

Influences of narcissism and parental mediation on adolescents' textual and visual personal
information disclosure in Facebook

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PARENTAL MEDIATION AND NARCISSISM ON PII DISCLOSURE

Abstract

This study aims to examine how adolescents' textual and visual personal information disclosure is influenced by their narcissistic personality and parental mediation. The moderation effect of parental mediation on narcissism was also explored. A total of 780 secondary school students aged between 13 and 18 participated in the study. Multiple regression analysis was conducted and results showed that narcissism increases the disclosure of both textual information and visual information while parental mediation decreases the disclosure of both textual information and visual information. Parental mediation moderates the link between narcissism and visual information disclosure, but not the link between narcissism and textual information disclosure. Implications of the findings for parents, school teachers, and educators were discussed.

Keywords: self-disclosure, narcissism, parental mediation

1. Introduction

Facebook is one of the most influential social networking sites internationally. According to Facebook's official statistics, there are over 1.39 billion monthly active Facebook users, and 1.9 billion mobile active users as of January 2015. Every single day, 4.75 billion pieces of content were shared as of May 2013. Facebook is also the most popular and frequently used SNS among adolescents. According to the Pew Research Center's survey in 2015, 71% of adolescent social media users had a Facebook profile, and 41% said that of the various social networking platforms, they maintain their Facebook profile the most often.

Young users may not have enough safeguards about protecting their information online. This is a crucial issue especially in the light of Facebook's popularity among the young. Many user-generated content revealed on Facebook can be defined as Personally Identifiable Information (McCallister, Grance, & Scarfone, 2010). Personally Identifiable Information (PII) is any information about an individual maintained by an agency, including (i) any information that can be used to distinguish or trace an individual's identity, such as name, social security number, date and place of birth; and (ii) any other information that is linked or linkable to an individual, such as medical, educational and employment information. Facebook profile pages and photograph albums of the users are the two sections that contain the most PII. Disclosure of PII can entail many negative or unwanted effects that may be socially, physically, or financially damaging, and examples include blackmail, identity theft, physical harm, discrimination, or emotional distress. About 9% of adolescents in the European countries said that they have experienced one of the three forms of personal data misuse, including either identity theft, personal information abuse or financial cheating (Livingstone, Haddon, & Görzig, 2011). Among adolescents in the U.S., over 70% reported

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receiving messages online from strangers; among those aged between 10 and 17, one in five has received unwanted sexual solicitations online, and 1 in 17 has been threatened or harassed online (Goddard, 2006). PII disclosure online does not just enable stalking or bullying in the cyber world, it also facilitates criminal acts in the real world. As adolescents do not have sufficient and/or mature coping strategies, these bad experiences may result in a greater negative impact on adolescents as compared to negative impact on adults. It was found that compared to adult users, adolescent users suffer from more negative outcomes contributed by bad experiences on SNSs, such as getting into trouble in school or at work, physical fights, problems with family members, face-to-face arguments, and conflicts in relationships (Rainie, Lenhart, & Smith, 2012).

2. Literature Review

2.1 Self-Disclosure of Personal Information on Facebook

It is very common for young users to share their personal information on Facebook profile pages. According to a study among undergraduate students in Canada (Christofides, Muise, & Desmarais, 2009), a majority of them have disclosed PII on their Facebook profile pages, such as birth date (96%), email address (85%), hometown (85%), school and program (72%); while a small number of them have even posted their phone numbers (24%) and home address (4%). Surveys on adolescent users also showed that about half of them have posted information online including the city where they live (58%) and the name of their school (49%), and one in ten have posted their cell phone numbers (Surratt, 2007). Sharing photographs is also one of the most popular activities on Facebook. In the U.S., more than half of the users have shared personal photographs (Rainie, 2012), and among the adolescents, two thirds have posted photographs or videos about themselves (Surratt, 2007). Reputation damaging activities or even illegal activities such as binge drinking, smoking, and

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drug use were also found in the photographs shared by the users (Bugeja, 2006; Kolek & Saunders, 2008).

