



# Prospective associations between social status and social anxiety in early adolescence

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This study examined the transactional longitudinal association between social status (*likeability* and *popularity*) and social anxiety symptoms (*fear of negative evaluation* and *social avoidance and distress*), and explored gender differences in this association. Participants included 274 adolescents (136 boys,  $M_{\text{age}} = 12.55$ ). Data were collected at two waves with a 6-month interval. Likeability and popularity were measured with peer nominations and social anxiety symptoms with self-reports. Autoregressive cross-lagged path models showed relative stability of social status and social anxiety. Girls who were seen as less popular by their classmates avoided social situations more frequently and experienced more distress during such situations over time. These results highlight the importance of distinguishing between different social status components and social anxiety symptoms and to take gender into account. Early support for less popular girls seems important to prevent more severe consequences of avoidance and distress, such as social exclusion and victimization.

## Statement of contribution

### *What is already known on this subject?*

- In early adolescence, there is an increased risk of social anxiety and a focus on social status.
- Social anxiety and social status are negatively related to each other in early adolescence.
- Subcomponents of social anxiety (FNE and SAD) and social status (popularity and likeability) exist.

### *What does this study add?*

- This is the first study examining the link between social status and social anxiety subcomponents.
- Social status relates to social avoidance and distress, but not to fear of negative evaluation.
- Less popular girls experience more social avoidance and distress during situations over time.

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## Introduction

During adolescence, the peer context becomes increasingly complex and salient for well-being (Brown & Larson, 2009). Making a positive impression on others, obtaining social approval (LaFontana & Cillessen, 2010), and establishing a high position in the social hierarchy (Pellegrini & Long, 2002) become important. Social status is divided into *popularity*, described by dominance and power, and *likeability*, reflected by affiliation, intimacy, and support. Popularity and likeability are distinct constructs (Cillessen & Rose, 2005) and low to moderately correlated: Popular adolescents are not necessarily well-liked and vice versa (Cillessen & Marks, 2011).

Early adolescence is also characterized by increasing social anxiety (Mancini, Van Ameringen, Bennett, Patterson, & Watson, 2005). Social anxiety is common with 5-16% of adolescents reporting clinical levels (Weiss & Last, 2001). Social anxiety is typically subdivided into two symptom clusters: Fear of negative evaluation (FNE) and social avoidance and distress (SAD). FNE reflects fear or worry regarding negative peer evaluations. SAD entails social inhibition or avoidance and the experience of distress or discomfort during situations (La Greca & Stone, 1993). These symptoms are only moderately correlated: Some individuals with high FNE function adequately in social situations, whereas others experience distress and are avoidant (La Greca & Lopez, 1998). FNE and SAD are also differentially related to other constructs. FNE relates more strongly to depressive and general anxiety symptoms than SAD (Inderbitzen-Nolan & Walters, 2000). Neglected and rejected children show similar degrees of FNE, but SAD is more prominent in neglected children (La Greca & Stone, 1993). SAD also relates more strongly to poor friendship quality and self-perceived friendship competency than FNE (La Greca & Lopez, 1998).

Low status and high social anxiety negatively impact well-being. Low popularity and likeability are associated with victimization (De Bruyn, Cillessen, & Wissink, 2010) and aggression (Prinstein & Cillessen, 2003; Stoltz, Cillessen, van den Berg, & Gommans, 2016). Heightened social anxiety relates to school drop-out, troublesome relationships (Stein & Kean, 2000), other fears, depression, and substance abuse (American Psychiatric Association, 2013). Once established, a chronic and unremitting course is likely: Social status is highly stable across adolescence (Lu Jiang & Cillessen, 2005), and 61.5% diagnosed with social anxiety report symptoms throughout life (Chartier, Hazen, & Stein, 1998). To prevent the persistent course and negative outcomes of low status and high social anxiety, it is crucial to understand how these constructs are related. Investigation during early adolescence is important as this is the developmental period in which problems with status and social anxiety augment.

### **The transactional model**

The transactional model assumes that social anxiety and social status are reciprocally related. Social anxiety may cause adolescents to trigger negative peer reactions, which in turn perpetuate social anxiety (Kochel, Ladd, & Rudolph, 2012; Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2005). The transactional model integrates two other models, each explaining a different direction of the relation (Morris, 2001; Ollendick & Hirshfeld-Becker, 2002). *The symptoms-driven model* suggests that individuals with social anxiety evoke problematic peer relationships themselves. They may have social deficits which are not favoured by peers, may self-select maladaptive relationships, or their internalizing behaviour may signal vulnerability which makes them easy targets for victimization

(Kochel et al., 2012). Such negative peer relationships may, in turn, enhance the prospective risk of social anxiety, as the *interpersonal risk model* argues that social anxiety arises in a social environment when relationships are conflicting and unsupportive. Poor peer relations are stressful as they interfere with the human need to belong and need for support, thereby increasing social anxiety (Kochel et al., 2012; Sentse, Prinzie, & Salmivalli, 2017). As such, from a theoretical point of view, there may be a transactional relationship between social anxiety and peer status.

