Social Inquiry into Well-Being
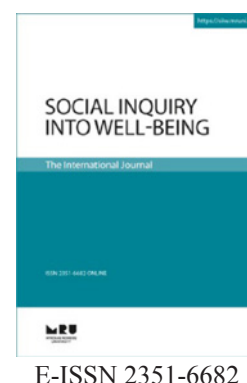
Personality and Anxiety Associations in Adolescents and Emerging Adults

Elisabetta Crocetti[a], Theo Klimstra[b], William W. Hale III[a], Jaap J. A. Denissen[b], Wim Meeus[a, b]

[a]Utrecht University, Utrecht, the Netherlands
[b]Tilburg University, Tilburg, the Netherlands

* Corresponding author email address:
Elisabetta Crocetti
Research Centre Adolescent Development, Utrecht University, the Netherlands
Address: Heidelberglaan 1, 3584CS Utrecht, the Netherlands.
Phone number: +31 30 253 4039; E-mail: e.crocetti@uu.nl

Abstract

This study was aimed at unraveling associations between Big Five personality traits and anxiety symptoms of panic, generalized anxiety disorder, school phobia, separation anxiety, and social phobia in male and female adolescents and emerging adults from the general population. Participants were 3,758 (54.6% females) adolescents and emerging adults aged between 11 and 26 years. They completed the shortened Big Five questionnaire and the Screen for Child Anxiety Related Emotional Disorders. Results indicated that the associations between Big Five and anxiety symptoms were consistent across gender and age groups. Most of the associations were statistically significant with the strongest links found between extraversion and symptoms of social phobia; conscientiousness and symptoms of school anxiety; and emotional stability and symptoms of panic, separation, generalized, and school anxiety. All these associations were negative, suggesting that higher levels of these personality traits were related to lower levels of anxiety symptoms.

Keywords: Big Five, Panic, Generalized Anxiety Disorder, Separation Anxiety, School Anxiety, Social Phobia, Gender, Adolescence, Emerging Adulthood.

Introduction

Adolescence is a period when anxiety symptomatology frequently occurs (e.g., Bernstein & Victor, 2008; Crocetti, Hale, Dimitrova, Abubakar, Gao, & Pesigan, 2015; Merikangas et al., 2010; Nelemans, Hale Branje, Raaijmakers, Frijns, Van Lier, & Meeus, 2014). In a significant percentage of adolescents, this anxiety symptomatology can take on a chronic course and continue into young adulthood (Bosquet & Egeland, 2006). Hence, high levels of anxiety symptoms can hinder both adolescent (e.g., Crocetti, Klimstra, Keijsers, Hale, & Meeus, 2009) and young adult development (Roza, Hofstra, van der Ende, & Verhulst, 2003).

It is for these reasons that it is important to uncover what factors are associated with these symptoms. Such knowledge potentially allows for an early detection of individuals that are potentially at risk for developing anxiety disorders. Research on adult respondents diagnosed with anxiety disorders (e.g., generalized anxiety disorder, panic disorder, and social phobia) suggests that personality traits (i.e., emotional stability, conscientiousness, and extraversion) are important factors in this regard (Kotov, Gamez, Schmidt, & Watson, 2010). However, several open questions remain. That is, it is unclear how personality is associated with anxiety symptoms in younger age groups, whether findings obtained in psychiatric populations can be generalized to the general population, whether such associations are similar or different in various developmental periods, and whether personality- anxiety associations differ across gender groups. The

present study seeks to answer these questions, by examining personality traits, specific anxiety symptoms (i.e., panic, generalized anxiety, separation anxiety, school phobia, and social phobia), and their associations in both gender groups across two key developmental periods: adolescence and emerging adulthood (i.e., ages 11 to 26).

Personality in Adolescence and Emerging Adulthood

By far the most commonly used taxonomy for capturing personality is the Big Five model (John & Srivastava, 1999). The Big Five (McCrae & Costa, 1987) consists of extraversion (tendency to engage in social behaviors and experience frequent positive moods); agreeableness (cooperativeness in conflict situations); conscientiousness (goal-directed behaviors and persistence); emotional stability, the opposite pole of neuroticism (tendency to experience negative emotions, such as anger, hostility, irritability, sadness, and worry); and openness to experience (the way an individual seeks for and deals with new information).

Mean levels of personality traits change in adolescence (Klimstra, Beyers, & Besevegis, 2014) and emerging adulthood (Roberts, Walton, & Viechtbauer, 2006). After initial decreases in mean-levels of agreeableness, conscientiousness, and extraversion in early adolescence, mean-levels of these traits as well of those of emotional stability tend to increase towards late adolescence and into emerging adulthood (Denissen, van Aken, Penke, & Wood, 2013; Klimstra, 2013; Roberts et al., 2006; Soto, John, Gosling, & Potter, 2011).

