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## Examining the relation between adolescent social anxiety, adolescent delinquency (abstention), and emerging adulthood relationship quality

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### ABSTRACT

**Background and Objectives:** Social anxiety symptoms and delinquency are two prevalent manifestations of problem behavior during adolescence and both are related to negative interpersonal relationships in adolescence and emerging adulthood. This study examined the relation between social anxiety and delinquency in adolescence and the interplay between adolescent social anxiety and delinquency on perceived relationship quality in emerging adulthood. **Design and Methods:** In a 10-year long prospective study (T1,  $n = 923$ ; T2,  $n = 727$ ; Mage T1 = 12; 49% female), we examined competing hypotheses using regression analyses: the protective perspective, which suggests social anxiety protects against delinquency; and the co-occurring perspective, which suggests social anxiety and delinquency co-occur leading to increased negative interpersonal outcomes. **Results:** In adolescence, the relation between social anxiety and delinquency was consistent with the protective perspective. In emerging adulthood, consistent with the co-occurring perspective, ever-delinquents (but not delinquency abstainers) with higher social anxiety reported less perceived best friend, mother, and father support compared to delinquents with lower social anxiety. There was no interaction between anxiety and delinquency in predicting perceived conflict. **Conclusion:** This study highlights the importance of examining the relation between social anxiety and delinquency with regards to different interpersonal outcomes.

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### KEYWORDS

Social anxiety; delinquency; abstainers; adolescence; relationship quality; emerging adulthood

Problem behaviors often become more frequent in adolescence and can be displayed in many different forms (Arnett, 1999). This paper focuses on social anxiety and delinquency for two reasons: First, because social anxiety symptoms are one of the most prevalent manifestations of psychopathology during adolescence (Merikangas et al., 2010) and, at the same time, most adolescents engage in at least one act of delinquency such as vandalism, shoplifting, or substance use (Moffitt, Caspi, Harrington, & Milne, 2002). Second, both social anxiety and delinquency are related to a wide range of negative developmental and relational outcomes, including poorer relationships with parents and peers (e.g., Hoeve et al., 2009; Kingery, Erdley, Marshall, Whitaker, & Reuter, 2010). Given the prevalence of social anxiety and delinquency and their negative impact on interpersonal relationships, this paper aimed to disentangle their relation in adolescence as well as to examine the role of adolescent social anxiety and delinquency on the perceived quality of social relationships in emerging adulthood. In doing so, we can develop a further understanding of the enduring effects of adolescent

anxiety and delinquency, both of which are a matter of concern for parents, educators, and professionals interested in improving the well-being of young people.

## Social anxiety and delinquency

Generally, there are two perspectives on the relation between social anxiety and delinquency. First, social anxiety and delinquency are often thought to be negatively related, conceptualized as opposite ends of a single continuum (Galbraith, Heimberg, Wang, Schneier, & Blanco, 2014) and therefore protective against each other (*protective perspective*). Second, there is also evidence that social anxiety symptoms and delinquency may be positively related (Zoccolillo, 1992), and therefore co-occurring (*co-occurring perspective*).

In the *protective perspective*, the social inhibition characteristic of social anxiety may work as the protective mechanism against engaging in antisocial behaviors like delinquency (Lahey & Waldman, 2003; Pine, Cohen, Cohen, & Brook, 2000). More specifically, social anxiety may result in less time spent with peers or influence the types of activities adolescents engage in with their peers (e.g., going to the movies instead of going to unsupervised parties), leading to fewer opportunities for delinquency (e.g., Mercer, Keijsers, Crocetti, Branje, & Meeus, 2016; Nelemans et al., 2016). To further illustrate, social anxiety symptoms are thought to be associated with behavioral inhibition, risk-aversion, overregulation, and shy or submissive behavior (i.e., Gilbert, 2001). This description runs parallel to research that found those adolescents who do not engage in any form of delinquency (i.e., delinquency abstainers) tend to be shy, withdrawn, passive or compliant (Owens & Slocum, 2015), more rational, and non-confrontational (Chen & Adams, 2010).

Delinquency abstainers have been found to have other characteristics that could also be attributed to having more social anxiety symptoms such as: having strong beliefs against antisocial behavior (i.e., strict adherence to social norms; Piquero, Brezina, & Turner, 2005), being more likely to have fewer friends, and spending less time with these friends (Chen & Adams, 2010). However, research suggests that delinquency abstainers are, for the most part, well-adjusted adolescents who have good relationships with their parents (Chen & Adams, 2010; Piquero et al., 2005) and who become well-adjusted adults (e.g., Moffitt et al., 2002). Therefore, not only does this research suggest that social anxiety may protect against delinquency in adolescence, there may also be an upside to experiencing some social anxiety symptoms, as well.