There is some empirical evidence for the transactional model as victimization (i.e., an indicator of peer status) was both a predictor and a consequence of social anxiety (Siegel, La Greca, & Harrison, 2009). However, most studies investigated only one direction of the relation. Studies focusing on the symptoms-driven framework showed that peers rated the social skills of socially anxious individuals as poor (Miers, Blöte, & Westenberg, 2010) and social anxiety predicted victimization 1 year later (Storch, Masia-Warner, Crisp, & Klein, 2005). Socially anxious youth often had friends with similar degrees of social anxiety, hereby socializing each other into becoming more anxious (Van Zalk, Van Zalk, Kerr, Van Zalk, Kerr, & Stattin, 2011). Similarly, there is also evidence for the interpersonal risk model. Adolescents with more friends decreased in social anxiety due to the experienced care (Van Zalk & Van Zalk, 2015). Besides, being part of a low status crowd elevated social anxiety as interactions with peers outside the crowd diminished (Van Zalk, Van Zalk, & Kerr, 2011) and low status in childhood increased the likelihood of internalizing symptoms in adulthood (Modin, Östberg, & Almquist, 2011). Taken together, studies support both directions of the transactional relation between social anxiety and social status.

### ***Specific links between popularity, likeability, FNE, and SAD***

When investigating the longitudinal link between social anxiety and status, it is important to distinguish between popularity, likeability, FNE, and SAD, because these factors may differentially relate to each other.

#### *Popularity versus likeability*

The transactional relation with social anxiety may be stronger for popularity than for likeability. First, social anxiety might be a stronger predictor of popularity than of likeability. This is explained by the fact that socially anxious individuals over-utilize the social rank system: They perceive the world in a hierarchical way and view relationships as more competitive than non-anxious individuals. They consider themselves inferior to their peers and as unable to compete directly with high status peers. Instead, they try to avoid harm, rejection, or being passed over by behaving in a subordinate and avoidant way (Aderka, Weisman, Shahar, & Gilboa-Schechtman, 2009; Gilbert & Trower, 2001). Consequently, socially anxious adolescents acquire a low position in the hierarchy (low popularity). Contrary, the appeasement and social desirable behaviour of socially anxious individuals (Catarino, Gilbert, McEwan, & Baião, 2014; Gilbert, 2014), may not impinge on peers or affect the capability to initiate and maintain friendships (Rodebaugh, Lim, Shumaker, Levinson, & Thompson, 2015; Rose et al., 2011), resulting in a neutral likeability status (Sandstrom & Cillessen, 2006). Indeed, social anxiety was negatively associated with peer evaluations about dominance (popularity), but not with affiliative peer evaluations (likeability) (Dijk, Emmerik, & Grasman, 2018). Similarly, socially anxious individuals believe that they are less liked by others, but in reality are not less liked

(Christensen, Stein, & Means-Christensen, 2003; Voncken, Dijk, Lange, Boots, & Roelofs, 2020), and in fact are often even more liked than non-anxious individuals (Baartmans et al., 2019).

Second, popularity could have a stronger effect than likeability on social anxiety as unpopularity may be more socially threatening than being disliked. Unpopularity was more strongly related to victimization and withdrawal than being disliked by peers. Also, unpopularity was associated with loneliness and having few friends, while disliking was not (Hopmeyer Gorman, Schwartz, Nakamoto, & Mayeux, 2011). Having a reciprocated friend serves as a protective factor for developing social anxiety (La Greca & Harrison, 2005), and the lack of friendships may cause unpopular youth to be at risk for ostracism and victimization (Schmidt & Bagwell, 2007). These studies imply that low popularity may increase social anxiety more than low likeability.

### *SAD versus FNE*

It can be assumed that the transactional relation of social status with social avoidance and distress is stronger than its transactional relation with fear of negative evaluation. First, the effects of SAD on prospective levels of social status may be stronger than the effects of FNE on status. Experienced social avoidance and distress during peer interactions may be better observable by peers than the mere fear of negative evaluation, probably making the impact of SAD on status more direct, and therefore stronger, than the impact of FNE. Avoidance may limit socialization opportunities, resulting in social skills deficits (Greco & Morris, 2005) or interaction problems (Clark & Wells, 1995), which may lower one's peer status. Similarly, by showing distress, peers may view adolescents as less attractive interaction partners, which may increase the risk for being negatively viewed by peers and obtaining a low status (Alden & Taylor, 2004; Dodge & Feldman, 1990).

Second, the opposite direction of the effect (status to social anxiety) may also be stronger for SAD than FNE. According to the sociometer theory (Leary & Baumeister, 2000), people monitor their social environment looking for potential threats. When peer relationships are in danger, individuals are internally warned, causing them to take necessary actions (Wong, Gordon, & Heimberg, 2014). Similarly, evolutionary models suggest that avoidance, submissive behaviour, and showing distress are part of self-protective mechanisms (Gilbert, 2014). When faced with social threat (e.g., low status), individuals may automatically react with SAD, while more conscious cognitive symptoms including FNE may not immediately be elevated.