Gender differences in youth personality have also been documented (Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2009; Soto et al., 2011; Vecchione, Alessandri, Barbaranelli, & Caprara, 2012). Especially for agreeableness, conscientiousness, and emotional stability clear gender differences emerge in late adolescence and emerging adulthood. Specifically, boys display higher levels of emotional stability and lower levels of agreeableness and conscientiousness when compared to girls (Klimstra et al., 2009; Soto, et al., 2011; Vecchione et al., 2012). In contrast, evidence for gender differences in extraversion and openness is inconsistent.

Anxiety Symptoms in Adolescence and Emerging Adulthood

As previously stated, anxiety symptoms are among the most prevalent mental health problems in adolescence and young adulthood (World Health Organization, 2012). Unfortunately, many previous studies have employed broad definitions of anxiety, such as internalizing disorders (Ferdinand & Verhulst, 1995), blurring distinctions between anxiety disorders. As recommended, the treatment of adolescent anxiety hinges on the specific anxiety experienced by the client, as opposed to a "one-size-fits-all" treatment of overall anxiousness (Sauter, Heyne, & Westenberg, 2009). Therefore, in this study we examined specific anxiety symptoms of panic, generalized anxiety disorder, separation anxiety, social anxiety, and school anxiety (Birmaher, Brent, Chiappetta, Bridge, Monga, & Baugher, 1999; Birmaher, Khetarpal, Brent, Cully, Balach, Kaufman et al., 1997). Furthermore, we also focused

on differences in adolescent boys and girls. Gender differences in specific anxiety symptoms have been consistently found for panic, generalized, separation, and social anxiety, with girls reporting consistently more anxiety symptoms than boys (see Hale, Crocetti, Raaijmakers, & Meeus, 2011 for a meta-analysis).

Regarding age differences, findings based on population-based adolescent cohorts indicated that while some anxiety symptoms, like separation anxiety symptoms, decrease as adolescents grow older, other anxiety symptoms, such as generalized anxiety symptoms, increase with age (Crocetti, Hale, Fermani, Raaijmakers, & Meeus, 2009; Essau, Anastassiou-Hadjicharalambous, & Munoz, 2013; Essau, Muris, & Ederer, 2002; Nelemans et al., 2014; Su, Wang, Fan, Su, & Gao, 2008). To the best of our knowledge, no studies have analyzed age trends in a wider period including both adolescents and emerging adults. Thus, in the current study we sought to expand available knowledge by comparing anxiety symptoms in respondents aged 11 to 26 years.

Personality and Anxiety Symptoms Associations in Population-Based Youth Samples

So far, literature on personality traits and anxiety symptoms in young people from the general population has mainly highlighted significant associations between Big Five traits and symptoms of overall anxiety. The personality trait most strongly intertwined with symptoms of overall anxiety is emotional stability (Abe, 2005; Ehrler, Evans, & Mcghee, 1999; Ferguson, 2000; Klimstra, Crocetti, Hale, Fermani, & Meeus, 2011; Muris, Mayer, & Schubert, 2010; Vreeke & Muris, 2012). This trait refers to individual differences in the tendency to experience negative emotions, especially in situations of social rejection (Denissen & Penke, 2008a). An association with anxiety can be expected because anxiety symptoms imply also a negative emotion, so people who are high in neuroticism (i.e., low in emotional stability) might be more susceptible to corresponding experiences. Such an explanation, implying that a particular kind of psychopathology is a symptom, rather than a cause or consequence, of a personality trait would be in line with the spectrum model (Durbin & Hicks, 2014). This spectrum model is one of the theoretical models explaining the linkages between personality traits and psychopathology.

More scattered associations have also been found between other Big Five traits and symptoms of overall anxiety. For example, negative associations were also documented between anxiety symptoms and extraversion, agreeableness, and conscientiousness (Ehrler et al., 1999; Ferguson, 2000; Muris et al., 2010). Conversely, openness has not been found to be consistently associated with anxiety symptoms (Abe, 2005; Ehrler et al., 1999; Ferguson, 2000; Muris et al., 2010). Associations between the Big Five and symptoms of various forms of anxiety (e.g., school anxiety, social anxiety) are less investigated in samples of youth from the general population. In addition, there is an abundant lack of knowledge on age and gender differences in these associations. Thus, the current study sought to address this gap in the literature.

