

When Loving Yourself Becomes an Addiction: A Study About the Relationship Between Adolescent Narcissism and Social Media Addiction

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This thesis has been written as a study assignment under the supervision of a Utrecht University teacher. Ethical permission has been granted for this thesis project by the ethics board of the Faculty of Social and Behavioral Sciences, Utrecht University, and the thesis has been assessed by two university teachers. However, the thesis has not undergone a thorough peer-review process so conclusions and findings should be read as such.

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Abstract

Social media is very popular among adolescents. Yet, the use of social media has a downside. Some adolescents find themselves addicted to social media. To reduce the risk of social media addiction, it is important to know which groups are at most risk. Therefore, the aim of this cross-sectional study was to investigate whether there is a relationship between adolescent narcissism and social media addiction. Furthermore, this study tested whether attention-seeking explains the relationship between adolescent narcissism and social media addiction. Lastly, it tested if self-esteem impacts the relationship between adolescent narcissism and social media addiction. Data from the Digital Youth Project was used to perform a hierarchical regression analysis on a sample of 2443 adolescents. Results showed a significant relationship between adolescent narcissism and social media addiction, this relationship is partially explained by attention-seeking. Self-esteem was not found to have an impact on the relationship between adolescent narcissism and social media addiction. An important limitation to consider is that this study is cross-sectional. In order to make statements about the directions of the effects, a longitudinal study needs to be conducted. Despite this limitation, the findings highlight the importance of targeting narcissistic adolescents to potentially reduce social media addiction.

Sociale media is enorm populair onder adolescenten. Het gebruik van sociale media heeft echter ook een keerzijde. Voor sommige adolescenten kan het leiden tot een sociale media verslaving. Om het risico op verslaving te verkleinen is het van belang om inzichtelijk te maken welke groepen het meeste risico lopen. Het doel van dit cross-sectionele onderzoek is daarom om te onderzoeken of narcistische adolescenten kans hebben op een sociale media verslaving. Daarbij is onderzocht of de variabele 'aandacht zoeken' de relatie tussen narcistische adolescenten en sociale media verslaving kan verklaren. Tot slot, is getest of de variabele 'zelfvertrouwen' van invloed kan zijn op de relatie tussen narcistische adolescenten en sociale media verslaving. De data van het Digital Youth Project is gebruikt om een hiërarchische regressieanalyse uit te voeren op een steekproef van 2443 adolescenten. De resultaten toonde een significante relatie aan tussen narcisme bij adolescenten en verslaving aan sociale media, deze relatie werd gedeeltelijk verklaard door de variabele aandacht zoeken. Zelfvertrouwen werd niet gevonden als een factor die invloed heeft op de relatie tussen narcistische adolescenten en een sociale media verslaving. Een belangrijke beperking om in overweging te nemen is dat dit onderzoek cross-sectioneel is. Om uitspraken te kunnen doen over de richtingen van de effecten, is een longitudinaal onderzoek nodig. Ondanks deze beperking benadrukken de bevindingen het belang van het richten op narcistische adolescenten om mogelijk de verslaving aan sociale media te verminderen.

Keywords: social media addiction, adolescent narcissism, attention-seeking, self-esteem

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Introduction

Especially among adolescents, social media has become enormously popular (Statista, 2022). Communicating with peers through social media has become the norm, and it has emerged as the common way for adolescents to express themselves (Griffiths & Kuss, 2017). However, the growing popularity of social media use can also lead to addiction (Griffiths, 2013). For adolescents, social media is highly accessible and there is limited professional guidance available on how to use it, which makes it attractive but also dangerous (Mahamid & Berte, 2019). Parents are often concerned about the risks social media brings. Regardless, they often feel ill-equipped to deal with potential threats of social media, such as addiction (Lin et al., 2019).

Addictive social media behavior has been defined as “Being overly concerned about social media, driven by an uncontrollable motivation to log on to or use social media, and devoting so much time and effort to social media that it impairs other important life areas.” (Andreassen & Pallesen, 2014, p. 4054). Both the syndrome model of addiction and the biopsychosocial framework for the etiology of addictions have argued that adolescents addicted to social media experience the same symptoms as people with a substance-related addictions (Griffiths, 2013). These typical symptoms are mood modification, conflict, salience, tolerance, withdrawal symptoms, and relapse (Griffiths, 2013). Yet, despite the similarity in symptoms, the treatments deviate. Where substance-related addictions are treated with a full detox, the treatment of social media addiction poses additional challenges. Social media have become such a fundamental element of today’s society a full detox would be hardly feasible. As such, treatment focusses much more on the managing of the use of social media rather on the absence of it (Griffiths, 2013).