Though longitudinal evidence for both directions is missing, cross-sectional research found that adolescents who show avoidance and withdrawal from peer interactions are perceived by peers as unpopular and disliked (Pouwels, Lansu, & Cillessen, 2016). Similarly, there are two subsets of anxious youth: Those with and without peer difficulties. Both groups show negative cognitive appraisals, but are distinguished by their behavioural deficits (Flanagan, Erath, & Bierman, 2008). Showing SAD may impact a lower status to a greater extent than FNE per se. Moreover, low popular girls show more submissive behaviour during interactions (Lansu & Cillessen, 2015) and low peer acceptance is more strongly associated with SAD than with FNE (La Greca & Lopez, 1998).

### **Current study**

In sum, theories and studies indicate that status and social anxiety become increasingly important during early adolescence and are reciprocally related. Controversially, many

youth experience poor peer relations without being socially anxious, while there are also socially anxious youth who do not encounter peer problems (Crick & Ladd, 1993; Flanagan et al., 2008). This unclear or distorted image may have resulted from the fact that status and social anxiety so far have been investigated as general constructs, without distinguishing the conceptually different subcomponents. To investigate how these subcomponents influence each other and in which direction, this 6-month longitudinal study aimed to examine the transactional relation between social status (i.e., likeability and popularity) and social anxiety symptoms (i.e., fear of negative evaluation [FNE] and social avoidance and distress [SAD]) in early adolescence.

In line with the transactional model, we expected that social status and social anxiety would affect each other over time in a negative reciprocal way. We hypothesized that the strength of the associations varied between the status and anxiety components. Social avoidance and distress would be more strongly related to social status than fear of negative evaluation. Associations with social anxiety symptoms were expected to be more apparent for popularity than likeability. Moreover, inconclusive evidence suggests that the relations between status and social anxiety may be different for boys and girls. Some studies found that the relation is stronger for boys (Flanagan et al., 2008; Storch et al., 2005) or girls (La Greca & Lopez, 1998; Modin et al., 2011), while others found no gender differences (La Greca & Harrison, 2005). Another study found that social anxiety could be predicted by popularity in boys, but by likeability in girls (Sandstrom & Cillessen, 2006). Therefore, gender effects were explored, without specific hypotheses.

By focusing on the subcomponents, this study contributed to a more detailed understanding of the relation between status and social anxiety in early adolescents. This may be fruitful in developing more effective individualized prevention and treatment programs for socially anxious or low status youth. For instance, particularly for youth showing SAD (rather than only experiencing FNE) it may be necessary to target problematic peer relationships directly via for instance social skills training. Similarly, unpopular youth may benefit more from social anxiety preventions than youth who are disliked by peers.

## Methods

### Sample

This study was part of a longitudinal study regarding bullying and psychosocial functioning in adolescence (Pouwels et al., 2018). The study consisted of two waves with a 6-month interval (October 2014 and March 2015). 275 adolescents from 12 classrooms in Grade 7 and Grade 8 of a secondary school in the South-Eastern part of the Netherlands participated (range<sub>classroom size</sub> = 16–30 students,  $SD = 4.47$ ). One participant was absent during both waves and excluded, 9 were absent at wave 1 (3.3%) and 11 at wave 2 (4.4%). At wave 1, 3 participants did not finish the questionnaires (1.1%), resulting in partly missing data (information about social anxiety was missing, social status was known). At wave 2, all participating adolescents had complete data. Data were missing completely at random and automatically replaced in our longitudinal analyses (see results for details).

The final sample consisted of 274 adolescents (136 boys, 49.6%). Adolescents were between 11 and 14 years old at wave 1 ( $M_{\text{age}} = 12.55$ ,  $SD = 0.62$ ). The majority was from Dutch origin (89.1%), while others were from Morocco (0.4%), Turkey (0.4%), Dutch Antilles or Aruba (0.7%), Suriname (0.4%), another European country (2.2%), or another

non-European country (3.6%). The ethnicity of participants absent at wave 1 was unknown (3.3%). Regarding educational level, 35.8% was in pre-vocational (in Dutch: VMBO-HAVO) and 64.2% was in pre-college education (in Dutch: HAVO-VWO).

## Measures

### Social status

Computerized sociometry was used to measure popularity and likeability. Four questions assessed who was liked, disliked (*'Who of your classmates do you like most/least?'*), popular, and unpopular (*'Who of your classmates are most/least popular?'*). For each question, adolescents nominated one up to an unlimited number of classmates. Same-sex and other-sex nominations were permitted, but self-nominations were not. The number of nominations received per question was counted and standardized within classrooms to control for differences in classroom size. Measures of likeability and popularity were computed by calculating the difference scores of the standardized number of nominations for most liked/popular minus least liked/popular, respectively (Coie, Coppotelli, & Dodge, 1982). Sociometry is reliable and valid, with high internal consistency (Van Den Berg & Cillessen, 2013).

