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**Brief report: The association between adolescents' characteristics and  
engagement in sexting**

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**Keywords**

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**Declaration of Conflicting Interests**

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- Adolescents' engagement in sexting is significantly linked with experiential thinking styles and sensation seeking.
- Students who score high on rational thinking are less likely to engage in sexting
- Adolescents' engagement in sexting behavior is associated with depression and students' response to economic stress

## **Brief report: The association between adolescents' characteristics and engagement in sexting**

### **Abstract**

The potential emotional and legal consequences of adolescents' engagement in sending sexually explicit pictures through the internet or the mobile phone (i.e., sexting) have caused significant concern about the behavior among practitioners and academics. The present study compares the characteristics of students who engage in sexting to those who do not. A survey among 1028 adolescents of 11 secondary schools in Belgium was administered. Logistic regression analyses suggest that sexting is significantly linked with sensation seeking, experiential thinking styles and depression, while controlling for gender, age, family status and students' response to economic stress. The results are of importance to practitioners who could adapt their prevention and intervention campaigns to better reach this complex youth. Differences with the findings of previous studies highlight the importance of continuing research on sexting and the need to pay attention to the specific context in which adolescent sexting takes place.

### **Keywords**

teen sexting; adolescents; personality traits; depression; sensation seeking; rational and experiential thinking

The limited research on adolescent sexting has mainly focused on the associations between sexting and a variety of risk behaviors and states, such as sexual risk behaviors, health risk behaviors, conduct problems and emotional difficulties (Van Ouytsel, Walrave, Ponnet, & Heirman, 2014). A brief report by Temple, et al. (2014), for instance, investigated the relationships between teenage sexting and impulsivity, substance use and symptoms of anxiety and depression. This line of research on adolescent sexting holds important implications for practitioners as it can help them to screen for involvement in other risk behavior when a sexting incident occurs (Temple, et al., 2014; Temple, et al., 2012).

Compared to the amount of research on the risk behaviors and states associated with adolescent engagement in sexting, far less studies have focused on personality traits that might be predictive of sexting. Examining the traits and characteristics of teenagers who engage in sexting behavior can help practitioners to better understand the unique context in which adolescent sexting takes place and can aid them in identifying at-risk youth.

The scarce research on the association between personality traits and adults' engagement in sexting (e.g., Delevi & Weisskirch, 2013), has only limited relevance for the research field on adolescent sexting. Teenagers' engagement in sexting may differ from adult sexting, as it is often driven by specific peer group dynamics (Ringrose, Harvey, Gill, & Livingstone, 2013; Walrave, Heirman, & Hallam, 2014). Moreover, it plays an important role within adolescents' sexual development process (Temple, et al., 2014) and has distinct legal consequences for those involved (Van Ouytsel, Walrave, & Van Gool, 2014).

Therefore, the present study aims to investigate the association between adolescents' engagement in sexting, personality traits (i.e., sensation seeking and rational and experiential thinking styles), while controlling for background variables such as gender, age, family status, and the social economic status of the respondents. Moreover, we examine the relation between sexting and depression, as these are examples of important traits and states that might alter individuals' decision making processes (Lauriola, Panno, Levin, & Lejuez, 2014; Shad, Bidesi, Chen, Ernst, & Rao, 2011), and therefore might impair adolescents' ability to fully evaluate the potential adverse consequences of sharing sexting messages.

## **Methods**

The data are a part of a large-scale longitudinal study on online self-disclosure in 98 classes of 11 secondary schools in Flanders, Belgium. In the second wave a question about sexting was asked. The sample comprises 1028 adolescents (58.0% girls;  $n = 596$ ) between 15 and 18 years old ( $M = 16.68$ ;  $SD = .67$ ). Formal consent from the school's principal and parental consent was sought prior to the study.

## **Measures**

### *Demographics and control variables*

Participants answered questions about their age, gender, family status and their response to economic stress within their families. These variables were used in the analysis as control variables and were measured during the second wave of our study.

The item about the *family status of the respondents* asked whether they lived with their mother and father or whether they lived in a different family setting. The

responses were recoded into 1 = *living with both parents* (74.8%;  $n = 767$ ) and 2 = *not living with both parents* (25.2%;  $n = 259$ ).

*The student's response to economic stress* included all eight items from the second version of 'The Responses to Stress Questionnaire' (Wadsworth & Compas, 2002) (*Cronbach's*  $\alpha = .94$ ), which asks students to indicate "how often they experienced and how they responded to economic strains in their lives" (Wadsworth & Compas, 2002, p. 253). All factor loadings were above .71.

#### *Traits and depression*

Validated measures were used to assess sensation seeking, rational and experiential thinking styles and depression.

*Sensation seeking* was measured on a 6-point scale (*Cronbach's*  $\alpha = .83$ ) during the first wave of our study, using seven items from the Brief Sensation Seeking Scale (Hoyle, Stephenson, Palmgreen, Lorch, & Donohew, 2002). All factor loadings were above .42.

