to control my social media use").
3. Prevent access – full: in this type of strategy, the individual creates or chooses a context that prevent any physical or perceptual access to social media (e.g., "Spend two days in an area with no service and limited Wi-Fi").
4. Prevent access – partial: in this type of strategy, the individual creates or chooses a safe context, but with self-selected potential access to social media (e.g., "I put my phone to charge 15 ft away from me").
5. Modify a feature on the device: in this type of strategy, the individual modifies a feature on the device to allow better control over social media use (e.g., "I put my phone on airplane mode").
6. Delimit a specific time of use: in this type of strategy, the individual associates a specific context with a

Table 1. Examples responses for each type of self-control strategy

Type of strategy	Examples of responses
1. No strategy: no (or very few) interest in social media	"Never had social media;" "I don't use social media to often"
2. No strategy: do not want to control his/her access to social media	"Never;" I don't want to control my social media use"
3. To build or choose a safe context with no direct access to social media	"I leave my phone in another room;" "charge my phone in a different room;" "leave phone at home for a day or two;" "Spend two days in an area with no service and limited Wi-Fi;" "leave my phone in the locker room while at work;" "leave my phone in the car and go to the library"
4. To build or choose a safe context but with a potential access to social media	"I put my phone to charge 15 ft away from me;" "Studying around others;" "I put my phone in my purse instead of my pants pocket to make it harder for me to grab;" "put my phone in a drawer;" "go to library and use computer"
5. To modify a feature on the device	"I put my phone screen down and on mute;" "I put my phone on airplane mode;" "Turn off my data and Wi-Fi;" "Leave my phone on mute at all times;" "putting my phone on "do not disturb;" "turn off notification sound;" "use an Internet blocker when trying to write papers"
6. To delimit a specific time of use	"No using social media when I'm at dinner;" "I plan to stop using social media after 11 pm;" "Check it only when I have a rest period between classes;" "Set limit of the time. For example, I will set up time that I will concentrate on doing homework for 1–2 hr, then check social media later after I finished my tasks;" "Only use it during relaxing periods of the day when I'm not engaging in others;" "Take 10 min breaks after every 1 hr of studying to use social media"
7. Self-talk	"I remind myself that work is more important than social media;" "Thinking about passing the course;" "I try to focus on other important things like school and getting my work done;" "Remind myself of the overall goals that I need to accomplish;" "tell myself that there is an important test coming up;" "remind me that my "to do list" is more important"
8. Straightforward self-control	"keep working;" "self-control, simply forcing myself to not check social media until I'm done with the task at hand;" "use self-control and not look at my phone;" "finish important tasks before checking my phone;" "If I am working on something more important than alerts from social media, I will simply ignore any phone completely;" "to ignore my phone"

preventive or controlled use over social media (e.g., "I plan to stop using social media after 11 pm").

7. Self-talk: in this type of strategy, the individual uses thinking or mental imagery to reflect on his/her long-term goals and in order to resist to social media use (e.g., "tell myself that there is an important test coming up").

8. Straightforward self-control: in this type of strategy, the individual resists directly to SNS use and continues the task at hand "finish important tasks before checking my phone."

Next, the three coders categorized the reported self-control strategies based on the schema derived from the sampled 200 participants (i.e., three responses per participant). Less than 1% of responses ($n = 5$) could not be coded because they were blank or incomprehensible. About 3% of responses ($n = 19$) could not be categorized because they did not provide sufficient information. About 4% of responses ($n = 23$) referred to "other activities" (e.g., listen to music, read a book, and sports activities). This type of responses was not categorized as self-control strategies, as it refers to "beneficial habits" rather than self-control strategies used to regulate an impulse (Duckworth, Gendler, et al., 2016; Duckworth, White, et al., 2016). Intercoder agreement was reached for 81% of valid responses ($n = 447$; Cohen's

$\kappa = 0.57$, $p < .001$). Full intercoder agreement was reached through discussion.

Ethics

All procedures performed in studies involving human participants were in accordance with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Each participant gave informed consent to the experimental procedure, which was approved by Institutional Review Board of California State University, Fullerton.