### Social anxiety

A shortened Dutch version of the Social Anxiety Scale for Adolescents (SAS-A; La Greca & Lopez, 1998) measured social anxiety. The SAS-A consisted of different subscales. Four items of the Social Avoidance and Distress-General subscale (e.g., *'I'm quiet when I'm with a group of people'*), and four items of the Fear of Negative Evaluation subscale (e.g., *'I worry about what others think of me'*) were administered. Answer scales ranged from 1 = *'not at all'* to 5 = *'all the time'*. Two mean scores were computed for these subscales to investigate FNE and SAD. This version of the SAS-A is valid (Nelemans et al., 2019). Factor analyses of our study (contact the first author for details) and previous studies (La Greca & Lopez, 1998; Nelemans et al., 2019) supported a clear distinction between the subscales. The internal consistency in our study was good, Cronbach's  $\alpha$   $FNE_{w1} = .93$ ,  $FNE_{w2} = .94$ ,  $SAD_{w1} = .81$ ,  $SAD_{w2} = .84$ .

## Procedure

The school was recruited based on previous collaboration and teachers gave consent for participation of their classes. After obtaining passive consent of parents and active consent of adolescents (consent rate of 100%), data collection took place at school, during a one-hour classroom session. Researchers were present to provide instructions, answer questions, and assure confidentiality and anonymity. Adolescents completed the measures on netbooks. To prevent looking at each other's screen, desks were provided with partitioning screens. This procedure was approved by the Institutional Ethical Review Board.

## Results

Descriptive statistics of popularity, likeability, FNE, and SAD are presented in Table 1. Pearson's correlations between status and social anxiety components are shown in

**Table 1.** Means, standard deviations, minimum and maximum scores of social status components and social anxiety symptoms per wave

	Wave 1					Wave 2				
	N	M	SD	Min	Max	N	M	SD	Min	Max
Raw nominations										
Least liked	274	1.65	2.63	0	17	274	1.45	2.23	0	12
Most liked	274	2.92	2.05	0	9	274	2.31	1.60	0	8
Least popular	274	3.56	5.48	0	24	274	3.23	5.56	0	28
Most popular	274	4.22	5.35	0	26	274	3.99	5.29	0	22
Main variables										
Popularity <sup>z</sup>	274	0.00	1.70	-4.31	3.92	274	0.01	1.65	-4.55	3.71
Likeability <sup>z</sup>	274	0.00	1.65	-5.33	2.83	274	0.01	1.61	-5.37	3.88
FNE	262	1.80	0.91	0	4	263	1.82	0.88	0	4
SAD	262	1.02	0.79	0	4	263	1.07	0.75	0	4

Note. Z = standardized variable, FNE = fear of negative evaluation, SAD = social avoidance and distress.

Sample size differs per variable and per wave due to missing data.

Table 2. We found high stability of popularity and likeability, and moderate stability of social anxiety symptoms. Popularity and likeability correlated significantly at both waves, as well as FNE and SAD.

We used Fisher's  $r$ -to- $z$  transformations and Steigers' equations with a two-tailed test (Lee & Preacher, 2013) to examine whether (1) correlations between social status and SAD were stronger than correlations between social status and FNE, and (2) correlations between popularity and social anxiety were stronger than correlations between likeability and social anxiety. At both waves, FNE and social status constructs did not significantly correlate. SAD was moderately and negatively related to popularity and likeability at both waves. Associations with social status were significantly stronger for SAD than for FNE (popularity<sub>wave1</sub>:  $z = 6.90, p < .001$ ; popularity<sub>wave2</sub>:  $z = 3.64, p < .001$ ; likeability<sub>wave1</sub>:  $z = 3.06, p = .002$ ; likeability<sub>wave2</sub>:  $z = 2.71, p = .007$ ). Thus, higher social avoidance and distress, but not fear of negative evaluation, was related to lower popularity and likeability. At wave 1, SAD was significantly more strongly associated with popularity than likeability ( $z = 2.97, p = .003$ ), and a comparable non-significant trend was found at wave 2 ( $z = 1.66, p = .096$ ). Thus, associations with social avoidance and distress were in general stronger for popularity than for likeability. No comparisons were made between FNE and status components because these correlations were non-significant.

### Longitudinal associations

Linear regression assumptions were met. Autoregressive cross-lagged panel models were computed in Mplus 7.3 (Muthén & Muthén, 2012). Missing data (see methods for details) were automatically replaced using full maximum likelihood estimation. Good model fit was concluded if the chi-square test was non-significant, CFI > .95, RMSEA < .06, and SRMR < .08 (Hu & Bentler, 1999). Lower Akaike information criterion (AIC) values indicated a better fit. Change in fit between models was examined using a chi-square difference test and evaluated as substantial if  $\Delta\text{CFI} \geq -.010$ ,  $\Delta\text{RMSEA} \geq .015$ , and  $\Delta\text{SRMR} \geq .010$  (Chen, 2007). Table 3 presents the model fit indices and comparison statistics.

**Table 2.** Pearson's Correlations Between Social Status Components and Social Anxiety Symptoms for Wave 1 (light grey), Wave 2 (dark grey), and Across Waves (white) including Autocorrelations (black)

		Wave 1				Wave 2			
		Popularity	Likeability	FNE	SAD	Popularity	Likeability	FNE	SAD
Wave 1	Popularity	--	.50*** N = 274	-.03 N = 262	-.42*** N = 262		.32*** N = 274	.04 N = 263	-.28*** N = 263
	Likeability		--	-.07 N = 262	-.25*** N = 262	.45*** N = 274	.62*** N = 274	.02 N = 263	-.24*** N = 263
	FNE			--	.53*** N = 262	-.11 N = 262	-.05 N = 262	.45*** N = 251	.19** N = 251
	SAD				--	-.44*** N = 262	-.13* N = 262	.23*** N = 251	.46*** N = 251
Wave 2	Popularity					--	.37*** N = 274	-.07 N = 263	-.32*** N = 263
	Likeability						--	-.02 N = 263	-.21** N = 263
	FNE							--	.34*** N = 263
	SAD								--

Abbreviations: FNE, Fear of negative evaluation; SAD, Social avoidance and distress.