Individual personality differences have been shown to play an essential role in the development and maintenance of addictive social media behavior (Casale & Banchi, 2020). One of these personality variables that has been studied several times in relation to social media use is narcissism. Both the rise in narcissism among adolescents and the increasing use of social media among this group have raised questions about whether these are connected (Bergman et al., 2011). The relationship between narcissism and social media addiction has been examined in various studies but the results are inconclusive. Some studies have found a relationship while others have not (Casale & Banchi, 2020). One potential reason for the inconsistent results may be that some data has been conducted in the general population and

not solely focused on adolescents. In the current study we will further elaborate on the link between narcissism and social media addiction by specifically focusing on adolescents, see Figure 1. The specific focus on adolescents is important since they use social media much more frequently than the older generation, which makes them more vulnerable to the risk of social media addiction (Davenport et al., 2014). Additionally, studies on adolescent narcissism have been rare due to a lack of an adolescent measure for narcissism. Since Thomaes et al. (2008) developed the measurement tool for adolescent narcissism, more studies on adolescent narcissism have been conducted e.g. Hawk et al. (2019). Furthermore, we will include attention-seeking as mediator, since this variable has found to be associated with narcissism and social media addiction, and we would like to further investigate this relationship (Hawk et al., 2019). Lastly, we will include self-esteem as moderator. Self-esteem has not been previously examined in studies on narcissism and social media addiction. Yet, it is hypothesized that adolescents with low-self-esteem are more vulnerable to social media addiction (Kircaburun, 2016). Therefore, it would be interesting to see if self-esteem may alter the relationship between adolescent narcissism and social media addiction.

As has been mentioned, adolescents are constantly exposed to social media, which makes them more vulnerable to social media addiction (Boursier et al., 2020). This social media addiction can have major consequences for both mental and physical health (Casale et al., 2016). By including the aforementioned variables in our analysis, we can gain a better understanding of the target group and potentially develop more effective strategies for managing the risks of social media addiction.

Narcissism and social media addiction

Narcissism is a personality trait characterized by a sense of entitlement, grandiosity, and a lack of empathy (Davenport et al., 2014). Narcissists often seek admiration and validation from others and may struggle to form deep, meaningful connections with others due to their self-centeredness (Bergman et al., 2011). Social media platforms offer powerful tools for receiving desired attention and showcasing one's personality. Therefore, social media forms an ideal environment for narcissistic adolescents to satisfy their needs (Casale & Banchi, 2020). By using social media it is, for instance, easier for narcissists to form a large number of weak connections with others. These weak connections can provide them with the external validation and affirmation they crave (Bergman et al., 2011). Furthermore, narcissists tend to promote the perfect image. Social media enables narcissists to do so

because it provides great control over self-presentation, allowing individuals to make use of filters and other features (Casale et al., 2016).

For narcissists, continuous confirmation to feed their grandiose self-image is crucial and works addictively (Andreassen et al., 2017). Therefore, the ability to feed their grandiose self-image through likes and followers on social media can be related to social media addiction (Andreassen et al., 2017). Several studies have found a significant relationship between narcissism and addictive social media behavior (e.g. Hawk et al., 2019). However, there is some inconsistency in the literature. For instance, Hawk et al. (2019), using longitudinal data, found a positive relationship between adolescent narcissism and social media addiction. The cross-sectional study of Casale and Fioravanti (2018) on the other hand only identified a weak association between the variables. Moreover, the cross-sectional study of Davenport et al. (2014) did not report a significant relationship between narcissism and social media addiction. These mixed results may be attributed to the different research designs. Longitudinal data documents changes and patterns over time, which may reveal significant results that are not always captured with cross-sectional data. Furthermore, these mixed results could also be due to the lack of specific focus on adolescents in the studies of Casale and Fioravanti (2018) and Davenport et al. (2014). For adolescents social media is an integral part of their lives. In contrast to the older generation who are accustomed to using social media daily (Davenport et al., 2014). Therefore, adolescents may have a higher likelihood of becoming addicted to social media (Davenport et al., 2014). Additionally, Hawk et al. (2019) emphasized the importance of social media as a platform for adolescents to gain attention. Using social media to satisfy certain needs potentially explains why Hawk et al. (2019) found a positive association between narcissism and social media addiction. However, more research are needed to fully understand this relationship. Therefore, this study aims to provide additional evidence by testing the hypothesis that there is a positive relationship between adolescent narcissism and social media addiction (H1).

Mediator variable, attention-seeking

A mediator factor that needs to be taken into account is 'attention-seeking'. Dumas et al. (2023) stated that many adolescents face pressure to gain and maintain social media attention because it is seen as a form of status and appreciation. Additionally, Allahverdi (2022) stated that attention-seeking can help to achieve admiration from others.