Results

We observed that very few participants did not report using self-control strategies to regulate their SNS use (no interest in social media = 2%, $n = 15$; no motivation to control social media use = 3%, $n = 23$). The total number of response corresponding to a valid self-control strategy (i.e., excluding "No strategy – little need to control" and "No strategy – little motivation to control") was 2,096. The types of strategies were not equally popular [order of description: first, $\chi^2(7, N = 697) = 592.93$, $p < .001$; second, $\chi^2(7, N = 681) = 398.60$, $p < .001$; third, $\chi^2(7, N = 652) = 235.71$, $p < .001$]. As shown in Figure 1, the most common self-control strategy was "to modify a feature on the device"
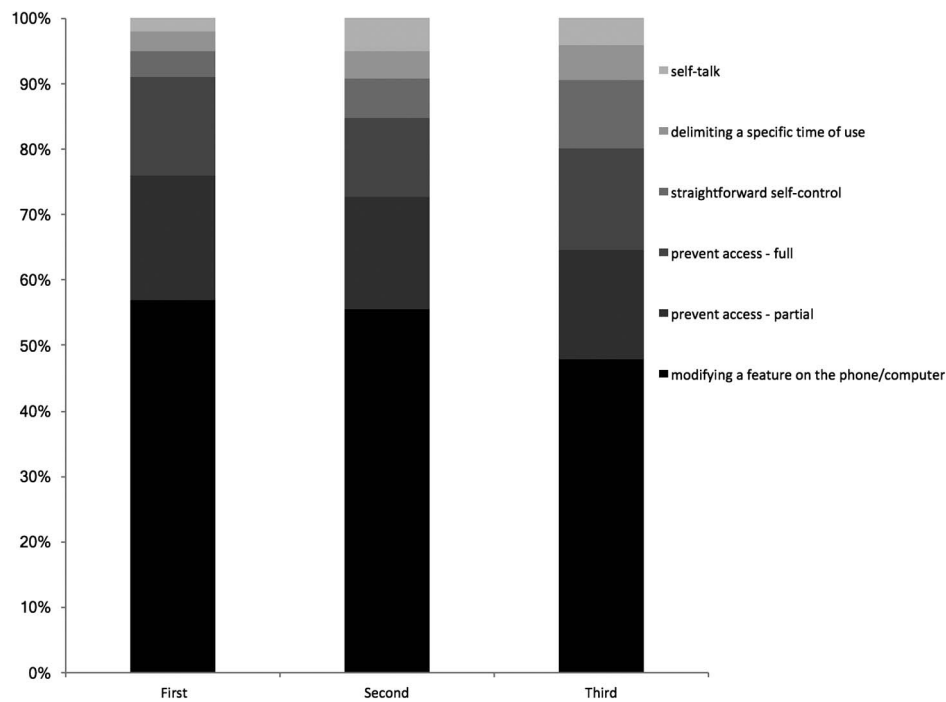
Figure 1. Ordered frequencies for self-control strategy categories

(first = 57%, *n* = 406; second = 55%, *n* = 392; third = 46%, *n* = 327), followed by "to prevent access – partial" (first = 19%, *n* = 135; second = 17%, *n* = 121; third = 16%, *n* = 114), "to prevent access – full" (first = 15%, *n* = 106; second = 12%, *n* = 85; third = 15%, *n* = 106), "straightforward self-control" (first = 4%, *n* = 29; second = 6%, *n* = 42; third = 10%, *n* = 71), "to delimit a specific time of use" (first = 3%, *n* = 21; second = 4%, *n* = 28; third = 5%, *n* = 36), and "self-talk" (first = 2%, *n* = 14; second = 5%, *n* = 35; third = 4%, *n* = 28).

In summary, Study 1 revealed six families of self-control strategies. Consistent with the study of Duckworth, White, et al. (2016), we found difference in the popularity of each strategy. The present categorization is also in line with the process model of self-control (Duckworth et al., 2018; Duckworth, Gendler, et al., 2016; Duckworth, White, et al., 2016). Our findings indicate that self-control can take two broad forms. First, they can be in form of reactive "in the moment" acts (e.g., "self-talk" and "straightforward self-control"). Second, they can also be more proactive, in the sense that they are aimed at choosing or changing situations for preventing SNS use (e.g., "prevent access – full or partial"). In Study 2, we examined antecedents and consequences of the use of the SNS self-control strategies identified in Study 1.