In the *co-occurring perspective*, social anxiety may co-occur with antisocial behavior or delinquency without any buffering or protective benefits, not only in clinical samples (e.g., Galbraith et al., 2014; Goodwin & Hamilton, 2003; Kashdan, McKnight, Richey, & Hofmann, 2009; Marmorstein, 2007; Sareen, Stein, Cox, Hassard, 2004) but also in community samples (Tillfors, El-Khoury, Stein, & Trost, 2009). Instead, co-occurrence has been related to more impairment and distress than either social anxiety or antisocial behavior alone (Galbraith et al., 2014; Goodwin & Hamilton, 2003). For instance, people with co-occurring social anxiety and antisocial behavior problems were more likely to indicate that they had troubles with stability of employment or responsibilities at work, that they had recently separated or divorced, and that they had other interpersonal difficulties with neighbors, friends, or co-workers (Galbraith et al., 2014). Therefore, in the *co-occurring perspective*, more social anxiety would not be protective from delinquency but would instead be associated with increased delinquency. Together, these two different manifestations of problem behavior may result in even poorer functioning.

## Social anxiety, delinquency, and relationship quality

Because both social anxiety and delinquency in adolescence can hamper social interactions (Rapee & Spence, 2004; Steinberg & Monahan, 2007), including poorer relationships with both parents and peers (e.g., Hoeve et al., 2009; Giordano, Cernkovich, & Pugh, 1986; Kingery et al., 2010; Muris, Meesters, van Melick, & Zwambag, 2001), it is important to examine how the relation between these two

inherently (anti-)social constructs can impact the perceived quality of these pertinent relationships later in emerging adulthood. In doing so, it is also necessary to examine both positive and negative dimensions of relationships to best determine the overall quality (e.g., Berndt, 2002). Therefore, we consider both aspects of quality to further advance the discussion surrounding the different hypotheses regarding how and when social anxiety and minor delinquency may be related.

## The present study

In line with the literature reviewed above, the first aim of this study was to examine the two competing hypotheses about the relation between social anxiety symptoms and delinquency in a prospective study of adolescents. Specifically, the *protective perspective* would expect that in adolescence, delinquency abstention would be related to higher levels of social anxiety, whereas, the *co-occurring perspective* would expect delinquency to be related higher levels of social anxiety.

Additionally, the second aim of this study was to examine the enduring individual and combined effects of adolescent social anxiety and delinquency on perceived best friend and parental relationship quality (conflict and support) in emerging adulthood. Based on the *protective perspective*, we could expect that social anxiety and delinquency would interact to predict later perceived relationship quality, with the presence of one serving as a buffer for the other. For example, perhaps the positive effect of being non-delinquent (i.e., a delinquency abstainer) in adolescence decreases the negative relation between social anxiety and interpersonal relationship quality. Based on the *co-occurring perspective*, we could also expect that social anxiety and delinquency would interact leading to poorer quality relationships for delinquent adolescents with higher social anxiety symptoms.

Finally, much of previous research has been conducted using diagnostic or clinical cutoffs for both social anxiety and antisocial behavior or conduct problems. Therefore, there is little knowledge regarding the relation between social anxiety and delinquency in a general population sample. In this study, we examined social anxiety symptoms and whether adolescents have ever engaged in any delinquent acts. Studies that examine the relation between preclinical social anxiety and ever engaging in adolescent delinquency can provide insight on the interplay of these two domains *before* they reach problematic or diagnostic criteria.

## Method

### Participants

This study used data from the CONAMORE project (CONflict and Management Of Relationships). CONAMORE is a prospective longitudinal multi-cohort study. In this study, we used the early adolescent cohort, which consisted of 923 adolescents (49% females) followed for 6 waves into emerging adulthood. At the first wave, participants were approximately 12 years old ( $M = 12.42$ ,  $SD = 0.59$ ; range = 10–15). The first 5 waves were conducted annually from ages 12 to 16 and the sixth wave was conducted five years later when adolescents were approximately 21 years old. At the first measurement wave, most adolescents in the sample lived with both parents (85.1%) and reported their ethnicity to be Dutch (81.7%). The remaining adolescents reported themselves as belonging to various ethnic minorities (14.7%; e.g., Surinamese, Antillean, Moroccan, and Turkish) or did not report their ethnicity (3.6%). For comparison, when data collection began in 2001, 21% of all Dutch early-to-middle adolescents belonged to ethnic minority groups. Furthermore, approximately 69% of the young cohort reported to be in university or college-preparatory high school at Wave 5. Of the original 923 participants, 727 (54% females) participated in the sixth wave.