The Dynamic Self-Regulatory Processing Model of Morf and Rhodewalt (2001) is a useful framework to explain this relationship. It emphasizes the dynamic interaction between the individual and their environment and explains how the individual seeks to gain control over their surroundings to achieve their goals (Hawk et al., 2019). Applied to the topic of narcissism, this theory argues that narcissists will try to uphold their unrealistic self-image by manipulating their surroundings. They try to create the possibility for self-improvement, seek positive feedback, and present self-presentations that express their supposed superiority (Hawk et al., 2019; Morf & Rhodewalt, 2001). Social media offers a big audience that narcissists can use for self-promotion, which can lead to self-validation and positive feedback from the audience (Boursier et al., 2020). Narcissists will then try to seek attention from the audience by posting selfies and keeping their audience updated. That does not mean that they try to maintain strong friendships, which according to Dumas et al. (2023) will indeed not happen. They showed in their study that attention-seeking behavior actually leads to a decrease in current peer relationships. Instead, narcissists present an unrealistic version of themselves which people can admire online, but are not able to be actually in touch with (Hawk et al., 2019). Ultimately this excessive attention-seeking behavior, to achieve the narcissist's goal of getting acknowledgement of their grandiose self-image, can lead to problematic social media behaviors (Hawk et al., 2019). Following this reasoning, we expect that attention-seeking functions as a mediator in the relationship between narcissism and social media addiction (H2).

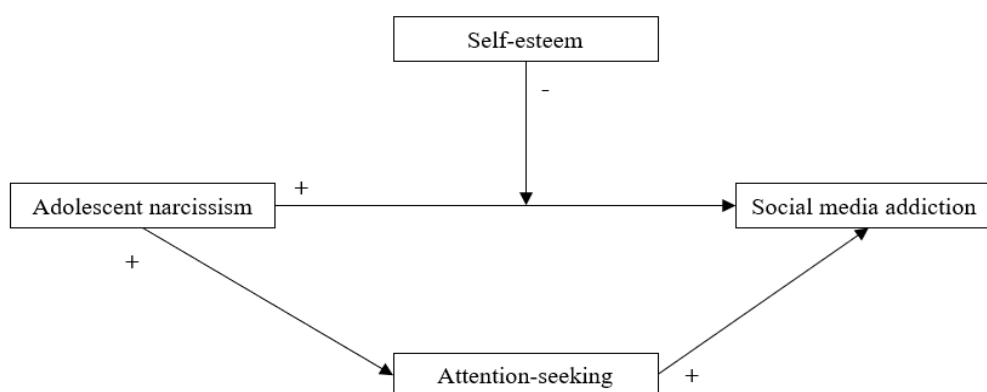
Moderation variable, self-esteem

Despite the fact that narcissists are full of praise about themselves, a high self-esteem is not obvious for all narcissists (Bogart et al., 2004). A difference can be made between 'grandiose' and 'vulnerable' narcissism. Whereas grandiose narcissists have high self-esteem and vulnerable narcissists do not (Bogart et al., 2004). Although, the distinction between grandiose and vulnerable narcissists have been studied extensively (e.g. Dickinson & Pincus, 2003; Rohmann et al., 2012). No studies have used self-esteem as a moderator factor between narcissism and social media addiction. Gaining more knowledge on the role of self-esteem can provide valuable insights for policymakers. It can inform them on which particular narcissist group to focus on when designing interventions meant to target social media addiction.

Both grandiose and vulnerable narcissists are convinced of their uniqueness and grandiosity (Brailovkaia & Bierhoff, 2016), but differ in terms of self-esteem. Grandiose narcissists have high self-esteem and often use downward comparisons to feel superior to others (Bogart et al., 2004). As a result, they not only seek attention and admiration from others but may also boost their self-esteem by talking negatively about others. Vulnerable narcissists, on the other hand, have low self-esteem and feel inferior (Freis, 2018). They also have a strong need to seem perfect but have a hard time projecting this (Casale et al., 2016). Unlike grandiose narcissists, they lack self-enhancement strategies (Freis, 2018). To regulate their self-esteem and gain admiration, they rely upon external feedback (Freis, 2018). However, vulnerable narcissists are likely to avoid direct feedback and, compared to grandiose narcissists, are more sensitive to interpersonal setbacks (Casale et al., 2016). On social media, narcissists are not confronted with face-to-face feedback and they can more easily manipulate the impression of others through the use of online profiles and pictures (Casale et al., 2016). So using social media is ideal for vulnerable narcissists to get the chance of being admired without needing the confidence to face people in real life. As a result, these individuals may be more prone to become addicted to social media due to their reliance on external validation from others online (Casale et al., 2016). Based on this theory it can be expected that narcissism is positively associated with social media addiction, but mostly among adolescents with low self-esteem (H3).