The Present Study

In line with the literature summarized above, in the current study, we sought to advance our understanding of the associations between personality and anxiety by focusing on specific anxiety symptoms (i.e., symptoms of panic, generalized anxiety disorder, separation anxiety, school phobia, and social phobia). Such knowledge would provide clinicians and other professionals (e.g., teachers) working with adolescents and emerging adults with information about the personality traits that are more intertwined with specific anxiety symptoms. Unraveling these associations might improve early screening of at-risk adolescents (i.e., those who show a constellation of personality traits that can increase vulnerability to anxiety) and treatment of these adolescents (i.e., focusing on personality resources that might lead to decreases in anxiety).

Hypotheses on Personality-Anxiety Associations

Different anxiety symptoms can have different associations with Big Five traits. There are two levels on which predictions can be made. Regarding a domain-general level, emotional stability is part of an overarching tendency to experience negative affective states like anxiety (Watson & Clark, 1984). Thus, we hypothesized that emotional stability would be the personality trait more strongly and negatively related to symptoms of various forms of anxiety.

On a domain-specific level, more specific predictions are possible. Generally speaking, anxiety arises when environmental features are not in line with social norms (Scott & O'Hara, 1993). To the extent that certain levels of personality traits predict the successful attainment of these norms, they should predict reduced anxiety levels. Extraversion is associated with sociable and assertive behavior and should thus be associated with reduced social anxiety. Agreeableness is associated with cooperative behavior and should be associated with less fear of relationship dissolution. Conscientiousness is associated with behaviors that promote the pursuit of long-term goals, including academic goals. It should, thus, be associated with reduced fear of academic failure. Emotional stability is related to behaviors that promote relationship stability and satisfaction (White, Hendrick, & Hendrick, 2004) and should, therefore, be associated with reduced fear of abandonment. Finally, openness is associated with curiosity and broad knowledge accumulation, which should be associated with a reduced fear of appearing boring and unintelligent.

Note that some of these fears (e.g., pertaining to appearing boring) are not captured by the anxiety questionnaire that was used in the present research. It should also be noted that it might be that trait levels are related to stricter internalized social norms. For example, conscientious individuals might not only behave in a more industrious fashion but they might also expect higher levels of this behavior from themselves. If this is the case, the associations predicted above might be attenuated or even reversed in sign (e.g., conscientious individuals might be more fearful academi-

cally). If this is the case, we will address implications in the discussion.

Hypotheses on Age and Gender Differences

Previous studies have examined the associations between personality and anxiety symptoms in distinct age groups: late childhood and early adolescence (Ehrler et al., 1999; Muris et al., 2010); early-to-middle and middle-to-late adolescence (Klimstra et al., 2011); and emerging adulthood (Ferguson, 2000). However, up to now, there is no study examining these associations in a sample with a more extensive age diversity across both genders. Such research is important, because particular personality characteristics may make individuals likely to suffer from specific anxiety symptoms at some developmental periods, but not in others, and/or differently for boys and girls. For example, a non-conscientious 12-year old may not be at increased for social anxiety, whereas a non-conscientious emerging adult could be because there is increasing social pressure to act conscientiously as we grow older (Denissen et al., 2013; see also the above remark about possible associations between personality and social norms). To explore such a possibility, our study was also aimed at further advancing the current literature by disentangling associations between personality traits and anxiety symptoms in boys and girls from a wider age range, spanning from early adolescence to emerging adulthood, thus covering the period from 11 to 26 years.

Method

Participants

The sample consisted of 3,758 Italian participants (54.6% females) attending various educational levels (junior high, high school, or university). Eight age groups were represented in the sample: 11–12 (n = 523, 52.2% females); 13–14 (n = 527, 48.8% females); 15–16 (n = 375, 51.5% females); 17–18 (n = 499, 66.3% females); 19–20 (n = 504, 43.3% females); 21–22 (n = 423, 59.8% females); 23–24 (n = 627, 57.6% females); and 25–26 (n = 280, 59.6% females) years old.

Measures

Personality. The Italian version (Klimstra et al., 2011) of a shortened (Vermulst & Gerris, 2005) Big Five questionnaire (Goldberg, 1992) was used. Participants were asked to rate 30 items (6 items for each Big Five) on a seven-point scale, ranging from 1 (does not apply to me at all) to 7 (applies to me very well). Sample items include: talkative (extraversion; α = .80), sympathetic (agreeableness; α = .71); systematic (conscientiousness; α = .74.); irritable (emotional stability; α = .73); and versatile (openness; α = .67).