The perceived benefits of self-disclosure may be a critical motive for sharing personal information on Facebook, especially for adolescents. Adolescents may have a greater reliance on social networking sites for their affiliation needs. Through the passage of adolescence, individuals have an increasing need for connections with peers as well as greater awareness of the importance of the impressions they make on others (Dolgin, 2011; Leary & Kowalski, 1995). Some researchers argue that disclosing information to online friends increases the feeling of connectedness and relational intimacy with others and reduces loneliness (Deters & Mehl, 2013). Self-disclosure was also found to be associated with higher satisfaction of Facebook use for passing time and entertainment (Special & Li-Barber, 2012). Therefore, adolescents may choose to satisfy their increased social needs through self-disclosure with friends on Facebook.

2.2 Narcissism and Self-Disclosure on Facebook

Narcissism is one of the most studied personality traits with respect to its relationship to online information disclosure and other social activities. Narcissism is characterized by a highly inflated, positive but unrealistic self-concept, a lack of interest in forming strong interpersonal relationships, and an engagement in self-regulatory strategies to affirm the positive self-views (Campbell & Foster, 2007). Narcissists keep seeking attention, admiration, or affirmation of their positive view of self by showcasing themselves (Ames, Rose, & Anderson, 2006; Bibby, 2008; Morf & Rhodewalt, 2001; Ryan & Xenos, 2011). The sharing platform of Facebook perfectly meets the needs of the narcissists (Bibby, 2008). Generally, narcissists tend to disclose more self-promotional information across categories, including profile information and personal photographs (Christofides et al., 2009; Liu, Ang, & Lwin, 2013; Marshall, Lefringhausen, & Ferenczi, 2015; Mehdizadeh, 2010; Ong et al.,

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2011; Ryan & Xenos, 2011; Winter et al., 2014). Kapidzic (2013) found that personal information, especially photographs, are important for narcissists to emphasize their attractiveness on Facebook. Hence we propose that

H1a. Narcissism increases textual information disclosure.

H1b. Narcissism increases visual information disclosure.

2.3 Parental Mediation and Self-Disclosure on Facebook

Over the past two decades, media technology has experienced exponential revolution evolving from more traditional forms to new and novel ones. In both the traditional and new media era, parents have been consistently recognized as the major source of social influence on children's media consumption attitudes and behaviors (Mascarenhas & Higby, 1993; Meyer, 2000; Moore & Moschis, 1981; Moscardelli & Divine, 2007). Warren (2001) defined parental mediation as the strategies parents use to supervise children's media use or help children interpret media content. Researchers have classified parental mediation into three types: active mediation, restrictive mediation, and co-viewing (Nathanson, 1999; Valkenburg, Krcmar, Peeters, & Marseille, 1999). Parents may discuss with children the positive and negative media content, set rules to limit children's media use, or use the media together with children. Generally, parental mediation has been described as one of the most effective methods that protect children from negative media influence (Buijzen & Valkenburg, 2005; Livingstone et al., 2011). Researchers found that parental mediation make children think twice before giving out information, and reduces the risk of their personal information disclosure (Kalmus, Blinka, & Ólafsson, 2015; Lwin, Stanaland, & Miyazaki, 2008; Shin, Schriener, & Cho, 2009; Spears, Seydegart, & Zulinov, 2005; Youn, 2008). Therefore, the following hypotheses are put forth:

H2a. Parental mediation decreases textual information disclosure.

H2b. Parental mediation decreases visual information disclosure.

2.4 Interaction between Narcissism and Parental Mediation

So far, scant research has examined the interaction between parental mediation and narcissism on adolescents' Internet behaviors. However, it is known that parental mediation was generally found to be a protective factor for adolescents' risky Internet behaviors, while narcissism was found to be a risk factor (Buffardi & Campbell, 2008; Buijzen & Valkenburg, 2005; Christofides et al., 2009; Livingstone et al., 2011). Regarding PII disclosure in particular, narcissistic adolescents may have a general tendency to reveal more, and this includes basic textual information as well as personal photographs on Facebook, while parental mediation may counterbalance the adverse influence of narcissism. Therefore, we predict that there may be an interaction between parental mediation and narcissism in relation to adolescents' PII disclosure on Facebook:

H3. Parental mediation moderates the link between narcissism and information disclosure (textual and visual).