Figure 1

Research model



Method

Procedure and Participants

For this study, we used data from the Digital Youth Project (DiYo) (Van den Eijnden et al., n.d.). DiYo is a long-term study that investigates the influence of social media and gaming on the lives of young people. The project is set up by researchers from Utrecht University and has collected longitudinal data from 2015 to 2019. In the current study, data from the third wave (T3) of the DiYo was used. The Faculty Ethics Review Committee of the Faculty Social Sciences at Utrecht University has given approval for both the DiYo study (FETC16-076) and the current study (FETC23-0086) to proceed with their implementation.

The data was collected among students from two secondary schools in the Netherlands. For T3 a total 4716 students were approached ($N = 4716$). From the valid responses ($N = 2443$) 52.2% were boys and 47.8% were girls, with an average age of 13.95 years ($SD = 1.19$; range 11 – 17 years). From the participants 95.3% had a Dutch background.

The surveys were conducted through digital self-completion with Qualtrics software, during school hours. Participation was voluntary and anonymous (Van den Eijnden et al., n.d.).

Measurements

Independent variable

Social media addiction was measured using nine dichotomous (0 = *no*, 1 = *yes*) items of the Social Media Disorder Scale (Van den Eijnden et al., n.d.). These items assess the same nine criteria used to measure Internet Gaming Disorder (IGD), but then applied to social media use. An exemplary question was for instance: “During the past year, have you...” (e.g., “... regularly shown no interest in other hobbies besides social media) (Van den Eijnden et al., n.d.). For these items we calculated a sum score with moderate internal reliability, $\alpha = .632$.

Dependent variables

The first dependent variable *adolescent narcissism* was measured with the Childhood Narcissism Scale from Thomaes et al. (2008). This is a ten-item scale whereby participants answered on statements like: “Adolescents like me deserve something extra”. The participants could answer with 1 = *not at all true* “...” 4 = *completely true*. For these items we calculated a sum score with good internal reliability, $\alpha = .839$

The second dependent variable *attention-seeking* was measured with a self-developed five item scale. Participants, answered statements like: “I think it's important that I get as many 'likes' as possible on my posts”. The participants could answer with 1 = *not at all true*, “...” 4 = *completely true*. For these items we calculated a sum score with good internal reliability, $\alpha = .850$.

The third dependent variable *self-esteem* was measured with the five-item scale of Rosenberg et al. (1989). The participants, answered statements like: “I have the feeling that I have nothing to be proud of”. They could answer with 1 = *not at all true* “, ...” 5 = *completely true*. One item was reverse coded. For these items we calculated a sum score with good internal reliability, $\alpha = .810$

Cofounder

The cofounder *gender* has been included, because there may be differences in the relationship between narcissism and social media addiction for men and women. A variety of factors may explain this, including gender roles and expectations, social comparison, and different motivations for using social media. Men and women may be expected to present themselves differently on social media, which could affect their level of narcissism and their likelihood of becoming addicted (Weiser, 2015). *Gender* was measured with one question “Are you a boy or a girl?”. The participants answered with 0 = *boy* and 1 = *girl*.

Data Preparation and Analysis

The statistical analyses were performed using SPSS. For our analyses, we performed a hierarchical linear regression analysis. Prior to the analysis, unreliable values, outliers and unreliable respondents were excluded. As a result, of the 4716 participants, 2443 remained ($N = 2443$). Afterwards, we checked if the variables were normally distributed. Some of the variables had extreme values, which made the distribution slightly skewed. However, this was expected from a theoretical point of view.

To assess unidimensionality and reliability, a factor analysis (PCA) and reliability check were carried out. The PCA with unweighted least squares was used to account for non-normality in most variables. The Kuder-Richardson 20 was used to assess reliability for the dichotomous variable 'social media addiction'.

To find out whether there was an association between the dependent and the independent variables, we retrieved the Spearman correlation in SPSS. Hereby gender was

included in the model to see if this is a potential confounding variable. Next, VIF testing was used to determine whether multicollinearity was present. The analysis showed that all VIF values were between 1 and 1.5, meaning that the independent variables correlated with each other only to a small degree.

Lastly, prior to hierarchical linear regression, we tested the assumption of normality and linearity. We use the method of least squares, therefore we need to know if the residuals are normally distributed. The residuals plot showed that the residuals were normally distributed. To check the assumption of linearity we made a scatterplot, which showed that the dependent and independent variables had a linear distribution. Next the hierarchical linear regression method of Baron & Kenny (1986) was used to test the hypotheses.