Anxiety. The Italian version (Crocetti, Hale et al., 2009) of the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997) was employed in this study. The SCARED includes 38 items with a 3-point response scale: 1 (almost never), 2 (sometimes), and 3 (often). Sample items

include: "When I get frightened, I feel like things are not real" (symptom of panic; 13 items; α = .84); "I worry about how well I do things" (symptom of generalized anxiety, 9 items; α = .79); "I have nightmares about something bad happening to my parents" (symptom of separation anxiety, 8 items; α = .72), "It is hard for me to talk with people I don't know well" (symptom of social anxiety, 4 items; α = .74); and "I worry about going to school/university" (symptom of school anxiety, 4 items; α = .69).

Statistical Analyses

A methodological issue with previous studies on personality and anxiety symptoms concerns their reliance on manifest variables. Such observed variables contain considerable measurement error, which may lead to unreliable results (Byrne, 2012). In order to supplement the present study's level of specificity with an optimal level of accuracy, we re-

lied on latent variables in which such measurement error is accounted for.

Thus, in order to meaningfully compare personality and anxiety symptoms mean levels and interconnections across gender and age groups, we first tested measurement invariance. Measurement invariance (or equivalence) refers to the extent to which both item content and psychometric properties of the instruments are similar across groups (van de Schoot, Lugtig, & Hox, 2012). It requires multiple hierarchical steps (Chen, 2007): (a) configural invariance (the same number of factors and pattern of fixed and freely estimated parameters hold across groups); (b) metric invariance (equivalence of factor loadings indicating that respondents from multiple groups attribute the same meaning to the latent construct of interest); and (c) scalar invariance (invariance of both factor loadings and item intercepts, indicating that the meaning of the construct and the levels of the underlying items are equal across groups).

Figure 1.
Schematization of the Tested Model
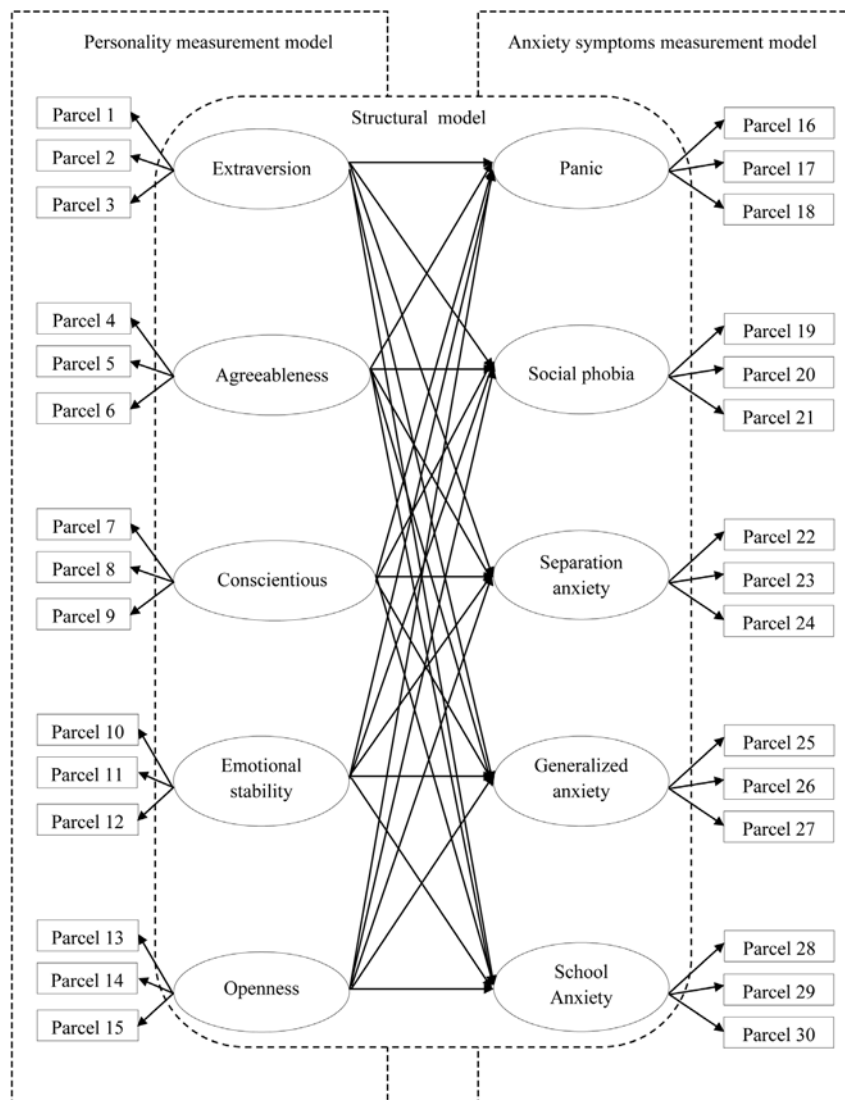
Note. Correlations between Big Five latent variables, as well as correlations between anxiety symptoms latent variables, were included in the two measurement models but for sake of clarity they are not reported in the Figure.