*Missingness and attrition.* Sample attrition was 1.2% across adolescent waves. In the current study, the sample size at each wave in adolescence was 923, 923, 906, 902, and 886, respectively. Missing item values were estimated in SPSS using the relative mean substitution procedure (Raaijmakers,

1999). At each adolescent wave, no more than 7.5% of the data included in the current study was missing, with an average of 3.4%. The sample size at Wave 6 (age 21) was 727 of the original 923 adolescents. This larger attrition at Wave 6 (21%) can be explained by the 5-year gap between the last two measurement waves. We performed attrition analyses to examine if the 727 adolescents who participated in Wave 6 at age 21 differed from the 196 who dropped out. Being male  $\chi^2(1, 923) = 27.92, p < .001$  and lower educated  $\chi^2(1, 870) = 45.92, p < .001$  were significant predictors of drop out at Wave 6. Concerning the study variables, reporting higher social anxiety  $t(1, 407.23) = -4.73, p < .001$ , more mother support  $t(1, 283.40) = -4.00, p < .001$ , more best friend support  $t(1, 920) = -5.34, p < .001$ , more father support  $t(1, 902) = -5.40, p < .001$ , and less best friend conflict  $t(1, 289.17) = 5.29, p < .001$  were all significant predictors of participation at Wave 6. We made use of all available data with the exception of seven adolescents who were excluded because they did not have enough data to be classified as abstainers or ever-delinquents.

## Procedure

Participants were recruited from secondary schools in the province of Utrecht, The Netherlands. Written information about the study and possibilities to decline participation were provided, both adolescent and parental informed consent were required. Less than 1% of approached students declined to participate. No exclusion criteria were applied. Annual measurements began in 2001 and the first five measurements took place at adolescents' schools in the fall of each year. The sixth measurement took place in 2010 in participants' homes. Adolescents received 10 euro for their participation at each wave. The Utrecht University Board of the Institute for the Study of Education and Human Development (The Netherlands) approved this study.

## Measures

### Delinquency

Adolescent delinquency was measured using a 16-item self-report delinquency scale (Baerveldt, Van Rossem, & Vermande, 2003) measured in five annual waves from ages 12 to 16. Adolescents indicated whether they engaged in delinquent acts such as shoplifting, other theft, destroying, or defacing property, being involved in a fight or using drugs in the past year. Based on previous research that has suggested that delinquency abstainers may be especially likely to experience anxiety compared to adolescents who engage in delinquency (Moffitt et al., 2002; Owens & Slocum, 2015), we coded adolescent delinquency as a dichotomous variable. More specifically, we classified all adolescents who scored zero on all measured items, and who had complete data for a minimum of 4 out of 5 waves of data measured in adolescence, to be adolescent delinquency abstainers (0 = *abstainer*;  $n = 206$ ; 22% of total sample). Adolescents who indicated that they engaged in one or more items at any given wave were coded as ever-delinquent (1 = *ever-delinquent*;  $n = 710$ ).<sup>1</sup> Overall, 72% of abstainers were female and 17% of abstainers reported attending a vocational-preparatory high school. This is in comparison to the ever-delinquents, of which 42% were female and 30% reported attending a vocational-preparatory high school.

### Social anxiety

The Screen for Child Related Emotional Disorders (SCARED; Birmaher et al., 1997; Hale, Crocetti, Raaijmakers, & Meeus, 2011) measured social anxiety. We created a mean score over five annual waves from ages 12 to 16. This 4-item subscale includes items such as "I get nervous around people I do not know well" (1 = *almost never* to 3 = *often*). The reliabilities were adequate ranging from .80 to .86 across all five waves.

## Relationship quality

Support and conflict subscales from the Network of Relationships Inventory (Furman & Buhrmester, 1985) measured the quality of best friend and parental relationships in adolescence and emerging adulthood. For perceived support and perceived conflict in adolescence, we created a mean score over five annual waves from ages 12 to 16. Perceived support and conflict in emerging adulthood were measured at age 21.