Results

Descriptive and correlations

In the descriptive Table 1, the mean scores and standard deviations of the variables are shown. The mean score of the variables ‘social media addiction’ and ‘attention-seeking’ are both distributed on the left side of the scale. The mean scores of the other variables are distributed around the center.

Table 1

Descriptive statistics

	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>SD</i>
Gender	2443	0	1	0.52	0.50
Age	2443	11	17	13.95	1.19
Social media addiction	2443	0	9	1.34	1.58
Narcissism	2443	10	40	21.90	5.65
Self-esteem	2443	5	25	17.17	2.93
Attention-seeking	2443	5	20	8.91	3.26

Note * $p < .05$, ** $p < .01$., *** $p < .001$.

Table 2 shows the Spearman correlations of the variables. A significant correlation between ‘narcissism’ and ‘social media addiction’ was found ($r = .11, p < .01$). A significant correlation was also found between ‘narcissism’ and ‘attention-seeking’, ($r = .25, p < .01$), and between ‘attention’ and ‘social media addiction’ ($r = .33, p < .01$). ‘Self-esteem’ shows a significant correlation with ‘social media addiction’ ($r = .19, p < .01$) and ‘narcissism’ ($r = .34, p < .01$). Lastly, the control variable ‘gender’ has significant correlations with all the variables expect with the variable ‘attention-seeking’.

Table 2*Spearman correlations*

	Social media addiction	Narcissism	Self-esteem	Attention	Gender
Social media addiction					
Narcissism	.11**				
Self-esteem	.19**	.34**			
Attention	.33**	.25**	.04		
Gender	.08**	.21**	.07**	.31	

Note. Spearman correlations are shown. Reference category = boys. * $p < .05$, ** $p < .01$, *** $p < .001$.

Effect of narcissism on social media addiction

In the first step of the hierarchical linear regression the direct relationship was tested between narcissism and social media addiction. The control variable ‘gender’ was added in block 1. We found a positive significant relationship between narcissism and social media addiction, ($\beta = .13$, $p < 0.001$). This result is in line with *H1*: “There is a positive relationship between adolescent narcissism and social media addiction.”

Table 3*Linear regression analysis of adolescent narcissism and social media addiction*

Predictor	<i>B</i>	<i>SE B</i>	β	<i>p</i>	Model fit	R^2	ΔR^2
Step 1					$F(15.47) = 38.38^{***}$.01	.01***
Gender'	-.25	-.06	-.08	< .001			
Step 2					$F(27.41) = 66.95^{***}$.02	.02***
Narcissism	.04	.01	.13	< .001			

Note. Reference category = boys. * $p < .05$, ** $p < .01$, *** $p < .001$.

Effect of attention-seeking as mediator

To test whether the relationship is mediated by attention-seeking, four steps were taken. First, we confirmed there was a significant relationship between narcissism and social media addiction, shown in Table 3. The remaining steps were tested in Table 4.

Secondly, we tested for a significant effect between narcissism and attention-seeking. After controlling for gender, our analysis revealed a positive significant effect between narcissism and social media addiction ($\beta = .27, p < .001$).

Thirdly, for a mediation effect to be present there should be a significant effect between attention-seeking and social media addiction. When controlling for gender, a positive significant effect between attention-seeking and social media addiction was found, ($\beta = .33, p < .001$) shown in Table 4.

Lastly, a mediation is said to occur when the direct effect between narcissism and social media addiction becomes weaker or disappears completely when controlling for the mediating variables. Our analyses showed that, when controlling for gender, the effect between narcissism and social media addiction becomes smaller ($\beta = .04, p < .05$). This means that there is a partial mediation. We conducted a Sobel test to assess the significance of the mediation, and the results indicated significance ($z = 10.58, p < .001$). From these results we can conclude that the effect between narcissism and social media addiction is partially mediated by attention-seeking. This result is in line with *H2*: “Attention-seeking functions as a mediator in the relationship between narcissism and social media addiction.”.

associated with social media addiction, but mostly among adolescents with low self-esteem.” cannot be corroborated.