Sample size differs per correlation due to missing data.

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



**Table 3.** Model fit indices and model comparisons of models 1–4

Model	$\chi^2$	df	p	CFI	RMSEA	SRMR	AIC
1: Total sample	1.70	4	.791	1.000	.000	.009	5892.83
2: Fully unconstrained	3.70	8	.883	1.000	.000	.014	5863.81
3: Fully constrained	47.36	32	.039	0.979	.059	.064	5859.46
4: Final <sup>a</sup>	26.12	30	.669	1.000	.000	.042	5842.22
Comparisons	$\Delta\chi^2$	$\Delta df$	p	$\Delta CFI$	$\Delta RMSEA$	$\Delta SRMR$	$\Delta AIC$
2 – 3	43.66	24	.008	–0.021	.059	.050	–4.35
3 – 4	21.24	2	<.001	–0.021	.059	.022	17.24
2 – 4	22.42	22	.435	.000	.000	.028	–21.59

Note. CFI = comparative fit index, RMSEA = root mean square error of approximation, SRMR = standardized root mean square residual, AIC = Akaike information criterion.

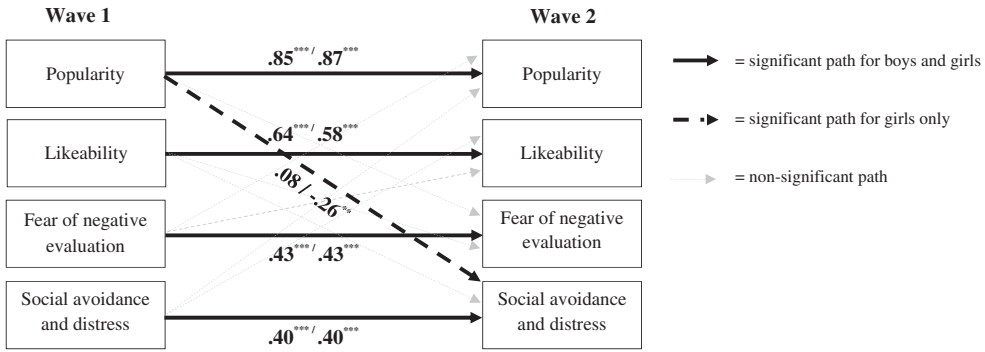
Each model had sufficient power according to the rule of thumb that for each parameter you need at least 5 observations (Little, 2013).

<sup>a</sup>In the final model, two paths are unconstrained for boys and girls: 1) the path from popularity wave 1 to SAD wave 2 and 2) the correlation between FNE and SAD wave 2. All other paths are constrained across gender.

Model 1 was the basic model and tested whether our hypothesized model fitted the data of the total sample. Model 1 included popularity, likeability, FNE, and SAD at wave 1 as independent variables and at wave 2 as dependent variables. Autoregressive paths for all variables from wave 1 to wave 2 were included to control for stability. Model 1 also contained the cross-lagged paths from popularity and likeability at wave 1 to FNE and SAD at wave 2, and the opposite cross-lagged paths. Concurrent associations between all variables at both waves were included to be controlled for. Model 1 had a good model fit, indicating that our conceptual model fitted the data.

To test for gender differences in our conceptual model, we used the procedure of multiple group comparisons. Model 2 was a fully unconstrained model in which all paths of Model 1 were estimated freely for boys and girls. The model fit of this model was good. In Model 3, all paths were constrained to be equal across gender (fully constrained model). Chi-square criteria showed bad model fit, but CFI, RMSEA, and SRMR indicated good model fit. The model fit of Model 3 was significantly and substantially worse than the unconstrained Model 2,  $\Delta\chi^2(24) = 43.66$ ,  $p = .008$ ,  $\Delta CFI = -0.021$ ,  $\Delta RMSEA = 0.059$ ,  $\Delta SRMR = .050$ , pointing at gender differences.

To test which paths were different for boys and girls, we conducted Wald  $\chi^2$  tests for each path. Two paths were moderated by gender: (1) the cross-lagged path from popularity at wave 1 to SAD at wave 2 (Wald  $\chi^2(1) = 7.34$ ,  $p = .007$ ) and (2) the correlation between FNE and SAD at wave 2 (Wald  $\chi^2(1) = 10.38$ ,  $p = .001$ ). In Model 4, these paths were unconstrained across gender, while all parameters that did not significantly differ between boys and girls were constrained to be equal. Model 4 had a good fit and releasing these paths improved the fit of the fully constrained (i.e., Model 3) model significantly and substantially ( $\Delta\chi^2(2) = 21.24$ ,  $p < .001$ ,  $\Delta CFI = -0.021$ ,  $\Delta RMSEA = .059$ ,  $\Delta SRMR = .022$ ). No significant differences in model fit were found between Model 4 and the fully unconstrained Model 2 ( $\Delta\chi^2(22) = 22.42$ ,  $p = .435$ ,  $\Delta CFI = .000$ ,  $\Delta RMSEA = .000$ ,  $\Delta SRMR = .028$ ). We selected Model 4 as our final model, given that it was the most parsimonious model and had the lowest AIC of all models.