*Rational and experiential thinking styles* were measured on a 6-point scale using the rational (5 items) (*Cronbach's*  $\alpha = .77$ ) and experiential engagement (5 items) (*Cronbach's*  $\alpha = .79$ ) scales from the brief Rational-Experiential Inventory (REI) (Pacini & Epstein, 1999) during the first wave of our study. The factor loadings for the items assessing experiential thinking styles were above .47 and above .43 for the items assessing rational thinking styles.

*Depression* was measured during the second wave of our study using the 4-point, 8-item CES-D8 scale (*Cronbach's*  $\alpha = .87$ ), which was validated across countries and genders (Ponnet, et al., 2013; Van de Velde, Bracke, & Levecque, 2010). The factor loadings for all items were above .56.

### *Sexting behavior*

Sexting behavior was assessed using a single-item question asking the respondents whether they had sent a sexually suggestive picture (naked or half naked) of themselves using the internet or a mobile phone in the months prior to the study. The response options ranged from 1 = *never* to 5 = *very often*. Because most students did on average not engage ( $M = 1.21$ ;  $SD = .68$ ) in sexting behavior, the responses were recoded into a binary variable with 0 = *never having engaged in sexting during the past months* (88.9%;  $n = 907$ ) and 1 = *having engaged in sexting* (11.1%;  $n = 114$ ). Seven respondents decided not to answer the question.

### ***Data analysis***

The scales were created using Principal Axis Factoring. A logistic regression model was executed in IBM SPSS 22.0 to address the study's aim. In a first step, the control variables were entered. In a second step, the predictor variables sensation seeking, rational and experiential thinking styles and depression were entered. In a third step potential interactions between gender, character traits and depression were assessed.

### **Results**

Table 1 shows the results of the logistic regression analyses. In the first model only family status showed to be a significant predictor of engagement in sexting ( $p < .001$ ). In our second model, adolescent's engagement in sexting behavior was significantly related to gender ( $p < .05$ ), with males engaging more in sexting behavior. Contrary to the first model, the relationship between engagement in sexting and family status did not remain significant ( $p = .25$ ). Furthermore, engagement in sexting was positively

related to perceived financial stress ( $p < .05$ ), sensation seeking ( $p < .05$ ), depression ( $p < .001$ ) and experiential thinking styles ( $p < .05$ ). With regard to the latter, young people who scored higher on rational thinking styles, were significantly less likely to engage in sexting behavior ( $p < .01$ ). Age ( $p = .98$ ) and family status ( $p = .25$ ) were not related to engagement in sexting. In the third model, interactions between gender and the predictor variables revealed not to be significant.

Table 1.

*Sexting behavior predicted by sensation seeking, experiential thinking styles, rational thinking styles and depressions symptoms while controlling for gender, age, family status, economic stress.*

Predictor	Sending a sexting picture		
	<i>B</i> (S.E.)	Exp ( <i>B</i> ) [95% CI]	Model chi-square (Nagelkerke $R^2$ )
Model 1			17.31** (.04)
Constant	-3.75 (2.66)	.02	
Gender ( <i>ref</i> = female)	.36 (.22)	1.44 [.94-2.20]	
Age	.09 (.16)	1.09 [.80-1.50]	
Family status ( <i>ref</i> = living with both parents)	-.32 (.26)	.72 [.43-1.21]***	
Response to economic stress	.36 (.09)	1.43 [1.20-1.72]	
Model 2			51.86*** (.11)
Constant	-2.57 (2.75)	.08	
Gender ( <i>ref</i> = female)	.56 (.23)	1.76 [1.12-2.75]*	
Age	.00 (.16)	1.00 [.73-1.39]	
Family status ( <i>ref</i> = living with both parents)	-.31 (.27)	.73 [.43-1.24]	
Response to economic stress	.22 (.10)	1.24 [1.03-1.51]*	
Sensation Seeking	.28 (.13)	1.33 [1.03-1.71]*	
Experiential thinking style	.33 (.14)	1.39 [1.06-1.82]*	
Rational thinking style	-.34 (.13)	.71 [.56-.92]**	
Depression symptoms	.50 (.11)	1.65 [1.32-2.05]***	
Model 3			52.84*** (.11)
Constant	-2.57 (2.78)	.08	
Gender ( <i>ref</i> = female)	.56 (.25)	1.75 [1.07-2.85]*	
Age	.00 (.16)	1.00 [.72-1.39]	
Family status ( <i>ref</i> = living with both parents)	-.31 (.27)	.73 [.43-1.25]	

Response to economic stress	.22 (.10)	1.24 [1.02-1.51]*
Sensation Seeking	.36 (.19)	1.44 [1.00-2.07]
Experiential thinking style	.36 (.20)	1.43 [.97-2.11]
Rational thinking style	-.35 (.19)	.70 [.49-1.02]
Depression symptoms	.43 (.15)	1.54 [1.15-2.06]**
Gender*sensation Seeking	-.15 (.26)	.86 [.52 -1.43]
Gender* experiential thinking style	-.05 (.28)	.95 [.55-1.64]
Gender*rational thinking style	.03 (.26)	1.03 [.62-1.69]
Gender*depression	.16 (.22)	1.17 [.76-1.80]