Table 5

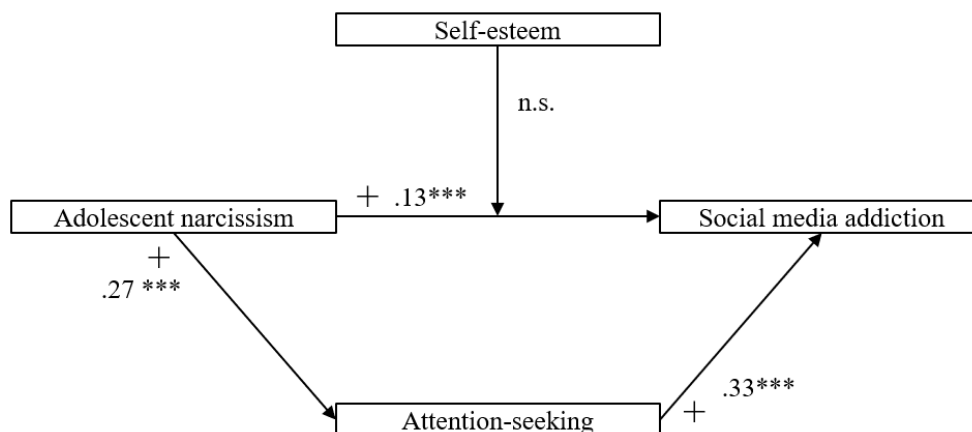
Linear regression analysis of the interaction term of self-esteem on the relationship between narcissism and social media addiction

Predictor	<i>B</i>	<i>SE B</i>	β	Model fit	<i>p</i>	<i>R</i> ²	ΔR^2
Step 1				F(15.48) = 38.38***		.01	.01***
Gender '	-.25	.64	-.79		< .001		
Step 2				F(46.06) = 108.92***		.02	.05***
Narcissism	.49	.01	.18				
Self-esteem	-.58	.01	-.19		< .001		
Step 3				F(34.56) = 81.77***		.03	.05***
Self-esteem*Narcissism	.00	.01	.10		< .727		

Note. Reference category = boys. **p* < .05, ***p* < .01, ****p* < .001.

Figure 2

Graphical representation of our unstandardized effects.



Note. **p* < .05, ***p* < .01, ****p* < .001.

Discussion

The main aim of this study was to investigate if there is a significant relationship between adolescent narcissism and social media addiction. Both the rise of adolescent narcissism and social media addiction among this group raises the question if these two may be connected. The relationship between narcissism and social media addiction has been studied before. However, the results remained inconclusive. Moreover, studies that specifically focused on adolescents have been rare due to the lack of measurement instruments. This study contributed to the present field of research by testing the relationship between adolescent narcissism and social media addiction, using data from the DiYo.

Additionally, we aimed to determine whether the variable ‘attention-seeking’ could explain the potential association between adolescent narcissism and social media addiction. Finally, we examined whether the variable ‘self-esteem’ could impact the link between adolescent narcissism and social media addiction.

Results and literature

The first hypothesis that was formulated from the theory is: “There is a positive relationship between adolescent narcissism and social media addiction.”. As mentioned before, the results showed that there is a significant relationship between adolescent narcissism and social media addiction. These findings are consistent with previous research which proposed that social media offers the perfect platform for narcissists to gain the admiration and validation they need (Berman et al., 2011). The continuous need for admiration and validation, which is easily obtained through social media, makes them vulnerable for a social media addiction (Hawk et al., 2019). However, the results of this study diverge from those of Davenport et al. (2014) and Casale and Fioravanti (2018). Casale and Fioravanti (2018) only reported a weak correlation, and Davenport et al. (2014) found no significant relationship between narcissism and social media addiction. A possible explanation can be that the studies who only found weak to no association between narcissism and social media addiction not solely focused on adolescents but also on the older generation. The older generation did not grow up with social media which is why they may not use social media as often as adolescents (Davenport et al., 2014). They need a more intentional reason for using social media. Therefore, adolescents may have a higher risk of social media addiction (Davenport et al., 2014). This study specifically focused on adolescent narcissism, in relation to social media addiction. The positive relationship that is found,

between adolescent narcissism and social media addiction, highlights the importance of a more narrowed focus on adolescents in this relationship. Adolescents with narcissism can be seen as a risk group vulnerable for a social media addiction. In addition, these findings contribute to the broader understanding that adolescents, in general, are susceptible to the negative consequences of social media, such as addiction. Gaining insights into specific subgroups of adolescents who are susceptible to developing social media addiction can help in formulating effective interventions aimed at reducing the incidence of social media addiction.