Specifically, under low parental mediation, the information disclosure of the narcissistic adolescents will be significantly higher than that of the non-narcissists; but under high parental mediation, the information disclosure of the narcissistic adolescents will not be significantly higher than that of the non-narcissists.

3. Current Study

Although there are numerous studies examining the influence of personality variables such as narcissism and parent variables such as parental mediation on SNSs use, few of them specifically examined the interaction between narcissism and parental mediation. It will be meaningful to know whether narcissistic adolescents always disclose more than their non-narcissistic counterparts, or that their disclosure can be moderated by the level of parental mediation.

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This study focused on adolescent Facebook users as well as their textual and visual information disclosure, and how it could be influenced by their personality (i.e., narcissism) and parental mediation. Furthermore, the moderation effect of parental mediation on narcissism will also be examined. Comparisons will be made between adolescents' textual information disclosure and visual information disclosure regarding the effect of narcissism, parental mediation, and the interaction between narcissism and parental mediation.

4. Methods

4.1 Participants

The study recruited 780 students aged between 13 and 18 from four secondary schools in Singapore, and they are all Facebook users. Of the 780 students, 49.1% are boys. The mean age is 13.94 ($SD = .90$) for all the students. Among them, 34.5% are secondary one students, 39.4% are secondary two students, and 26.2% are secondary three students. Chinese participants comprise 74.6% of the sample, and are followed by Malay (19.7%), Indian (2.6%), and other ethnic groups (2.8%).

4.2 Measurement

4.2.1 Narcissism

Narcissism was measured by the Narcissistic Personality Questionnaire for Children-Revised (NPQC-R), which consists of 12 items (Ang & Raine, 2009). The questionnaire measures two dimensions of narcissism, superiority and exploitativeness. Participants were asked to rate to what extent each statement described them on a 5-point Likert scale (1 = *not at all like me*, 5 = *completely like me*). Items for superiority include “I think I am a great person” and items for exploitativeness include “It is easy for me to control other people”. The present sample’s Cronbach alpha for the 12 NPQC-R items was .88.

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4.2.2 Parental mediation

Parental mediation was measured by the Questionnaire for Parental Mediation (QPM), which was adapted from the Lwin et al. (2008) study. Participants were asked to rate how frequently their parents mediated their use of the Internet on a 5-point Likert scale (1 = *not at all*, 5 = *all the time*). QPM measured parents' active mediation and restrictive mediation. Items for active mediation include "teach you to stop any experience online if you feel uncomfortable or scared", and items for restrictive mediation include "set rules regarding the time of day you are allowed to go online". The present sample's Cronbach alpha for the 14 QPM items was .91.

4.2.3 Textual and Visual Information Disclosure

Adolescents' personal information disclosure was measured in terms of textual information disclosure and visual information disclosure. A total of 14 items of textual information on Facebook that meets the definition of PII were selected, including Basic Information (e.g., real name, birth date), Likes and Interests (e.g., activities), Contact Information (e.g., email address, mobile phone number), and Education Information (e.g., school). Textual information was assessed based on a combination of attitudinal and behavioral items. To measure attitudinal disclosure of textual information, participants were asked to rate on how willing they were to disclose each item on a 5-point Likert scale (1 = not at all, 5 = very much). To measure behavioral disclosure of textual information, all the items were displayed in the questionnaire using a real Facebook-scenario, and the Facebook "Info" interface was adopted. Participants were asked which item they will actually post. The ticked items were scored "1" while items that were not ticked were scored "0".