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

## Discussion

In our sample, 11.1% of the teenagers had sent a sexually explicit picture of themselves. Our study empirically shows that personality factors are significant predictors of teenagers' engagement in sexting. Youth who score higher on sensation seeking and on experiential thinking are more likely to engage in sexting. Conversely, youth who score higher on the rational thinking were significantly less likely to send sexting messages. These findings are in line with research by Temple, et al. (2014), that found a link between engagement in sexting and impulsivity. They are also in line with research which found that sensation seeking, as well as impulsivity, are associated with a range of sexual risk behaviors (Charnigo, et al., 2013). Considering that traditional instruction and teaching practices might be ineffective for teenagers who score high on sensation seeking, impulsivity or experiential thinking (Donohew et al., 2000), the implications and risks of sexting could be addressed by future research that might focus on how practitioners should reach this complex group of adolescents through adapted prevention and intervention campaigns. Inspiration can be found in the field of health communication, in which studies found that adolescents who score high on sensation seeking are best reached through messages that are high in message sensation value

(e.g., by using a dramatic depiction of the negative consequences) (Palmgreen, Lorch, Stephenson, Hoyle, & Donohew, 2007; Strasser, et al., 2009).

Contrary to previous research which did not find a significant association between engagement in sexting and sensation seeking among an adult sample (Delevi & Weisskirch, 2013), our study did find a significant relationship among an adolescent sample. This might be due to the use of different measures of sensation seeking (Arnett (1994) as opposed to Hoyle, et al. (2002) in our study). More likely, this result might be influenced by the different meaning that sexting holds for adolescents compared to young adults. Delevi and Weisskirch (2013) suggested that their findings might be explained by the fact that sexting is common and accepted among young adults (89.1% of respondents in their sample had engaged in some form of sexting) and consequently does not provide new experiences for sensation seekers. In the case of adolescents, sexting is less prevalent (11.1% in our sample) and constitutes a risk behavior as it might be associated with legal challenges for those involved (Hinduja & Patchin, 2013). This distinct context might explain why adolescents who score high on sensation seeking are more inclined to engage in online forms of sexual risk taking (i.e., sexting), just as they are more likely to be involved in offline forms of sexual risk taking (Donohew, et al., 2000).

Contrary to Temple, et al. (2014), our study did find a significant relationship between depression and engagement in sexting. This might be due to either the use of different measurement and techniques or cultural differences between the US and Belgian sample. Another difference between both studies is situated in the use of control variables. Temple, et al. (2014) found a significant relationship between depression symptoms and engagement in sexting in their unadjusted models, but this

relationship did not remain significant when controlling for prior sexual behavior, age, gender, race/ethnicity and parent education. Controlling for prior sexual behavior might be important since early sexual debut has been associated with depressive symptoms among adolescents (Spriggs & Halpern, 2008). The fact that our study does not control for the sexual history of our respondents might explain why we found a significant relationship between depression and engagement in sexting. At the least, this result underscores that more research on sexting and its psychosocial associations is warranted across cultures, using a variety of measurements, analysis techniques and control variables.

Finally, the control variable of students' response to economic stress was found to be a significant predictor of adolescents' engagement in sexting behavior, a deviant risk taking behavior. Socioeconomic status was already found to be a significant predictor of certain types of health risk behavior, such as smoking (Hanson & Chen, 2007). Furthermore, perceived economic strain has been found to be associated with a variety of deviant and delinquent behaviors among adolescents (Agnew, Matthews, Bucher, Welcher, & Keyes, 2008; Ponnet, 2014). Our finding might also be explained through the framework of the General Strain Theory, which posits that strains result in delinquency or deviant coping (Agnew, 1992). A recent study found significant associations between different types of strains (among those economic strain) and cyberbullying perpetration (Jang, Song, & Kim, 2014). Engagement in sexting might be another of many ways for adolescents to cope with economic stressors. Future research could enhance our understanding of how strains, and particularly economic strain and teenagers' experiences thereof, influence their engagement in online risk taking behavior. Meanwhile, youth from low-income backgrounds who exhibit signs of sexual

or online risk taking behavior, might benefit from additional screening by practitioners. They might also be referred to informational resources about e-safety (such as safe sexting practices) (Mason, et al., 2010).

Some limitations of this study should be kept in mind when interpreting the data such as the use of self-reports and a single item-measure to assess engagement in sexting behavior. Our findings would also have benefited from controlling for a wider range of background variables, such as respondents' sexual history and their engagement in other types of risk behaviors (such as alcohol or drug use). Despite these limitations, our study holds important implications for future research, such as the necessity to pay attention to the context in which adolescent sexting takes place and how it relates to adolescents' psychosocial well-being.

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