STUDY 2: ANTECEDENTS AND CONSEQUENCES OF DIFFICULTY TO MOBILIZE SNS SELF-CONTROL STRATEGIES

Methods

Participants. Two hundred ninety-eight undergraduate students (age ranging from 18 to 54 years; *M* = 25.23, *SD* = 5.31; 36% of female) were recruited from a large public university in the United States.

Procedure and measures. Imputed average scale scores were calculated for all multi-item scales after establishing their reliability.

Trait self-control. Participants completed the 13-item of the Brief Self-Control Scale (Tangney et al., 2004). Items (e.g., "I am good at resisting temptation") were endorsed on a 5-point scale, where 1 = *not at all like me* and 5 = *very much like me*. Cronbach's α was .83. Higher scores indicated better self-control.

SNS use habit. Participants completed the 12-item Self-Report Habit Index applied to the case of SNS use (Turel & Bechara, 2016). Items (e.g., "The use of this social networking sites is something: that I do without thinking") were endorsed on a 7-point scale, where 1 = *strongly disagree* and 7 = *strongly agree*. Cronbach's α was .93. Higher scores indicated stronger habit.

SNS self-control strategies (see Appendix for a copy of the scale). For each type of self-control strategy identified in Study 1, a description and examples were provided, and participants were asked to rate how frequent they used the strategy (from 1 = *never* to 5 = *very often*) and how difficult it is for them to undertake it (from 1 = *not at all* to 5 = *extremely*). Both scales were reliable (frequency: Cronbach's α = .76 and difficulty α = .89). Aggregated scores representing a summative assessment of frequency and difficulty of self-control strategies regarding SNS use were created. Higher scores mean more frequent enactment of and more difficult to enact self-control strategies, respectively.

SNS addiction symptoms. Participants endorsed the six items of the Bergen Facebook Addiction Scale (Andreassen, Torsheim, Brunborg, & Pallesen, 2012) on a 7-point scale, where 1 = *strongly disagree* and 7 = *strongly agree*. Cronbach's α was .80. Higher scores indicated stronger SNS addiction symptoms.

Statistical analysis. Our first aim was to explore how scores of frequency and difficulty varied according to the type of self-control strategy. To this end, repeated-measures analysis of variance (ANOVA) was employed, with the type of strategy as within-subjects factor and scores of frequency and difficulty as dependent variables. Our second aim was to examine a sequential mediation model, with self-control trait as the independent variable, SNS use habit as the first mediator, frequency or difficulty of self-control strategies as the second mediator, and SNS addiction symptoms as the dependent variable (see Figure 2). To do so, we examined whether the conditions for mediation were met by testing zero-order correlations between trait self-control, SNS use habit, and the examined outcomes (significance level set at $p < .001$). Then, we tested for the indirect (or mediational) effect of self-control on the examined outcomes (through SNS use habit) using bias-corrected 95% confidence intervals (CIs) with 5,000 bootstrapped samples (Preacher, Rucker, & Hayes, 2007). Mediation analyses were conducted using the PROCESS 3.0 Macro (Hayes, 2013) implemented in SPSS 24 (IBM Corp., Armonk, NY, USA).

Ethics. All procedures performed in studies involving human participants were in accordance with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Each participant gave informed consent to the experimental procedure, which was approved by Institutional Review Board of California State University, Fullerton.

Results

Differences in frequency and difficulty ratings of SNS self-control strategies. A repeated-measures ANOVA showed that frequency ratings varied by strategy type, $F(5, 1485) = 17.57$, $p < .001$, $\eta^2 = 0.06$. As illustrated in Figure 3, post-hoc pairwise comparisons using Bonferroni correction showed that "straightforward self-control" was rated as more frequent that the other five strategies ($ps < .001$), with no significant difference between the other five strategies. A second repeated-measures ANOVA demonstrated that difficulty ratings varied by strategy type, $F(5, 1485) = 3.44$, $p = .004$, $\eta^2 = 0.01$. As illustrated in Figure 3, post-hoc pairwise comparisons using Bonferroni correction showed that "straightforward self-control" was rated as more difficult than "to build or choose a safe context but with a potential access to social media" ($p = .003$), "to modify a feature on the device" ($p = .043$), and "self-talk" ($p = .021$).

The strategies "to build or choose a safe context but with no direct access to social media" and "to delimit a specific time of use" were reported to have an intermediate level of difficulty.