**Figure 1.** Graphic representation of longitudinal standardized estimates of Model 4 for boys (left coefficients) and girls (right coefficients). Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Although not depicted in this figure, the model also controlled for concurrent correlations between the variables. All correlations were equal across gender, except for the association between FNE and SAD at wave 2. This association was moderately positive for boys ( $\beta = .52, p < .001$ ), but marginally significant for girls, ( $\beta = .16, p = .054$ ).

The significant coefficients of Model 4 are presented in Figure 1, and Table 4 shows all parameter estimates. All autoregressive paths were significant,  $ps < .001$  and were not different for boys and girls. Higher popularity, likeability, FNE, and SAD at wave 1 predicted higher levels at wave 2. This stability was strong for likeability ( $\beta_{boys} = .64$ ;  $\beta_{girls} = .58$ ), and popularity ( $\beta_{boys} = .85$ ;  $\beta_{girls} = .87$ ), and moderate for FNE ( $\beta_{boys} = .43$ ;  $\beta_{girls} = .43$ ), and SAD ( $\beta_{boys} = .40$ ;  $\beta_{girls} = .40$ ). Most cross-lagged paths were non-significant and did not differ between boys and girls. An exception was the path from popularity to SAD. Only among girls, popularity at wave 1 negatively predicted SAD at wave 2,  $\beta = -.26, p = .001$ . Girls who were seen as less popular by peers reported more social avoidance and experienced more distress in social situations 6 months later. Most concurrent paths were equal for boys and girls, except the relation between FNE and SAD at wave 2. This association was positive and moderately strong for boys ( $\beta_{boys} = .52, p < .001$ ), but marginally significant for girls ( $\beta_{girls} = .16, p = .054$ ). For an interpretation of concurrent associations, we would like to refer to the Pearson correlations. The model explained the variance quite differently for each construct at wave 2: FNE  $R^2 = .19$  for boys and girls; SAD  $R^2_{boys} = .16, R^2_{girls} = .36$ ; likeability  $R^2_{boys} = .41, R^2_{girls} = .33$ ; and popularity  $R^2_{boys} = .77, R^2_{girls} = .82$ .

## Discussion

This study examined the transactional longitudinal associations of social status components (likeability and popularity) and social anxiety symptoms (fear of negative evaluation and social avoidance and distress) across 6 months in early adolescence. We explored gender differences in these associations.

Concurrent associations between social anxiety and status pointed to a negative association in general, but we found that this relation depends upon the type of social anxiety symptoms. Higher social avoidance and distress was related to being less popular and less liked, whereas fear of negative evaluation was not. This could be explained by socially anxious behaviours and distress during social situations being more visible for peers than subjective fears of negative evaluation. By avoiding situations, socialization