Visual information included eight personal photographs (all personal photographs are PII by definition) that were used in the Liu et al. study (2013), including "a photo of me doing sports with my friends", "a photograph of me wearing swim trunks/bikini on the

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beach”, and “A photo of me with my family”. Visual information was assessed based on a combination of attitudinal and behavioral items. To measure attitudinal disclosure of visual information, participants were asked to rate on how willing they were to disclose each photograph (only descriptions of photographs were listed in the questionnaire) on a 5-point Likert scale (1 = not at all, 5 = very much). To measure behavioral disclosure of visual information, all the items were displayed in the survey using a real Facebook-scenario, and the Facebook “Photos” interface was adopted. Participants were asked to tick who could see each of these photographs (“everyone” = 4, “friends of friends” = 3, “only friends” = 2, “customize” = 1, “won’t post at all” = 0). Standardized scores for each of the 44 items were used to calculate the scores of textual and visual information disclosure, and the Cronbach alphas were .94 and .88 in this sample, respectively.

4.3 Consent and Procedure

Consent forms were obtained from both participating children and their parents. Participation was strictly voluntary and participants were explicitly informed that they could refuse or discontinue the study at any time without penalty. This survey was anonymous and individuals cannot be linked to their responses.

5. Results

5.1 Correlation Analysis

The means, standard deviations, and correlations among narcissism, parental mediation, and disclosure are shown in Table 1. Correlation analysis showed that narcissism was positively and significantly correlated with textual disclosure ($r = .25$, Cohen’s $d = .52$, $p < .001$) and visual disclosure ($r = .25$, Cohen’s $d = .52$, $p < .001$). Parental mediation was negatively and significantly correlated with textual disclosure ($r = -.10$, Cohen’s $d = .20$, $p < .01$) and visual disclosure ($r = -.12$, Cohen’s $d = .24$, $p < .01$). The correlation between

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textual disclosure and visual disclosure was positive and significant ($r = .49$, Cohen's $d = 1.12$, $p < .001$).

Table 1.

Means, Standard Deviations, and Intercorrelations for Narcissism, Parental Mediation, and Information Disclosure

	Mean	SD	Narcissism	Parental Mediation	Textual Disclosure	Visual Disclosure
Narcissism	32.43	8.92	1	.18***	.25***	.25***
Parental Mediation	34.78	12.79		1	-.10**	-.12**
Textual Disclosure	3.00	1.00			1	.49***
Visual Disclosure	3.00	1.00				1

Note. $N = 780$; ** $p < .01$, *** $p < .001$

5.2 Parental Mediation as a Moderator of the Link between Narcissism and Information Disclosure

Table 2 shows the results of the hierarchical multiple regression analyses predicting adolescents' textual and visual information disclosure, in which the effect of age and gender were controlled. Main effect analysis of narcissism and parental mediation showed that narcissism significantly increased textual information disclosure ($\beta = .25$, $p < .001$), and parental mediation significantly decreased textual information disclosure ($\beta = -.15$, $p < .001$). H1a and H2a were supported. The R^2 change of the main effects was .07 ($p < .001$), which suggested that the main effects of narcissism and parental mediation explained an additional 7% of the variance in textual information disclosure over and above age and gender. Results also showed that narcissism significantly increased visual information disclosure ($\beta = .27$, p

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< .001), and parental mediation significantly decreased visual disclosure ($\beta = -.16, p < .001$). H1b and H2b were supported. The R^2 change of the main effects was .08 ($p < .001$), which suggested that the main effects of narcissism and parental mediation explained an additional 8% of the variance in visual information disclosure over and above age and gender.

The analysis of the effect of the interaction term, narcissism \times parental mediation, showed that parental mediation does not significantly moderate the effect of narcissism on textual information disclosure ($\beta = -.19, p > .05$). The R^2 change associated with the interaction term was .00 ($p > .05$), which suggested that the interaction between narcissism and parental mediation does not contribute to additional variance in textual information disclosure over and above the main effects. However, results showed that parental mediation significantly moderated the effect of narcissism on visual information disclosure ($\beta = -.63, p < .001$). The R^2 change associated with the interaction term was .02 ($p < .001$), which suggested that the interaction between narcissism and parental mediation explained an additional 2% of the variance in visual information disclosure over and above the main effects. Hence, H3 was partially supported.