Trait self-control and SNS habit associations with difficulty and frequency of SNS self-control strategies. Individuals with higher trait self-control demonstrated lower SNS use habit, $r(298) = -.25$, $p < .001$, lower difficulty to enact SNS self-control strategies, $r = -.45$, $p < .001$. Trait self-control was not associated with frequency of self-control strategies, $r = -.043$, $p = .46$. SNS use habit was positively related to the difficulty to enact self-control strategies, $r = .36$, $p < .001$, but not to the frequency of self-control strategies, $r = .05$, $p = .38$. Finally, the difficulty to enact self-control strategies was positively associated with the frequency of self-control strategies, $r = .31$, $p < .001$.

Trait self-control, SNS habit, difficulty, and frequency of SNS self-control strategies associations with SNS addiction symptoms severity. Individuals with better trait self-control reported lower score of SNS addiction symptoms severity, $r(298) = -.36$, $p < .001$. Both higher SNS use habit, $r = .46$, $p < .001$ and difficulty to undertake SNS self-control strategies, $r = .56$, $p < .001$ were positively associated with SNS addiction symptoms severity. A significant positive association was observed between the frequency of self-control strategies and SNS addiction severity score, $r = .27$, $p < .001$.

Mediation model. Based on the results above, the zero-order correlation conditions for mediation were met by difficulty, but not frequency, of SNS self-control strategies. Therefore, we tested a serial multiple mediator model with the difficulty, but not the frequency of SNS self-control strategies scores. The effect of trait self-control on SNS addiction severity was mediated by SNS use habit (*Indirect Effect* = -0.14, 95% CI [-0.23, -0.07]). That is, self-control predicted higher SNS use habit, which in turn predicted higher SNS addiction symptom severity. The effect of trait self-control on SNS addiction severity was also mediated by difficulty to enact SNS self-control strategies (*Indirect Effect* = -0.25, 95% CI [-0.36, -0.16]).