*Support.* The 12-item support subscale includes items such as “How often do you turn to your mother/father/best friend for support with personal problems?” (1 = *little to not at all* and 5 = *as much as possible*). The reliabilities for perceived support from mothers (ranging from .97 to .91), fathers (ranging from .91 to .93), and best friends (ranging from .92 to .93) were good in all six waves.

*Conflict.* The 6-item conflict subscale includes items such as “How often do you and your mother/father/best friend disagree and get into arguments?” (1 = *little to not at all* and 5 = *as much as possible*). The reliabilities of perceived conflict with their mother (ranging from .85 to .94), father (ranging from .87 to .93), and best friend (ranging from .84 to .93) were good at all six waves.

## Analytic strategy

To answer our first research question, we conducted a bivariate logistic regression to examine how delinquency and social anxiety are related to each other in adolescence. To answer our second research question, we conducted hierarchical linear regressions to examine the effects of adolescent social anxiety and adolescent delinquency (abstention) on perceived parent and best friend relationship quality in emerging adulthood. In all analyses, we controlled for education level and gender. Furthermore, in order to adequately examine the predictive value of adolescent social anxiety and delinquency abstention, we controlled for perceived relationship quality in adolescence in the regression models (i.e., stability over time). In other words, in each of these models, in the first step, we entered gender, education, and perceived relationship quality in adolescence as control variables, along with adolescent social anxiety and adolescent delinquency status as predictors. In the second step, we included the interaction term between adolescent social anxiety and adolescent delinquency status. Therefore, the second step included all control variables, conditional main effects for social anxiety and delinquency status, and an interaction term. Regression analyses were conducted in *Mplus* version 7.3 and made use of the MLR estimator to account for any potential non-normality of variables. *Post hoc* analyses of interaction effects were conducted using the PROCESS macro (Hayes, 2013) for SPSS.

## Results

### Descriptive statistics

Table 1 presents means and standard deviations, and Table 2 presents the correlations between adolescent study variables. Adolescent social anxiety was weakly, but negatively related to delinquency and perceived support, and positively related to perceived conflict in best friend, mother, and father relationships in adolescence. Additionally, during adolescence, being ever-delinquent was negatively correlated with mother support and positively correlated with perceived best friend support and perceived conflict with mother, father, and best friends.

### Social anxiety and delinquency

In examining our first research question on the relation between social anxiety and delinquency in adolescence, we found that consistent with the *protective perspective*, scoring higher on social anxiety significantly decreased the odds of being an ever-delinquent in adolescence (OR = 0.60;

**Table 1.** Means (*M*) and standard deviations (*SD*s) for social anxiety and perceived relationship quality across adolescence and emerging adulthood.

	Age 12		Age 13		Age 14		Age 15		Age 16		Grand mean adolescence		Age 21	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Social anxiety	1.50	0.50	1.53	0.51	1.51	0.52	1.53	0.54	1.53	0.55	<b>1.52</b>	<b>0.41</b>	–	
Best friend support	3.03	0.86	3.16	0.78	3.16	0.77	3.26	0.75	3.33	0.71	<b>3.18</b>	<b>0.60</b>	3.48	0.64
Best friend conflict	1.31	0.44	1.38	0.49	1.38	0.51	1.32	0.46	1.30	0.45	<b>1.34</b>	<b>0.33</b>	1.22	0.38
Mother support	3.58	0.64	3.59	0.64	3.53	0.68	3.47	0.68	3.51	0.65	<b>3.54</b>	<b>0.52</b>	3.78	0.61
Mother conflict	1.41	0.46	1.46	0.50	1.53	0.56	1.56	0.64	1.53	0.61	<b>1.50</b>	<b>0.41</b>	1.46	0.58
Father support	3.41	0.78	3.44	0.73	3.35	0.77	3.31	0.76	3.33	0.74	<b>3.35</b>	<b>0.60</b>	3.40	0.70
Father conflict	1.40	0.49	1.44	0.55	1.53	0.61	1.54	0.65	1.52	0.63	<b>1.48</b>	<b>0.45</b>	1.37	0.53

Note: The grand means in adolescence are based on the following sample sizes: social anxiety  $n = 923$ ; best friend variables  $n = 922$ ; mother variables  $n = 921$ ; and father variables  $n = 904$ .

**Table 2.** Partial correlations for social anxiety, delinquency (abstention), and perceived relationship quality in adolescence.