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Table 2.

Hierarchical Multiple Regression Analyses Predicting Textual and Visual Information Disclosure from Narcissism, Parental Mediation, and Interaction between Narcissism and Parental Mediation

Predictors	Textual Information Disclosure		Visual Information Disclosure	
	<i>B</i>	β	<i>B</i>	β
<i>Demographics</i>				
Age	.03	.03	.12	.10**
Gender	-.43	-.21***	-.14	-.07
ΔR^2	.05***		.02**	
<i>Main Effects</i>				
Narcissism	.03	.25***	.03	.27***
Parental Mediation (PM)	-.01	-.15***	-.01	-.16***
ΔR^2	.07***		.08***	
<i>Interaction Term</i>				
Narcissism \times PM	.00	-.19	-.00	-.63***
ΔR^2	.00		.02***	

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

Regression lines demonstrating how parental mediation moderated the effect of narcissism on visual information disclosure were plotted and are shown in Figure 1. The post-hoc probing showed that the simple slope of the regression line for narcissism is positive and significant ($\beta = .49, p < .001$) when parental mediation is low, and the simple slope of the regression line for narcissism was non-significant ($\beta = .08, p > .05$) when parental mediation

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is high. Results showed that under conditions of low parental mediation, adolescents high on narcissism disclose significantly more visual information than those low on narcissism; but under high parental mediation, narcissism does not significantly increase adolescents' visual information disclosure. Parental mediation moderated the link between narcissism and adolescents' visual information disclosure. Specifically, narcissism will result in a greater increase of visual information disclosure among adolescents who were under low parental mediation compared to those who were under high parental mediation.

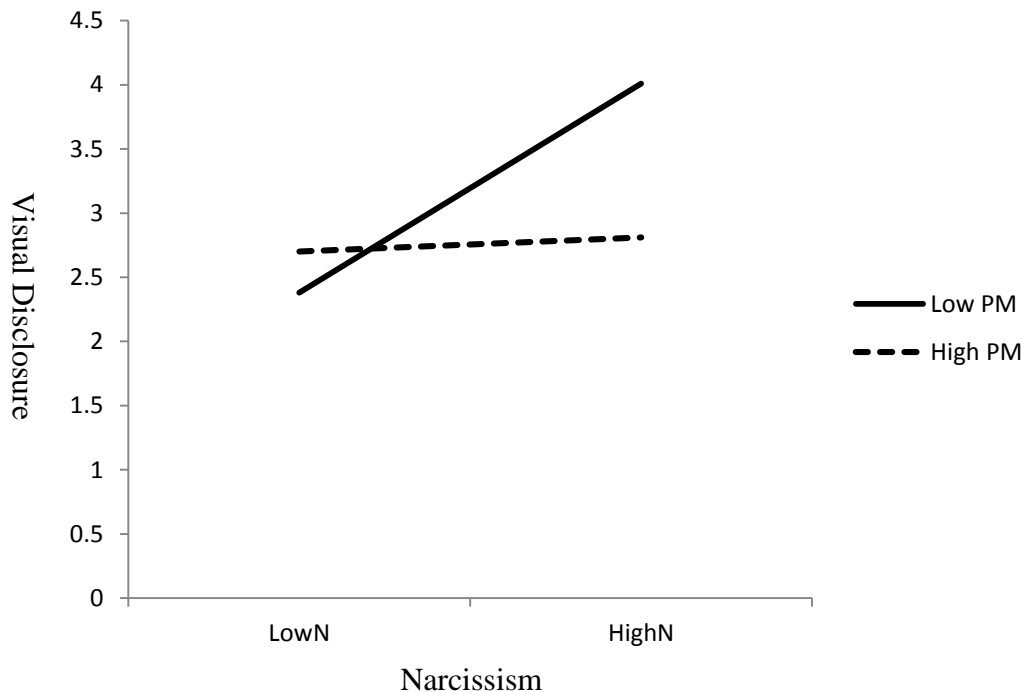


Figure 1. Regression lines for relations between narcissism and visual information disclosure as moderated by parental mediation