We conducted Confirmatory Factor Analyses (CFAs) in Mplus 7.3 (Muthén & Muthén, 1998–2012) using the Maximum likelihood robust (MLR) estimator. For personality and anxiety symptoms, we tested measurement models consisting of five latent variables each (see personality and anxiety measurement models depicted in Figure 1). Three observed indicators for each latent factor were constructed through the item-to-construct balance parceling method (Little, Cunningham, Shahar, & Widaman, 2002). We tested the model fit relying on the Comparative Fit Index (CFI), with values higher than .90 indicative of an acceptable fit and values higher than .95 suggesting an excellent fit; and the Root Mean Square Error of Approximation (RMSEA), with values below .08 indicative of an acceptable fit and values less than .05 representing a good fit (Byrne, 2012). For testing measurement invariance we conducted consequential multi-group CFAs. In order to determine significant differences between models we followed Chen's (2007) recommendations according to which a ΔCFI ≥ −.010, supplemented by ΔRMSEA ≥ .015 would be indicative of non-invariance.

Results

Measurement Invariance

Results of CFAs are reported in Table 1. For both personality and anxiety symptoms, the 5-factor measurement models fitted the data well and all levels of invariance (i.e., configural, metric, and scalar) were established across gender groups. Additionally, within each gender, the three levels of equivalence (with partial, instead of full, scalar invariance established) were found across age groups. Thus, findings provided strong evidence for measurement invariance.

Table 1.

Model Fit Indices and Model Comparisons

	Model fit indices				Model comparisons	
	χ^2	df	CFI	RSMEA [90% CI]	ΔCFI	ΔRMSEA
Personality measurement model						
Fit of the 5-factor solution in the overall sample	1588.490	80	.897	.071 [.068, .074]		
Gender invariance						
Configural invariance	1657.400	160	.898	.071 [.068, .074]		
Metric invariance	1723.233	175	.894	.069 [.066, .072]	−.004	−.002
Full scalar invariance	1790.133	185	.891	.068 [.065, .071]	−.003	−.001
Age invariance tested within each gender group						
Boys						
Configural invariance	1359.028	640	.891	.073 [.067, .078]		
Metric invariance	1469.737	745	.890	.068 [.063, .073]	−.001	−.005
Full scalar invariance	1783.746	815	.853	.075 [.070, .080]	−.037	.007
Partial scalar invariance	1563.083	787	.883	068 [.063, .073]	−.007	.000
Girls						
Configural invariance	1541.719	640	.896	.074 [.070, .079]		
Metric invariance	1747.505	745	.887	.073 [.068, .077]	−.009	−.001
Full scalar invariance	2079.294	815	.854	.078 [.078, .082]	−.033	.005
Partial scalar invariance	1825.212	794	.881	.071 [.067, .076]	−.006	−.002
Anxiety symptoms measurement model						
Fit of the 5-factor solution in the overall sample	1179.671	80	.929	.061 [.058, .064]		
Gender invariance						
Configural invariance	1246.687	160	.929	.060 [.057, .063]		
Metric invariance	1262.612	175	.929	.058 [.055, .061]	.000	−.002
Full scalar invariance	1371.672	185	.923	.059 [.056, .061]	−.006	.001
Age invariance tested within each gender group						
Boys						
Configural invariance	1128.810	640	.933	.060 [.054, .066]		
Metric invariance	1276.184	745	.927	.058 [.053, .063]	−.006	−.002
Full scalar invariance	1684.684	815	.881	.071 [.066, .076]	−.046	.013
Partial scalar invariance	1358.866	787	.922	.059 [.053, .064]	−.005	.001

	Model fit indices				Model comparisons	
	χ^2	df	CFI	RSMEA [90% CI]	ΔCFI	ΔRMSEA
Girls						
Configural invariance	1256.569	640	.927	.061 [.056, .066]		
Metric invariance	1423.666	745	.920	.060 [.055, .064]	−.007	−.001
Full scalar invariance	1762.073	815	.888	.067 [.063, .072]	−.032	.007
Partial scalar invariance	1545.455	787	.910	.061 [.057, .066]	−.010	.001
Full path analytic model						
Model tested in the overall sample	4185.480	360	.889	.053 [.052, .055]		
Gender invariance of path coefficients						
Model with free parameters	4609.689	750	.888	.052 [.051, .054]		
Model with fixed parameters	4656.336	775	.887	.052 [.050, .053]	−.001	.000
Age invariance of path coefficients tested within each gender group						
Boys						
Model with free parameters	5163.305	3090	.874	.056 [.054, .059]		
Model with fixed parameters	5387.087	3265	.871	.055 [.053, .058]	−.003	−.001
Girls						
Model with free parameters	5710.027	3090	.869	.058 [.055, .060]		
Model with fixed parameters	5893.811	3265	.869	.056 [.054, .058]	.001	−.002

Note. χ^2 = Chi-Square; df = degrees of freedom; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation and 90% Confidence Interval; Δ = Change in the parameter.