Measure		1.	2.	3.	4.	5.	6.	7.
1.	Social anxiety	–						
2.	Ever-delinquent <sup>a</sup>	–.11**	–					
3.	Mother support	.13***	–.08*	–				
4.	Mother conflict	.11**	.14***	–.41***	–			
5.	Father support	–.17***	–.06	.68***	–.27***	–		
6.	Father conflict	.13***	.14***	–.23***	.49***	–.41***	–	
7.	Friend support	–.17***	.07*	.51***	–.09**	.50***	–.11**	–
8.	Friend conflict	.16***	.11**	–.16***	.35***	–.20**	.38**	–.21***

Note: Correlations are adjusted for gender and education level ( $n = 847$ ). Correlations between delinquency and continuous variables are point-biserial.

\*\*\* $p < .001$ .

\*\* $p < .01$ .

\* $p < .05$ .

<sup>a</sup>Abstainers = 0; ever-delinquent = 1.

95% CI = 0.41–0.88;  $n = 870$ ). Indeed, delinquency abstainers ( $M = 1.63$ ,  $SD = 0.46$ ) reported higher social anxiety than ever-delinquent adolescents ( $M = 1.49$ ,  $SD = 0.39$ ).

### ***Social anxiety, delinquency, and relationship quality***

We conducted two separate hierarchical linear regressions, to examine whether considering both adolescent social anxiety and delinquency in the context of perceived relationship quality in emerging adulthood would provide a more nuanced picture of the relation between social anxiety and delinquency.

#### ***Support***

First, the results for perceived support (Table 3) show that, after controlling for gender, education, and perceived support in adolescence, adolescent social anxiety was negatively related to perceived best friend, mother, and father support in emerging adulthood. Being ever-delinquent was not related to perceived support in any of our three relationship domains five years later. In the final model step, we added an interaction term to assess if social anxiety and delinquency in adolescence interacted to predict perceived relationship quality in emerging adulthood.

We found a significant interaction between anxiety and delinquency in all relationship domains (Figure 1). Follow-up analyses showed that all three interactions were driven by an effect of social anxiety on perceived support in ever-delinquent adolescents (best friend support,  $t = -3.39$ ,  $p < .001$ ; mother support,  $t = -3.04$ ,  $p = .002$ ; father support  $t = -3.20$ ,  $p = .001$ ). Social anxiety was not related to perceived relationship quality in abstaining adolescents (best friend support,  $t = 0.01$ ,  $p = .99$ ; mother support,  $t = 0.67$ ,  $p = .51$ ; father support,  $t = 1.04$ ,  $p = .30$ ).

**Table 3.** Summary of hierarchical regression analyses for the relation between social anxiety (SA) symptoms, ever-delinquent, and perceived support in emerging adulthood.