Next, we tested a serial multiple mediator model using addiction severity as the outcome, low trait self-control as the instigator of the process, and SNS use habit and difficulty to enact self-control strategies as mediators. This indirect path was significant (*Indirect Effect* = -0.03,
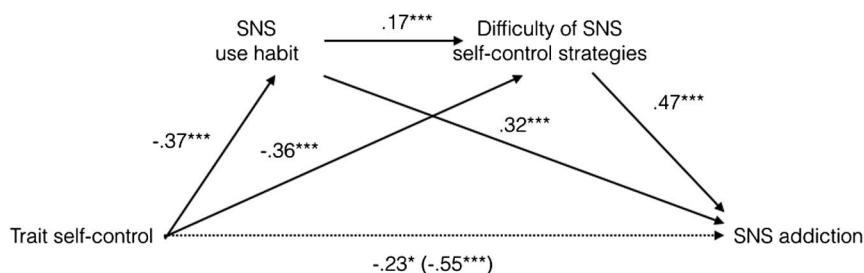
Figure 2. Mediation analysis of the effect (standardized regression coefficients) of self-control on SNS addiction symptom severity through SNS use habit and difficulty to undertake self-talk for controlling SNS use. The first coefficient on the path from self-control to SNS addiction represents the total effect without mediators in the model. The second coefficient on this path (in parentheses) represents the direct effect when mediators are included. *$p < .05$. ***$p < .001$
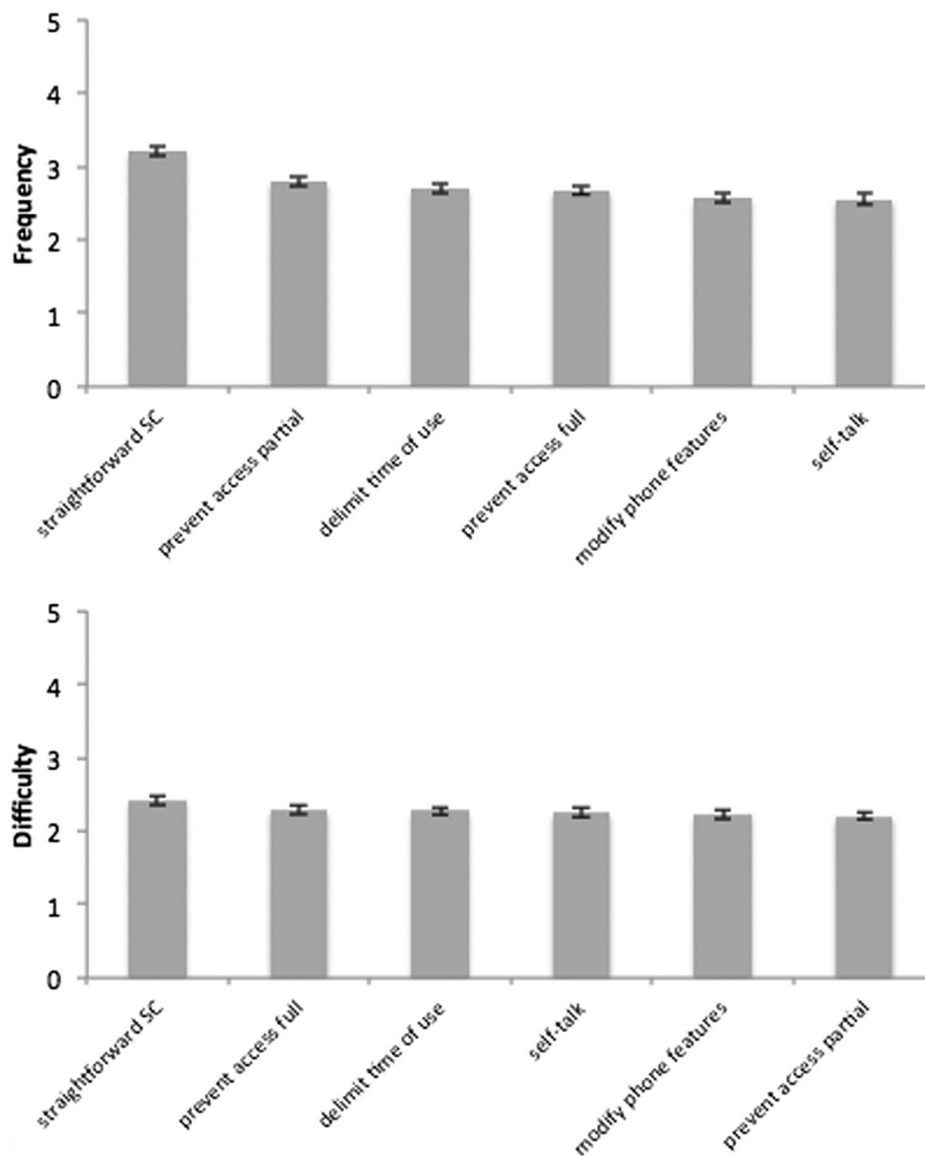
Figure 3. Frequency and difficulty ratings associated with each type of SNS self-control strategies

95% CI [−0.04, −0.01]). As shown in Figure 2, lower trait self-control predicted higher SNS use habit, which predicted greater difficulty to enact self-control strategies, and ultimately produced more severe SNS addiction symptoms.

DISCUSSION

In Study 1, we explored the types of self-control strategies that are used in the everyday lives of young adults for regulating their level of SNS use. The main goal of this procedure was to obtain an account of daily-life self-control acts aimed at self-regulating SNS use, and see if some of these strategies are proactive and others are reactive. We observed that SNS self-control is a complex construct that entails a broad range of families of acts. Some of these strategies involve reactive "in-the-moment" acts (e.g., "self-talk" and "straightforward self-control"). Others are more proactive in the sense that they are aimed at choosing or

changing situations for preventing SNS use (e.g., "prevent access – full or partial").

These findings are in line with recent theoretical accounts on self-control (Duckworth, 2011; Duckworth, Gendler, et al., 2016; Duckworth & Kern, 2011; Duckworth, White, et al., 2016; Galla & Duckworth, 2015), which posit that self-control can manifest in both proactive and reactive inhibition attempts. We show here that this applies also to social media. From a practical standpoint, it has been suggested that intervening earlier in the cycle of short-term and pleasure-oriented impulse generation (i.e., trying to be proactive and prevent tempting situations) is more effective than intervening later (Duckworth, Gendler, et al., 2016; Duckworth, White, et al., 2016). Hence, our findings suggest that SNS users, families, teachers, and health professionals should educate people about and promote proactive SNS self-control strategies (e.g., by creating a safe context). Given that therapists treating people with excessive SNS use symptoms deal with situations where the temptation is

already formed, our findings suggest that a combination of teaching SNS users to enact reactive strategies (e.g., self-talk) while trying to reduce tempting situations through proactive strategies (e.g., use technical features to limit use) should be considered. Determining the merit of this approach, though, requires further search.