The second hypothesis which states: “Attention-seeking functions as a mediator in the relationship between adolescent narcissism and social media addiction.”, is also supported by our findings. We found that the positive relationship between adolescent narcissism and social media addiction can be partially explained by attention-seeking. The present study results provide further support for the existing theory that posits narcissists maintain their unrealistic self-image by seeking attention from others (Hawk et al., 2019). Social media offers the perfect platform to easily gain attention (Boursier et al., 2020). Consequently, the excessive need for attention, gained through social media, can lead to problematic social media use (Hawk et al., 2019). The present study's theory partially relies on Hawk et al.'s (2019) research, which found similar results to the present study. In their longitudinal study, Hawks et al. (2019) demonstrated that attention-seeking behavior of narcissistic adolescents can lead to problematic social media use. Although Hawks et al. (2019) uses the variable ‘problematic social media use’ instead of ‘social media addiction’, the same scale is used to measure these variables, making it possible to compare the findings. The present cross-sectional study enhances Hawks et al.'s (2019) longitudinal study by validating their results using a different research approach. To our best knowledge, no other studies have precisely analysed ‘attention-seeking’ as mediator between adolescents’ narcissism and social media addiction. Only studies can be found that analyse the direct relationship between narcissism and attention-seeking or the relationship between attention-seeking and social media addiction (e.g. Allahverdi, 2022; Miller et al., 2017). By identifying attention-seeking as a mediator, the present study highlights a potential underlying psychological process that contributes to the development of social media addiction among individuals with narcissism. Gaining a deeper understanding of how adolescent narcissism contributes to social media addiction can help to target specific areas of intervention when addressing this social issue.

The last hypothesis that has been analysed states: “Narcissism is positively associated with social media addiction, but mostly among adolescents with low self-esteem”. No significant moderating effect of self-esteem on the relationship between adolescent narcissism and social media addiction was found in the current study. The absence of a significant moderating effect of self-esteem on the relationship between adolescent narcissism and social media addiction indicates that self-esteem does not alter the relationship between the variables. These results are not in line with the theory regarding grandiose versus vulnerable narcissists, which formed the theoretical basis of the present study. Multiple studies have made the distinction between grandiose and vulnerable narcissists (e.g. Dickinson & Pincus, 2003). Based on the theory about vulnerable and grandiose narcissists we proposed that self-esteem could alter the relationship between adolescent narcissism and social media addiction. The non-significant finding may be attributed to the use of the variable ‘self-esteem’ instead of differentiating between ‘vulnerable’ and ‘grandiose’ narcissists. Despite that the variables may theoretically lead to the same outcome, methodologically it represents a distinct concept. Further research can be conducted to investigate if there is a significant difference between the two concepts.

Implications for future research

The results of this study gave us insight into which group is vulnerable for a social media addiction, considering the increasing number of adolescents using social media (Statista, 2022). Since the symptoms are similar to those of substance related addictions, a social media addiction is seen as a serious problem (Griffiths, 2013). However treatment of social media addiction is complicated and therefore it is better to prevent. In this study we aimed to narrow down which adolescents are potentially vulnerable for a social media addiction. To the best of our knowledge only few among which, the research conducted by Hawk et al. (2019) focused on adolescent narcissism due to the absence of an adolescent measure for narcissism. The present study makes use of the measurement tool developed by Thomaes et al. (2008). This tool enables analysis of adolescent narcissism in the context of social media addiction. The results have shown that there is indeed a relationship between adolescent narcissism and social media addiction. Policy makers can benefit from these findings by using this knowledge to develop interventions aimed at addressing the issue of social media addiction among this group. These interventions could focus on the underlying needs that narcissistic adolescents try to fulfill, such as validation-seeking, through social media, and discover an alternative methods to satisfy these needs. Encouraging them to build

meaningful relationships offline can provide them with genuine emotional support and validation. Despite that narcissistic adolescents often find it hard to build real life connections, offline relationships play a crucial role in their growth and well-being (James et al., 2017). Policy makers can create programmes where adolescents who have a hard time making real life connecting can receive guidance and support. Additionally, parents and mentors at school can guide them in their process. They can help discover what they find difficult in forming offline relationships. Another approach is to help them in pursuing their hobbies and passions. Putting their energy in fulfilling activities can give a sense of accomplishment. Moreover, encouraging them to develop new skills and create new goals can help them to shift their focus from attention-seeking to personal growth and self-validation. By doing so, policy makers can handle social media addiction among this population in a more thorough and efficient manner.

Limitations

When interpreting the findings of this study there are some limitations to keep in mind. Firstly, this is a cross-sectional study and does not establish causality or determine the direction of the observed associations. Despite the study's findings suggesting attention-seeking may be a psychological process that underlies the connection between narcissism and social media addiction, it is unknown whether attention-seeking causes social media addiction or vice versa. Pearson and Hussain (2015) for example showed, in their qualitative study, that social media apps significantly support narcissism. Pearson and Hussain (2015) explain this with the Narcissism Epidemic theory, which states that narcissism is influenced by advanced technologies. This indicates that social media addiction can potentially lead to narcissism. To confirm causation and give a more detailed view of the link between these variables, additional research employing longitudinal or experimental designs is needed. Another limitation that needs to be considered is that the measurement tool used in this study did not differentiate between vulnerable and grandiose narcissism. These narcissistic subtypes have various psychological underpinnings and potential effects, including addiction to social media (Freis, 2018). Therefore, for future research it is valuable to explore whether vulnerable and grandiose narcissism have distinct relationships with social media addiction. This could entail the creation of measurements that distinguish between various narcissistic subtypes as well as longitudinal or experimental designs that can prove directionally and causality in these interactions. Furthermore, only one item of the survey was reversed coded which makes the risk of response bias higher. People tend to agree or disagree with answers