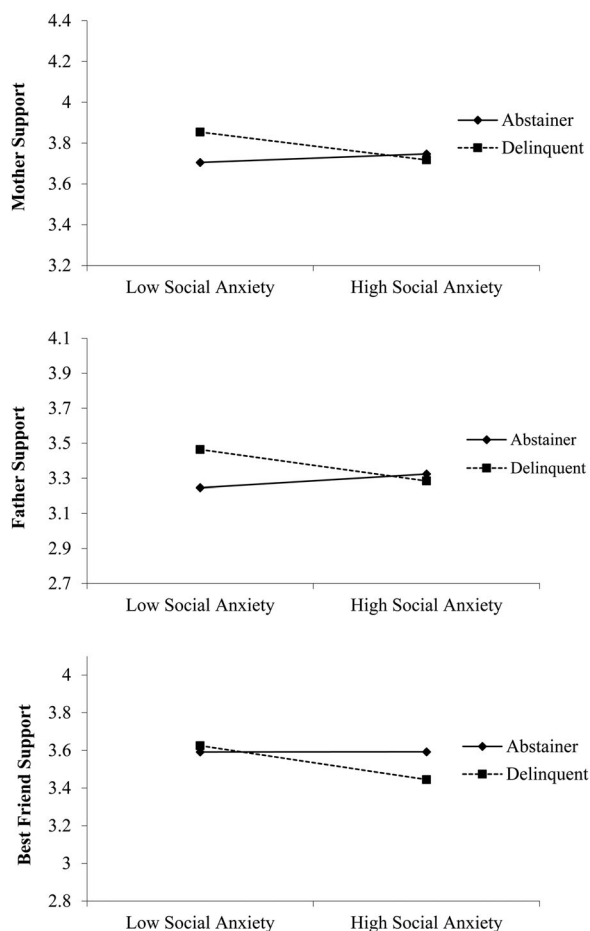
Emerging adult perceived support (T6)	Model 1			Model 2		
	<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$
<b>Best friend support</b>						
Female	0.04	0.05	0.03	0.05	0.05	0.04
High education	−0.20	0.06	−0.13**	−0.20	0.06	−0.13***
T1–T5 support	0.49	0.05	0.45***	0.49	0.05	0.44***
T1–T5 social anxiety	−0.15	0.05	−0.10**	0.00	0.07	0.00
T1–T5 ever-delinquent	−0.07	0.05	−0.05	−0.06	0.05	0.04
SA × ever-delinquent				−0.21	0.09	−0.12*
			$R^2 = .252^{***}$			$R^2 = .256^{***}$
<b>Mother support</b>						
Female	0.04	0.04	0.04	0.05	0.04	0.04
High education	−0.09	0.05	−0.06	−0.10	0.05	−0.07
T1–T5 support	0.63	0.05	0.50***	0.63	0.05	0.49***
T1–T5 social anxiety	−0.10	0.04	−0.07*	0.05	0.07	0.03
T1–T5 ever-delinquent	0.05	0.05	0.03	0.06	0.05	0.04
SA × ever-delinquent				−0.21	0.08	−0.12*
			$R^2 = .273^{***}$			$R^2 = .278^{***}$
<b>Father support</b>						
Female	0.07	0.05	0.05	0.08	0.05	0.06
High education	−0.09	0.06	−0.06	−0.09	0.06	−0.06
T1–T5 support	0.64	0.05	0.54***	0.64	0.05	0.54***
T1–T5 social anxiety	−0.12	0.06	−0.07*	0.09	0.09	0.06
T1–T5 ever-delinquent	0.07	0.06	0.04	0.09	0.06	0.06
SA × ever-delinquent				−0.31	0.11	−0.15**
			$R^2 = .313^{***}$			$R^2 = .321^{***}$

Note: Continuous predictors have been mean-centered. The sample size in each analysis was best friend  $n = 686$ ; mother  $n = 691$ ; and father  $n = 666$ .

\*\*\* $p < .001$ .

\*\* $p < .01$ .

\* $p < .05$ .



**Figure 1.** Significant interaction patterns for the relationships between perceived relationship support in emerging adulthood adjusted for gender, education, and adolescent perceived relationship support. Y-axis represents  $\pm 1$  SD around the mean.

### Conflict

After controlling for gender, education, and adolescent perceived conflict, social anxiety was related to perceived mother conflict, but not father or best friend conflict. Being ever-delinquent was not related to perceived conflict in any emerging adult relationship domains (Table 4). Furthermore, social anxiety and adolescent delinquency did not interact to significantly predict perceived conflict. The only consistent predictor of perceived conflict in emerging adulthood was perceived conflict in adolescence.

### Discussion

Social anxiety and delinquency are prevalent in adolescence, both with negative effects on interpersonal relationships, but less is known about their relation to each other. Two different views of the relationship between social anxiety and delinquency have been proposed: according to the *protective perspective*, social anxiety may protect adolescents from delinquency and other antisocial behavior (e.g., Moffitt et al., 2002; Pine et al., 2000) and are therefore negatively related. Whereas according to the *co-occurring perspective*, social anxiety and delinquency are separate but positively related (e.g., Galbraith et al., 2014; Sareen et al., 2004). The first aim of this study was to further examine these potential relations in adolescence, while the second aim was to examine the interplay

**Table 4.** Summary of hierarchical regression analyses for the relation between social anxiety (SA) symptoms, ever-delinquency, and perceived conflict in emerging adulthood.