Gender differences

Personality. A Multivariate Analysis of Variance (MANOVA) indicated significant overall gender differences in personality scores, Wilks' Lambda = .973, $F(5, 3752) = 20.77$, $p < .001$, $\eta^2 = .027$. Specifically, boys scored higher than girls on emotional stability, $F(1, 3757) = 47.27$, $p < .001$, $\eta^2 = .012$. Additionally, girls scored higher than boys on agreeableness, $F(1, 3757) = 55.28$, $p < .001$, $\eta^2 = .015$, and conscientiousness, $F(1, 3757) = 17.79$, $p < .001$, $\eta^2 = .005$.

Anxiety. MANOVA results indicated significant overall gender differences on anxiety symptoms, Wilks' Lambda = .986, $F(5, 3752) = 10.38$, $p < .001$, $\eta^2 = .014$. Follow-up univariate analyses revealed significant differences on all anxiety symptoms factors, except for school anxiety symptoms.

As expected, girls scored higher than boys on symptoms of panic, $F(1, 3757) = 16.20$, $p < .001$, $\eta^2 = .004$; social anxiety, $F(1, 3757) = 3.93$, $p < .05$, $\eta^2 = .001$; separation anxiety, $F(1, 3757) = 9.70$, $p < .01$, $\eta^2 = .003$; and generalized anxiety, $F(1, 3757) = 39.47$, $p < .001$, $\eta^2 = .010$.

Age Differences

Personality. A MANOVA indicated significant overall age differences in personality scores both in boys, Wilks' Lambda = .855, $F(35, 7124.238) = 7.724$, $p < .001$, $\eta^2 = .031$, and girls, Wilks' Lambda = .865, $F(35, 8588.141) = 8.633$, $p < .001$, $\eta^2 = .029$. Follow-up univariate analyses revealed that in both gender groups significant age differences were found for all Big Five dimensions except for openness (see Figure 2).

Table 2.
Regression Standardized Path Coefficients Computed in the Overall Sample

Personality	Anxiety symptoms				
	Panic	Social phobia	Separation anxiety	Generalized anxiety	School Anxiety
Extraversion	−.023	**−.543*****	−.050*	−.057**	−.067**
Agreeableness	−.122***	.035	−.071*	.070**	−.027
Conscientiousness	−.022	−.070**	.019	.083***	**−.228*****
Emotional stability	**−.509*****	−.152***	**−.354*****	**−.605*****	**−.308*****
Openness	.029	−.086***	.037	−.033	−.023