regardless their own beliefs. The use of reverse items helps to better assess the respondent's true attitude. Lastly, our analysis showed that some variables had extreme values which made the distribution slightly skewed. However, from a theoretical point of view this was expected. Compared to the general population, still relatively few adolescents have narcissism or are addicted to social media, therefore extreme values can occur in the data (Statista, 2022; Stinson et al., 2008).

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Appendix 1: Interdisciplinary approach

The master Youth Studies focuses on understanding the youth from different perspectives. Youth is part of a complex world, where individuals are in constant interplay with their environment. It is essential to adopt an interdisciplinary approach to comprehend this interaction between individuals and their context and to gain a deeper understanding of youth development. This master's thesis also employs an interdisciplinary approach to examine the influence of various contexts on the social media addiction of adolescents.

Sameroff (2010) explains in his *transactional model of development* how someone's development depends on both individual characteristics and the context they are living in. Firstly, he explains how 'the self', better known as the individual, is in a dynamic relationship with their environment. The self can make particular choices, and the choices the self makes depend also on the environments they are in (Sameroff, 2010). An example, a kid is born into a rich family, with well-educated parents who stimulate them to go to school. This kid is more likely to go to higher education because it has more sources to do so. Someone who comes from a poor family and needs to work hard for their money is less likely to go to higher education. This kid needs to help his parents with work because otherwise, they don't have enough money. The choices these kids make are not only based on what they like but also on what is expected from their parents. Sameroff (2010) makes in his *transactional model of development* a distinction between the self, and the different environmental levels, like family, friends, communities and cultures. There is a complex interplay between the levels, whereby culture can influence different communities and communities can in turn influence the family and so forth.

Within this paper, there is also an interplay between different levels. In this study, we first included the individual context. We talk about the relationship between narcissistic adolescents and social media addiction. Hereby narcissism is a personality trait characterized by a sense of entitlement, grandiosity, and a lack of empathy (Davenport et al., 2014). This individual trait may influence someone's addictive social media use. A Narcissist likes to post pictures of themselves, because of their grandiose self-love, which can turn into an addiction (Andreassen et al., 2017). Secondly, we included 'attention-seeking' as a mediating variable. Here, not only the individual plays a role, but also the environment. Attention-seeking behavior, which involves seeking validation from peers and family can influence narcissistic adolescent behavior. In our case, if the narcissistic adolescent gets attention, he/she may get

more addicted to social media (Allahverdi, 2022). Lastly, the moderator factor 'self-esteem' is also partly influenced by peers and family. Specifically for vulnerable narcissists the opinion of peers and family is important and can influence the relationship between narcissistic adolescents and social media addiction. For vulnerable narcissists, it is not self-evident that they adore themselves therefore they need validation from others. However, vulnerable narcissists do not like physical confrontation and that's why they get validation from social media users (Casale et al., 2016).

Appendix 2: Contract data-use TED track

Utrecht, 2022

This letter constitutes formal confirmation of the fact that the data from the Utrecht University Digital Youth Project have been made available to Britt de Clerck of Utrecht University.

These data will not be made available to others, and the data may be used only for analysis and reporting on topics for the thesis, about which agreement has been reached with Gaëlle Ouvrein. Britt de Clerck will receive access to the data from the dataset in order to answer the following research questions within the framework of the thesis:

Research question: Do narcissist adolescents have more chance to get addicted to social media?

The following variables will be used:

Dependent variable: Social media addiction

Independent variables: Narcissist adolescents

Other variables: Self-esteem, attention-seeking and gender

No report based on the data from the project entitled Digital Youth Project will be made public, unless permission has been obtained in advance from the Project Coordinator for the Digital Youth Project.

After the expiration of this contract, dated 15/08/23 Britt de Clerck shall delete the Digital Youth Project data.


Dates and signature: 24-01-2023

Name of student: Britt de Clerck

Name of Project Coordinator: Gaëlle Ouvrein



Appendix 3: Registration Form: Research Activities for TED-students (in total 60 hrs)**Britt de Clerck****2091003**

Research Activities	Total number of Hours	Signature YS staff
Coding pictures for Gaëlle's research project	60 hours	
Total	60 hours	