6. Discussion

Results of this study are consistent with previous findings that narcissistic adolescents tend to disclose more textual and visual information on Facebook (Deters, Mehl, & Eid, 2014; Marshall, Lefringhausen, & Ferenczi, 2015). A possible explanation is that narcissists' socially undesirable tendencies, such as boastfulness, attention seeking behavior and need for

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public glory, can be better concealed in the context of online social networking (Wallace & Baumeister, 2002). The pattern of information sharing on SNSs is very much within the individual's control, and narcissists can choose to "show" rather than "tell" about themselves so as to appear to be moderate (Mehdizadeh, 2010; Vazire & Gosling, 2004). Besides, SNSs provide users with a highly controllable environment in which self-presentation can be managed more easily than in the face-to-face social context, so SNSs would be the optimal platform to include self-promotional content for the narcissists.

It was found that there was a main effect of parental mediation on PII disclosure. That is to say, adolescents under high parental mediation were less likely to disclose personal information on Facebook, and the protective effect of parental mediation was found for both textual information disclosure and visual information disclosure. These findings were consistent with findings in previous studies regarding the negative relationship between parental mediation and personal information disclosure online (Lwin et al., 2008; Kalmus, Blinka, & Ólafsson, 2015). Previous studies also showed that children who received more parental mediation tended to experience more positive outcomes and fewer risks and harm in both the television and Internet contexts (Buijzen & Valkenburg, 2005; Livingstone et al., 2011). According to the consumer socialization theory, parents as the social agent is one of the most powerful sources of influence on adolescents' media consumption attitudes and values, such as concern for privacy (Moscardelli & Divine, 2007; Shin & Kang, 2016). Previous findings suggested that adolescents who experience more parental mediation may have increased concern for their online personal information privacy, thereby inhibiting their disclosure of personal information online (Liu et al., 2013; Youn, 2008).

An interesting finding of this study was that parental mediation moderated the effect of narcissism on visual information disclosure but not textual information disclosure. Specifically, for narcissistic adolescents under low parental mediation, they may disclose

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more visual personal information than their non-narcissistic counterparts, but for narcissistic adolescents under high parental mediation, their visual information disclosure levels were not significantly different from those of the non-narcissists. In other words, parental mediation only weakened the tie between narcissism and visual information disclosure, but such was not the case for adolescents' textual information disclosure. There is limited research investigating circumstances under which parental mediation is more effective in reducing narcissistic adolescents' information disclosure, and a possible explanation for this finding is that personal photographs could be perceived to be more sensitive compared to textual information. For example, it was found that for Japanese students, personal photographs were treated as the top most sensitive information compared to other personal information and they were reluctant to upload personal photographs to the e-learning systems (Yang & Wang, 2014). Studies also showed that the percentage of individuals who would like to disclose personal photographs (e.g., profile picture) is lower than those who would like to disclose birth date, gender, and email on Facebook (Nosko, Wood, & Molema, 2010). From the parents' viewpoint, they may also perceive the personal photograph disclosure as more "damaging" and could be more concerned about images than text. Therefore, they may emphasize the risks of disclosing personal photographs more than the text-based information when they regulate or educate the adolescents regarding Internet use. Therefore, narcissistic adolescents under high parental mediation may pay extra attention when they upload their personal photographs compared to text.