In Study 2, we first observed that the most difficult strategy to undertake ("straightforward self-control") was also the most frequently used one. In other words, individuals opt for strategies that allow for live monitoring of SNS use, even if those strategies are the most difficult to undertake. Interestingly, the strategy that is theoretically characterized by a high degree of restrictive SNS access (i.e., "prevent access – full: to create or choose a safe context with no physical access to social media") was reported as one of the less frequently used ones, but also as the second most difficult self-control strategy to undertake. As such, the present findings suggest that the pattern of self-control strategies associated with a highly accessible conduct (i.e., SNS) might not fully correspond to the cycle of impulse development described in the process model of self-control (in terms of both difficulty and frequency ratings). To a broader extent, the present findings are in line with studies showing that self-control remains an effortful process, independently of the type of strategies employed for modulating the difficulty of the self-control challenge. Indeed, it has been shown that effortful cognitive control is intrinsically aversive (Botvinick, 2007; Kool & Botvinick, 2014; Kool, McGuire, Rosen, & Botvinick, 2010) and less frequently used when low-effort cognitive strategies (Goldfarb & Henik, 2007, 2013, 2014) or alternative beneficial habits (Galla & Duckworth, 2015) can be used.

The main goal of Study 2 was to conceptualize and validate the processes underlying the translation of trait self-control into SNS addiction symptom severity. Three potential mediators were considered based on Galla and Duckworth (2015): SNS use habit, frequency of SNS self-control strategies, and difficulty to undertake SNS self-control strategies. First, we observed that trait self-control was negatively associated with SNS use habit, higher frequency of SNS self-control strategies, and lower difficulty to undertake SNS self-control strategies. Second, trait self-control, SNS use habit, difficulty – but not frequency – of SNS self-control strategies were associated with SNS addiction severity. The non-significant association between the frequency of SNS self-control strategies and SNS addiction symptom severity may be explained by the idea that addiction severity can be associated both positively and negatively with the frequency of corrective behaviors; it can motivate and demotivate such actions (Turel, 2015). Finally, SNS use habit and difficulty of self-control mediated the effect of trait self-control on SNS addiction severity. More specifically, lower trait self-control predicted higher SNS use habit, which in turn predicted higher difficulty to undertake SNS self-control strategies. This difficulty ultimately predicted higher SNS addiction severity.

As a whole, findings from this study imply that individuals with high trait self-control are better at avoiding SNS addiction symptoms merely because they develop a weaker SNS use habit and consequently find it easier to enact self-control strategies in relation to SNS use. These results are in line with studies showing that better self-control is associated with weaker unhealthy habits (Adriaanse, Kroese, Gillebaart, & De Ridder, 2014), higher engagement in beneficial habits (Galla & Duckworth, 2015), as well as less effortful inhibition of immediately available temptations (Hofmann, Baumeister, Förster, & Vohs, 2012; Imhoff, Schmidt, & Gerstenberg, 2013). In other words, self-control is more about building good habits and being less involved with bad habits, than about being intrinsically good at the effortful inhibition of short-term temptations.

From a practical standpoint, the present findings suggest that psychological interventions aimed at alleviating excessive use of SNS should consider the cluster of traits and states: self-control, SNS habit, and difficulty of SNS self-control strategies. Nevertheless, further studies are needed for examining how intervening on such a dynamic cluster could help people with excessive SNS use. One direction would be to examine the predictive effect of each type of self-control strategy on the level of social media addiction symptoms (i.e., in this study, we used aggregated scores representing a summative assessment of frequency and difficulty of self-control strategies regarding SNS). Specifically, individuals with high levels of SNS addiction symptoms could benefit from interventions aimed at boosting impulse-control processes to diminish the difficulty to undertake SNS self-control strategy (e.g., response inhibition training for the "straightforward self-control" strategy, see Lawrence, Verbruggen, Morrison, Adams, & Chambers, 2015; and metacognition training for the "self-talk" strategy, see Dragan & Dragan, 2014). These ideas, though, merit examination in future clinical trials.