Emerging adult perceived conflict (T6)	Model 1			Model 2		
	<i>B</i>	SE <i>B</i>	$\beta$	<i>B</i>	SE <i>B</i>	$\beta$
Best friend conflict						
Female	−0.10	0.03	−0.14***	−0.10	0.03	−0.14***
High education	0.00	0.03	0.00	0.00	0.03	0.00
T1–T5 conflict	0.40	0.06	0.33***	0.40	0.06	0.33***
T1–T5 social anxiety	0.02	0.03	0.03	0.01	0.04	0.01
T1–T5 ever-delinquent	0.02	0.03	0.02	0.02	0.03	0.02
SA × ever-delinquent				0.02	0.06	0.02
			$R^2 = .147^{***}$			$R^2 = .148^{***}$
Mother conflict						
Female	−0.02	0.05	−0.02	−0.03	0.05	−0.02
High education	0.14	0.05	0.10**	0.14	0.05	0.10**
T1–T5 conflict	0.55	0.06	0.39***	0.55	0.06	0.38***
T1–T5 social anxiety	0.10	0.05	0.07*	0.03	0.09	0.02
T1–T5 ever-delinquent	0.01	0.05	0.01	−0.14	0.05	0.00
SA × ever-delinquent				0.09	0.10	0.06
			$R^2 = .164^{***}$			$R^2 = .165^{***}$
Father conflict						
Female	−0.12	0.04	−0.12**	−0.12	0.04	−0.11**
High education	0.02	0.05	−0.02	−0.02	0.05	−0.02
T1–T5 conflict	0.48	0.06	0.39***	0.48	0.06	0.40***
T1–T5 social anxiety	0.06	0.04	0.04	0.08	0.08	0.06
T1–T5 ever-delinquent	−0.04	0.04	−0.03	−0.03	0.04	−0.03
SA × ever-delinquent				−0.04	0.09	−0.02
			$R^2 = .170^{***}$			$R^2 = .170^{***}$

Note: Continuous predictors have been mean-centered. The sample size in each analysis was best friend  $n = 686$ ; mother  $n = 691$ ; and father  $n = 665$ .

\*\*\* $p < .001$ .

\*\* $p < .01$ .

\* $p < .05$ .

between adolescent social anxiety and delinquency on parental and best friend relationship quality in emerging adulthood.

### **Social anxiety and delinquency**

In adolescence, we found that consistent with the *protective perspective* (e.g., Pine et al., 2000), delinquency abstainers report higher social anxiety than ever-delinquents. Furthermore, these differences in social anxiety during adolescence are not only supportive of the idea social anxiety may operate as a protective factor against delinquency, but also that there may be an upside to experiencing some non-clinical social anxiety (Rapee & Spence, 2004). For example, in adolescence while delinquency abstainers reported higher social anxiety, delinquency abstention was also related to less perceived conflict and more perceived mother support. This is consistent with research that found that delinquency abstention in adolescence was associated with better perceived relationships with parents and teachers (Brezina & Piquero, 2007; Chen & Adams, 2010). Therefore, in adolescence being a delinquency abstainer may buffer some negative interpersonal effects of social anxiety.

### **Social anxiety, delinquency, and relationship quality**

Examining the relation between social anxiety, delinquency, and perceived support, we found that the effects of being socially anxious in adolescence were enduring, negatively impacting perceived support in best friend, mother, and father relationships five years later. There was no effect of adolescent delinquency on perceived support in any of these domains. This finding may suggest that the negative interpersonal consequences of (minor) delinquency are not as enduring as those of social

anxiety. This is consistent with research suggesting that the majority of adolescent delinquency is age-related experimentation, whereas only a small proportion of adolescents will continue to demonstrate antisocial behavior in adulthood (Moffitt et al., 2002). Adolescents may transition in and out of delinquency with more variation than they do with social anxiety.

Importantly, adolescent social anxiety and adolescent delinquency status interacted to predict perceived support in emerging adulthood: In ever-delinquent adolescents, we found that higher social anxiety was related to decreased support, and lower social anxiety was related to increased support. Therefore, within ever-delinquent adolescents, the results are consistent with the *co-occurring perspective*: Ever-delinquent adolescents who score higher on social anxiety have worse perceived relationship support in all domains compared to ever-delinquent adolescents who score lower on social anxiety. However, there are no differences between abstainers who report higher or lower social anxiety on their levels of parental or best friend support in emerging adulthood. Being a delinquency abstainer may attenuate the predictive link between social anxiety and perceived support in emerging adulthood (i.e., also attenuating any higher support generally associated with lower anxiety). An explanation for this latter finding could be related to the perception of abstainers as well-adjusted adolescents (Brezina & Piquero, 2007) and later, well-adjusted adults (Moffitt et al., 2002). For example, parents of abstaining adolescents may not perceive the need to modulate their support according to anxiety levels as previous research has found adolescent abstainers to be high in conscientiousness (i.e., Mercer et al., 2016) and self-constraint (i.e., Boutwell & Beaver, 2008). Therefore, it is plausible that abstainers' parents may perceive them as more mature and in less need of explicit support as they enter emerging adulthood. Indeed, higher conscientiousness is associated with maturity and the mastery of social roles (Roberts & Mroczek, 2008). Parents of ever-delinquent adolescents who are low in anxiety, however, may believe that expressed support could be more beneficial, as delinquency is associated with less maturity in personality development (Klimstra, Hale, Raaijmakers, & Meeus, 2012). When an adolescent engages in some delinquency and reports higher socially anxiety, however, parents and peers may have more difficulty expressing or maintaining support into emerging adulthood, perhaps leading to the negative relation between anxiety and support seen in ever-delinquent adolescents.