Note. Coefficients ≥ |.200| are indicated in bold. * $p < .05$, ** $p < .01$, *** $p < .001$.
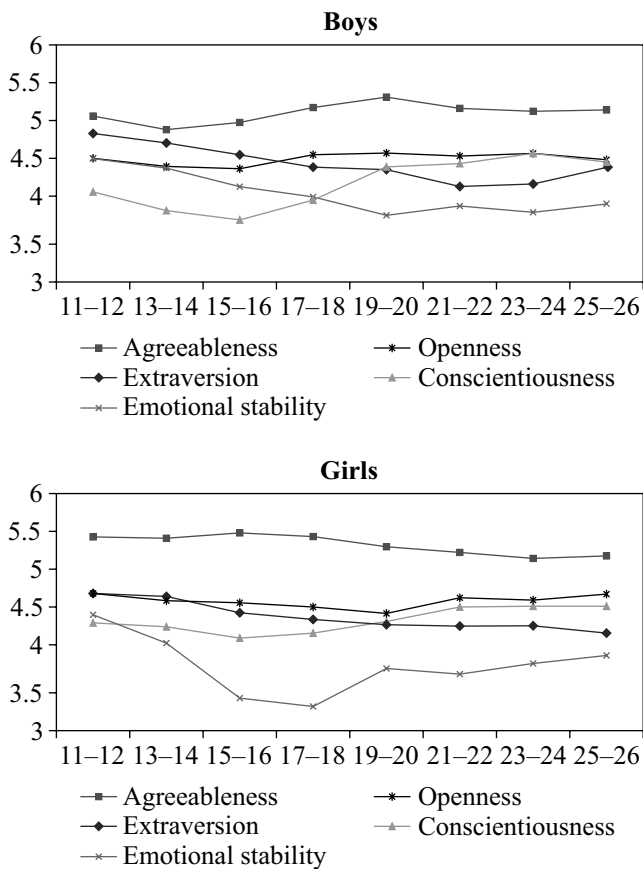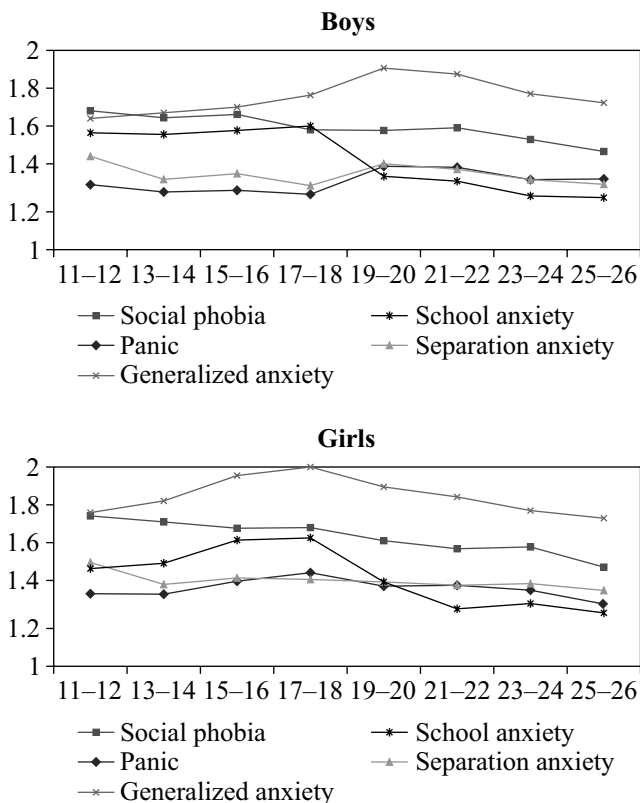
Figure 2.
Age Differences on Personality for both Genders

Boys

- ■ Agreeableness
- ◆ Extraversion
- ✳ Emotional stability
- ✳ Openness
- ▲ Conscientiousness

Girls

- ■ Agreeableness
- ◆ Extraversion
- ✳ Emotional stability
- ✳ Openness
- ▲ Conscientiousness

Figure 3.
Age Differences on Anxiety Symptoms for both Genders

Boys

- ■ Social phobia
- ◆ Panic
- ✳ Generalized anxiety
- ✳ School anxiety
- ▲ Separation anxiety

Girls

- ■ Social phobia
- ◆ Panic
- ✳ Generalized anxiety
- ✳ School anxiety
- ▲ Separation anxiety

Anxiety. A MANOVA indicated significant overall age differences in anxiety symptoms both in boys, Wilks' Lambda = .772, F (35, 7124.238) = 12.929, $p < .001$, $\eta^2 = .050$, and girls, Wilks' Lambda = .832, F (35, 8588.141) = 10.975, $p < .001$, $\eta^2 = .036$. Follow-up univariate analyses pointed out that in both gender groups significant age differences were found in symptoms of all forms of anxiety taken into account (see Figure 3).

Associations between Personality and Anxiety Symptoms

The model with personality dimensions regressed on anxiety symptoms (see Structural model reported in Figure 1) fitted the data well (see Table 1). Furthermore, this model was invariant across gender groups and, within each gender, across all age groups. Associations between personality and anxiety symptoms computed in the overall sample are reported in Table 2.

Most associations were statistically significant and more substantial associations (i.e., $\beta \geq |.20|$), were found between emotional stability and all anxiety symptoms, except for symptoms of social phobia; between extraversion and symptoms of social phobia; and between conscientiousness and symptoms of school anxiety. All these associations were negative, thus conforming to our hypothesis that high levels of personality traits like extraversion and conscientiousness serve as resources to obtain socially desirable goals.

Discussion

The interplay of personality and anxiety has been largely studied in adult clinical populations, whereas there is a dearth of studies on associations between personality and specific anxiety symptoms in adolescents and emerging adults drawn from the general population. In this study, we extended available literature on personality and anxiety symptoms in three ways. First, we documented these links in a large population-based sample consisting of both adolescents and emerging adults. Second, we found a specific pattern of associations between Big Five personality traits and symptoms of various forms of anxiety (i.e., symptoms of panic, generalized anxiety disorder, school phobia, separation anxiety, and social phobia). Third, we found that associations between personality and the five anxiety symptoms were consistent in boys and girls ranging from 11 to 26 years.