Another possible explanation is that narcissistic adolescents may perceive the disclosure of personal textual information and personal photographs on Facebook differently. Textual information, such as real name, birth date, and secondary schools in the profile pages may be considered more basic and necessary for building connections with others and for their friends to have a basic knowledge about them. They may provide most of the profile

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information by default upon the registration of their Facebook account. Personal photographs on the other hand, may be important for extended conversations within a social group which reinforces group cohesiveness and closeness (Chalfen, 1987; Mendelson & Papacharissi, 2010), but these are additional pieces of information and not a necessity for connecting with friends compared to the profile information. So even though a narcissistic adolescent may receive the same amount of parental mediation, they may be less likely to reduce their textual information disclosure compared to visual information disclosure. This could be another reason why parental mediation can only inhibit narcissistic adolescents' from disclosing visual information on Facebook but not as much for textual information disclosure.

In general, the findings first emphasize the important role parents play in moderating narcissistic adolescents' risky Internet behaviors. It is in line with existing research showing that parents are key socialization agents for adolescents according to the consumer socialization theory (Austin, 1993; Fujioka & Austin, 2002; Nathanson, 2001). The absence of interaction between parental mediation and narcissism on adolescents' textual information disclosure reflects an underestimation of the sensitivity of the text-based information online by parents and adolescents. The findings also imply that adolescents may have different perceptions regarding the disclosure of textual profile information and personal photographs in their social interaction with Facebook friends. Parents should be aware that the risk of disclosing text-based and image-based information online are equally risky for adolescents, if they are personally identifiable.

The study also has a few limitations. First, the personal information in the current study only covers profile information and personal photographs, but the status updates and comments which may also contain sensitive personal information were not analyzed. Future studies should examine more types of personal information, including profile information, status updates, albums, profile picture, comments, and so on. Second, more factors related to

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adolescents' information disclosure could have been included. Parents' socio-economic contexts, such as their educational level and income level may affect the mediational strategies they adopt as well as the social environment they create for their children. From the adolescents' perspective, their obedience to their parents and other aspects of the parent-adolescent relationship may directly moderate the effect of parental mediation. Besides, the selected textual and visual information are all categorized as sensitive by the definition of personally identifiable information (PII), but the perceived sensitivity of each particular piece of textual and visual information by the adolescents may vary, thereby influencing their disclosure behavior. Therefore, parents' socio-economic status, parent-adolescent relationship, and adolescents' perceived sensitivity of information should be considered in our future studies. Third, the explanation for why parental mediation only moderates the effect of narcissism on visual information disclosure, but not the case for textual information disclosure is largely speculative as there is insufficient existing research in this specific area to provide a more nuanced, evidence-based explanation. Future studies should involve more factors that could possibly explain the underlying mechanisms of how such differences come about. Fourth, the data was collected by questionnaire instead of observing the actual disclosure on Facebook due to privacy guidelines on studying adolescents in Singapore. Questionnaire-based data may not exactly reflect the actual disclosure of personal information, so the findings should be interpreted with caution.

7. Conclusions

The study sheds light on adolescents' personal information disclosure on Facebook. Adolescents have a heavier reliance on online social networking platforms compared to other age cohorts due to their increased need for social connection with peers. Meanwhile, they are also particularly vulnerable to negative online experiences. In-depth understanding of adolescents' behavior of self-disclosure online is meaningful for parents in promoting

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adolescents' online social interaction experiences and protecting them from risky Internet behaviors.

The key insight of this study is that parental mediation was somehow effective in preventing narcissistic adolescents from disclosing personal photographs, but the adolescents and their parents may overlook or underestimate the sensitivity of the textual profile information and the risk of it being disclosed. Some textual information such as birth date, home address, secondary school, and recent activities may also be used by online predators for identifying or locating an adolescent. It is necessary for parents to pay more attention to adolescents' disclosure of textual information as well. In light of the findings, parents, school teachers and other educators should strengthen their mediational strategies for adolescents' Internet behaviors, especially in helping adolescents become more aware of the potential harm that could be caused by revealing both text-based and visual-based PII. It is also important for the guardians to enhance their digital literacy and knowledge about the potential harm that Internet can cause to adolescents, so as to optimize their intervention strategies and better protect adolescents from the potential negative influences of the Internet.

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