However, examining the relation between social anxiety, delinquency, and perceived conflict in emerging adulthood, we found that being socially anxious in adolescence was only related to increased perceived conflict with mothers, five years later. One of the reasons we did not find consistent enduring effects of adolescent social anxiety on perceived conflict in emerging adulthood could be related to findings suggesting that transitions to from adolescence to adulthood may have different effects on positive and negative parent–child interaction patterns (Aquilino, 1997). For instance, parents with young adults living at home reported more emotional closeness, shared activities, and perceived support, but also more conflicts and issues with control compared to parents with young adults living outside the family home (Aquilino, 1997). While we did not examine any transitions in this study, given the modest amount of variance in perceived relationship quality explained by adolescent factors, additional factors are clearly related to perceived relationship quality. Therefore, we consider these differential results to primarily support the importance of considering both negative and positive aspects of relationship quality (i.e., Berndt, 2002) as both aspects may be differentially related to other constructs, and in this case – social anxiety.

### ***Strengths, limitations, and suggestions for future research***

Some limitations should be taken into consideration while interpreting the results from this study. First, although this study was a longitudinal, prospective study of adolescents over a 10-year time period, all of the measures included were self-reported. It would be advantageous if future research could corroborate these results with other measures of relationship quality. This is particularly important when considering that anxious people have a tendency to under-perceive relationship quality (e.g., Rodebaugh, Lim, Shumaker, Levinson, & Thompson, 2015). Second, we aimed to examine the enduring

individual and combined effects of adolescent social anxiety and delinquency (abstention) on perceived best friend and parental relationship quality in emerging adulthood. While we were able to prospectively do so, an average age of 21 is still quite young. Future research should attempt to re-examine the predictive validity of adolescent social anxiety and delinquency (abstention) in later adulthood. Third, because this study used a community sample of adolescents primarily from two-parent homes with somewhat higher than average educational attainment, it is less likely that there are many severely delinquent adolescents whose behavior may reach diagnostic or clinical levels in this sample. However, this limitation is consistent with our operationalization of delinquency abstainers versus ever-delinquents rather than a continuous measure of delinquency that would reflect a larger range of seriousness. Therefore, the relation between social anxiety frequency, seriousness, and chronicity of delinquency could be an avenue to be explored in future studies. Finally, because both social anxiety and delinquency in adolescence can lead to problems in interpersonal relationships (Rapee & Spence, 2004; Steinberg & Monahan, 2007), we focused on their interplay in parent and best friend relationships. However, as our results suggest, the relation between social anxiety and delinquency can differ between domains. Future research should expand upon these domains to broaden our understanding of when the protective versus co-occurring perspectives are most relevant.

## Conclusion

The results of this study highlight the importance of examining the interplay between delinquency and anxiety in relation to different interpersonal outcomes. Future research should consider the relation between social anxiety and delinquency in predicting different outcomes across different ages to further generalize these results. Finally, special attention to adolescent delinquency abstainers may be warranted, as social anxiety may be protective leading to abstention from delinquency in adolescence. However, the mature status of adolescent delinquency abstainers may in turn be related to different expectations and outcomes in parental relationship quality later in life.

## Note

1. Seven adolescents indicated that they did not engage in any of the 16-items, but did not have a minimum of four waves of complete data. These adolescents were excluded to avoid misclassification. Two percent of this sample (14 females and 5 males) were classified as ever-delinquents on the basis of drug use items only. While it has been suggested that adolescents whose only delinquent act is drug use may be self-medicating their social anxiety, these 19 adolescents had a lower score on social anxiety ( $M = 1.39$ ;  $SD = 0.36$ ) than the total sample ( $M = 1.53$ ;  $SD = 0.41$ ). Furthermore, results did not change when these adolescents were excluded from the analysis.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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