**Table 4.** Parameter estimates of model 4 for boys and girls

			Boys (n = 136)			Girls (n = 138)		
			B	B <sub>SE</sub>	β	B	B <sub>SE</sub>	β
<b>Autoregressive effects</b>								
Popularity <sub>W1</sub>	→	Popularity <sub>W2</sub>	0.84***	0.03	0.85	0.84***	0.03	0.87
Likeability <sub>W1</sub>	→	Likeability <sub>W2</sub>	0.60***	0.05	0.64	0.60***	0.05	0.58
FNE <sub>W1</sub>	→	FNE <sub>W2</sub>	0.41***	0.05	0.43	0.41***	0.05	0.43
SAD <sub>W1</sub>	→	SAD <sub>W2</sub>	0.37***	0.05	0.40	0.37***	0.05	0.40
<b>Cross-lagged effects</b>								
Popularity <sub>W1</sub>	→	FNE <sub>W2</sub>	0.03	0.03	0.05	0.03	0.03	0.05
Likeability <sub>W1</sub>	→	FNE <sub>W2</sub>	0.01	0.03	0.02	0.01	0.03	0.01
<b>Popularity<sub>W1</sub></b>	→	<b>SAD<sub>W2</sub></b>	<b>0.03</b>	<b>0.04</b>	<b>0.08</b>	<b>-0.12**</b>	<b>0.04</b>	<b>-0.26</b>
Likeability <sub>W1</sub>	→	SAD <sub>W2</sub>	-0.04	0.03	-0.10	-0.04	0.03	-0.09
FNE <sub>W1</sub>	→	Popularity <sub>W2</sub>	-0.07	0.06	-0.03	-0.07	0.06	-0.04
SAD <sub>W1</sub>	→	Popularity <sub>W2</sub>	-0.12	0.08	-0.05	-0.12	0.08	-0.06
FNE <sub>W1</sub>	→	Likeability <sub>W2</sub>	-0.08	0.10	-0.04	-0.08	0.10	-0.04
SAD <sub>W1</sub>	→	Likeability <sub>W2</sub>	0.09	0.12	0.05	0.09	0.12	0.05
<b>Concurrent effects</b>								
Popularity <sub>W1</sub>	↔	Likeability <sub>W1</sub>	1.34***	0.19	0.45	1.34***	0.19	0.54
Popularity <sub>W1</sub>	↔	FNE <sub>W1</sub>	-0.06	0.09	-0.04	-0.06	0.09	-0.04
Popularity <sub>W1</sub>	↔	SAD <sub>W1</sub>	-0.58***	0.09	-0.41	-0.58***	0.09	-0.45
Likeability <sub>W1</sub>	↔	FNE <sub>W1</sub>	-0.19*	0.09	-0.13	-0.19*	0.09	-0.15
Likeability <sub>W1</sub>	↔	SAD <sub>W1</sub>	-0.35***	0.08	-0.26	-0.35***	0.08	-0.30
FNE <sub>W1</sub>	↔	SAD <sub>W1</sub>	0.38***	0.05	0.53	0.38***	0.05	0.55
Popularity <sub>W2</sub>	↔	Likeability <sub>W2</sub>	0.21***	0.06	0.21	0.21***	0.06	0.24
Popularity <sub>W2</sub>	↔	FNE <sub>W2</sub>	-0.08*	0.03	-0.13	-0.08*	0.03	-0.16
Popularity <sub>W2</sub>	↔	SAD <sub>W2</sub>	-0.05	0.03	-0.08	-0.05	0.03	-0.12
Likeability <sub>W2</sub>	↔	FNE <sub>W2</sub>	-0.06	0.06	-0.07	-0.06	0.06	-0.07
Likeability <sub>W2</sub>	↔	SAD <sub>W2</sub>	-0.08	0.05	-0.09	-0.08	0.05	-0.10
<b>FNE<sub>W2</sub></b>	↔	<b>SAD<sub>W2</sub></b>	<b>0.28***</b>	<b>0.05</b>	<b>0.52</b>	<b>0.07</b>	<b>0.04</b>	<b>0.16</b>

Note. FNE = Fear of negative evaluation. SAD = Social avoidance and distress.

Regression paths that are printed in bold differed significantly between boys and girls.

Standardized regression coefficients could differ between boys and girls, because variances were not constrained across gender.

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

opportunities may be limited, potentially resulting in social skills deficits (Greco & Morris, 2005) and interaction problems (Clark & Wells, 1995), which may unfold into lower levels of popularity (Alden & Taylor, 2004; Dodge & Feldman, 1990). Social avoidance and distress was more strongly related to popularity than to likeability. This is also in line with previous research and theories implying that social anxiety is more related to problems with dominance and social hierarchies (popularity) than to affiliative relationships (likeability; Gilbert & Trower, 2001; Gilboa-Schechtman, Friedman, Helpman, & Kananov, 2013). Being disliked may be less socially threatening than being unpopular, as unpopularity is more strongly related to ostracism and a lack of friendships (Hopmeyer Gorman et al., 2011). Caution is warranted with these explanations since our longitudinal analyses did not support all correlational findings.

Further, we examined the prospective associations between social status and social anxiety. In line with the transactional model (Morris, 2001; Ollendick & Hirshfeld-Becker, 2002), we expected that socially anxious individuals would have a lower peer status over time, and low status adolescents would experience increasing social anxiety. We found no support for such a transactional relation. In line with the interpersonal risk model, we only found some support for the effects of social status on social anxiety. In contrast to the symptoms-driven model, we found no support for the opposite effect of social anxiety on status.

### ***Social anxiety predicting social status***

The stability of likeability and popularity was very high across the two waves. This was similar to previous studies (Lu Jiang & Cillessen, 2005) and may be due to both waves taking place within one academic year. The classroom context remained the same, so big shifts in social status were unlikely. The symptoms-driven model suggests that socially anxious individuals may cause peer problems that may result in low status, due to their own social deficits, internalizing behavioural styles, or self-selection of maladaptive relationships (Kochel et al., 2012). However, this idea was not supported by our findings, as neither self-reported fear of negative evaluation nor social avoidance and distress were able to predict adolescents' peer status. The absence of this relation could perhaps be explained by the high stability of peer status.

A theoretical explanation for the stability of status and the non-significant effects might be that social anxiety is important in establishing status at the beginning of the school year, but less so throughout the year. This can be explained by the concept of 'reputational bias' (Hymel, Wagner, & Butler, 1990): Once adolescents obtained a reputation in the group, peers are inclined to continue to perceive them in this role, unlikely to adjust their view, even when adolescents' behaviour changes. Possibly, socially anxious adolescents are quickly seen by their peers as less popular and liked than non-anxious adolescents. Becoming less socially anxious later in the year, no longer affect their status, as their low-status reputation is already formed. To test this, we need more measurements at the beginning of the school year to investigate status formation in classrooms.