Several limitations of this study are noteworthy. First, the proposed classification represents a balance between ease of interpretation (all strategies belong to one family) and accuracy (each strategy is set as its own family), and manifests from the provided information only. It is, therefore, not as fine-grained as it could be. For instance, when defining the "straightforward self-control" strategy, we were not able to classify participants' answers according to more specific processes, such as attention or response modulation (Duckworth, White, et al., 2016). For instance, the answer "to ignore my phone" might imply attentional (e.g., to avoid looking at the phone), as well as response modulation processes (e.g., to study). Second, we assumed a reasonable interdependence between the self-control strategies, but this is not always the case. For instance, to delimit a specific time of SNS use (e.g., "Not using SNS when I'm at dinner"), one can first modify a feature on his/her phone (e.g., "I put my phone on an airplane mode"). Nevertheless, the individual can also delimit a specific time of SNS use while not using other strategies. Hence, additional studies are needed to further specify processes and types of self-control strategies aimed at regulating SNS use. This study makes only first strides toward this objective, and caution should be exercised regarding broad interpretation of its results.

To conclude, the current results offer a preliminary portrait of common self-control strategies for regulating SNS use, and their role in reducing social media addiction symptoms. The findings can inform therapists, parents, and educators trying to help people deal with or prevent

excessive social media use. They can also serve as a basis for intervention studies aimed at helping individuals take control over SNS use.

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APPENDIX

Sometimes, the use of social media (e.g., Facebook, Snapchat, Twitter, WeChat, Instagram, Linkedin, etc.) can prevent you from performing some tasks/acitivities in an optimal way (e.g., studying, working, driving, spend some times with your family, etc.). In this survey section, you will see different types of strategies that can be used *to limit/control your access to social media networks.*

For each strategy, we ask you to rate:
– Its *FREQUENCY* of use in *YOUR* life
  1 = never,   2 = rarely,   3 = sometimes,   4 = often, 5 = very often
– How *DIFFICULT* for *YOU* to undertake this strategy
  1 = not at all, 2 = not much, 3 = moderate, 4 = very, 5 = extremely

Strategy type	Frequency	Difficulty
Doing another activity (in order to limit/control your acess to social media)	1 2 3 4 5	1 2 3 4 5
For instance: "listen to music;" "to read a book;" "outdoors/sports activities;" "playing a board game with my friends/family;" "to do productive activities I enjoy;" take a walk or hang out with my friends"		
To build or choose a safe context *with no direct access* to social media	1 2 3 4 5	1 2 3 4 5
For instance: "to leave/charge my phone in another room;" "to leave phone at home for a day or two;" "to leave hone at home and spend some time in an area with no service and/or Wi-Fi;" "to leave my phone in the locker room;" "to leave my phone in the car"		
To build or choose a safe context *but with a potential access* to social media	1 2 3 4 5	1 2 3 4 5
For instance: "to put my phone to charge 15 ft away from me"; "Studying around others;" "To put my phone in my purse/my pants pocket to make it harder for me to grab;" "To put my phone in a drawer/under the pillow;" "To go to library"		
To modify a feature on the phone/computer	1 2 3 4 5	1 2 3 4 5
For instance: "to put my phone screen down and on mute;" "to put my phone on airplane mode;" "to turn off my data and Wi-Fi;" "to leave my phone on mute at all times;" "To put my phone on "do not disturb;" "turn off notification;" "to use an internet blocker"		
To delimit a specific time of use	1 2 3 4 5	1 2 3 4 5
For instance: "No using social media during dinner;" "to stop using social media after 11 pm;" "to check it only when I have a rest period between classes;" "to only use it during relaxing periods of the day when I'm not engaging in others;" "to take 10 min breaks after every 1 hr of studying to use social media"		
Self-talk	1 2 3 4 5	1 2 3 4 5
For instance: "to remind myself that work is more important than social media;" "thinking about passing the course;" "to remind myself of the overall goals that I need to accomplish;" "tell myself that there is an important test coming up;" "to remind me that my "to do list" is more important"		
Straightforward self-control	1 2 3 4 5	1 2 3 4 5
For instance: "just keep working;" "forcing myself to not check social media until I'm done with the task at hand;" "use self-control and not look at my phone;" "finish important tasks before checking my phone;" "to ignore my phone"		