### ***Social status predicting social anxiety***

The stability of social anxiety symptoms was less strong than social status and allowed for prediction by social status. Our results show some support for the interpersonal risk model suggesting that social anxiety arises in an environment when relationships are conflicting and unsupportive due to interference with the basic human need to belong and need for support (Kochel et al., 2012; Sentse et al., 2017). For girls, but not for boys, being less popular preceded higher social avoidance and distress. The result that low popularity (instead of low likeability) predicts social avoidance and distress is in line with studies arguing that unpopularity may be more socially stressful than disliking by peers. Low popularity was more strongly related to victimization, ostracism, and a lack of friendships than low likeability, thereby increasing the risk for social anxiety (Hopmeyer Gorman et al., 2011).

Similarly, our finding that low popular girls did develop more social avoidance and distress, but did not increase in fear of negative evaluation was in line with our expectations. The sociometer theory (Leary & Baumeister, 2000) and evolutionary models (Gilbert, 2014) argue that SAD is part of automatic self-protective mechanisms, while FNE

is not. In fact, social avoidance might be adaptive in uncontrollable settings and even reduces social anxiety feelings such as FNE on the short-term due to experienced control over the situation (Hofmann & Hay, 2018). Thus, showing more SAD can be a safety strategy for less popular girls to avoid the risk to be victimized (Zimmer-Gembeck, Trevaskis, Nesdale, & Downey, 2014). However, SAD is more detrimental on the long-term: SAD can maintain or increase social anxiety (Hofmann & Hay, 2018) or lead to more problematic peer relationships as peers might judge the adolescents on these anxiety-related signs. Future research could investigate whether low popularity also predicts an increase in FNE across a larger time interval. Our finding has some implications for prevention and treatment: For low popular girls, it might be good to train relaxation skills and target safety avoidance behaviours in social situations particularly. This may prevent more detrimental consequences of avoidance and distress, such as social exclusion and victimization.

On the one hand, the longitudinal gender difference corresponds with research showing that low status girls, but not boys, were at higher risk of developing internalizing problems in adulthood (Modin et al., 2011). Also, it is in line with cross-sectional research showing that for girls, social anxiety was more strongly related to social functioning (La Greca & Lopez, 1998) and that specifically popularity was associated with social anxiety-related behaviours (shyness, playing alone; Lease, Musgrove, & Axelrod, 2002). On the other hand, the effect for girls is in contrast to research showing that popularity only predicted anxiety among boys (Sandstrom & Cillessen, 2006). However, compared to our study, they used a relatively large time span of 3 years (instead of 6 months) and focused on more general feelings of anxiety (instead of on social anxiety specifically) which might explain the different findings (Keijsers & Van Roekel, 2018). The gender difference could be explained by the self-construal theory (Cross, Hardin, & Gercek-Swing, 2011) suggesting that girls' sense of self is more interdependent as it is derived from relationships to a greater extent than boys' identity. Girls' self is more reactive to peer relationships, and they may therefore also experience more anxiety in response to low popularity than boys (Asher, Asnaani, & Aderka, 2017).

### **Strengths, limitations, and future directions**

This study provided a more fine-grained examination of the longitudinal link between social status and social anxiety by differentiating between subcomponents (popularity, likeability, fear of negative evaluation, and social avoidance and distress). Another strength of this study is the use of peer reports to assess social status. Previous studies mostly used self-reports which might be problematic as socially anxious individuals have a biased perception of their social capacities and status (Baartmans et al., 2019; Miers, Blöte, & Westenberg, 2011). Previous findings might reflect underestimations of social status by socially anxious adolescents themselves instead of actual social status perceptions of their peers (Klein et al., 2018; Miers et al., 2011).

However, this study also has some limitations. First, we only included two waves with a short-term interval of 6 months. Social status was quite stable during this period. Future research could include larger time intervals to investigate how social anxiety and social status develop across secondary school when adolescents switch classes. Second, due to power issues, we did not make a distinction between the 7<sup>th</sup> and 8<sup>th</sup> grade. However, in the 7<sup>th</sup> grade adolescents experienced a transition from primary to secondary school and entered a new peer context, while this was not the case in the 8<sup>th</sup> grade. This may have influenced the results, because studies indicated that social anxiety especially increases

after educational transitions (Grills-Taquechel, Norton, & Ollendick, 2010). Including multiple waves during the first months of secondary school helps to understand how social status hierarchies are established in new peer contexts and how this relates to social anxiety. Third, autoregressive cross-lagged models could not distinguish within- and between-person effects (Berry & Willoughby, 2017; Hamaker, Kuiper, & Grasman, 2015). Future research with multiple waves should benefit from analyses which are able to do so (e.g., random intercepts cross-lagged panel models).

### **Conclusion**

This study investigated the transactional associations between distinct aspects of social status and social anxiety in early adolescence. Social status and social anxiety remained relatively stable over time. We found no support for a transactional relationship between social anxiety and status, nor for the symptoms-driven model as social anxiety was not related to prospective levels of peer status. Instead, we found partial support for the interpersonal risk framework, as among girls being less popular predicted more social avoidance and distress. As expected, popularity did not predict fear of negative evaluation. These findings stress the importance of disentangling different social status and social anxiety components when examining their temporal interplay among boys and girls.

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### **Conflicts of interest**

All authors declare no conflict of interest.

### **Data availability statement**

The data that support the findings of this study are available on request from the corresponding author.

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