Personality and Anxiety Symptoms: Gender Patterns

Gender differences detected in the present study were perfectly in line with previous studies on personality (e.g., Feingold, 1994, for a meta-analysis) and anxiety symptoms (Birmaher et al., 1997; Essau et al., 2013; Ollendick & King, 1994). Specifically, main personality gender effects were found for emotional stability (higher in males), agreeableness, and conscientiousness (higher in females). Further, gender differences were found in all anxiety symptoms, except for symptoms of school anxiety. Consistent with a wider literature (Hale et al., 2011), females reported more anxiety symptoms than males.

Personality and Anxiety Symptoms: Age Differences

Consistent with recent meta-analytic evidence (Denissen et al., 2013), we found some evidence for a maturity "dip" of personality in early adolescence. That is, levels of conscientiousness and emotional stability in both boys and girls, and levels of agreeableness in boys were lower among the older adolescents compared with the younger. As discussed by Denissen et al. (2013), a possible antecedent of this dip is the increases in social expectations to act in a mature fashion. Also, early adolescence is the age at which children start to doubt their parents' ideas and searching for their own identity (Crocetti, Scrignaro, Sica, & Magrin, 2012; Erikson, 1950). This stressful period might give rise to a temporary move towards a less socially acceptable and, from an adult perspective, less mature personality.

After early adolescence, previous studies mostly found changes in line with the maturity principle (Roberts et al., 2006). In the present study, age trends in emotional stability and conscientiousness followed the maturity principle, but for agreeableness this was not the case. That is, levels of agreeableness were lower in the emerging adult groups when compared with the late adolescent groups.

Findings regarding anxiety indicated that while some symptoms of anxiety, like panic and separation anxiety, were reported with a similar rate by respondents of different ages, symptoms of social phobia, school, and generalized anxiety were generally lower in emerging adults than in adolescents. This result could be explained by of the fact that anxiety symptoms are strongly associated with parental relationship quality (Hale, Engels, & Meeus, 2006). Parental relationship quality tends to improve in emerging adulthood (Crocetti & Meeus, 2014; Lefkowitz, 2005), becoming less conflictual, more warm, and supportive than it was in adolescence. Thus, improvements in parent-child relationships can provide emerging adults with a secure basis from which to navigate into adulthood with lower distress. Another explanation is that adolescents increasingly become better at meeting social norms, which decreases anxiety-inducing discrepancies.

Associations between Personality and Anxiety Symptoms

Although the relation between personality and overall anxiety is well-established (Abe, 2005; Ehrler et al., 1999; Ferguson, 2000; Muris et al., 2010; Vreeke & Muris, 2012), associations between the Big Five traits and symptoms of specific forms of anxiety are not yet clear. Thus, the main purpose of this study was to unravel associations between Big Five traits and symptoms of panic, generalized anxiety disorder, school phobia, separation anxiety, and social phobia in adolescence and emerging adulthood. Interestingly, we found that, despite gender and age mean-level differences in personality and anxiety symptoms discussed above, associations between Big Five and anxiety symptoms were consistent in boys and girls from 11 to 26 years. Thus, in our discussion we focus on the most substantial effect sizes (i.e., $\beta \geq |.20|$) computed in the overall sample.

Emotional stability was the personality trait more strongly related to anxiety symptoms. In fact, emotional stability was strongly and negatively related to symptoms of panic, generalized anxiety disorder, separation anxiety, and school anxiety. These findings are consistent with a wide literature (Abe, 2005; Ehrler et al., 1999; Ferguson, 2000; Klimstra et al., 2011; Muris et al., 2010; Vreeke & Muris, 2012) suggesting that emotional stability is a key factor for understanding differences in internalizing problem behaviors, like anxiety symptoms.

In line with our hypothesis, extraversion was strongly and negatively associated with symptoms of social phobia. This result is consistent with the fact that extraversion is an interpersonally oriented disposition that is attenuated seeking social stimulation and rewards from the outside world and social interactions (Denissen & Penke, 2008b). Thus, youth high in extraversion can meet better social norms and, thus, experience less social anxiety symptoms.

Conscientiousness was strongly and negatively related to symptoms of school anxiety. Conscientiousness is well-known to be the most important personality trait in explaining academic achievement (Furnham, Nuygards, & Chamorro-Premuzic, 2013; Klimstra, Luyckx, Germeijs, Meeus, & Goossens, 2012; O'Connor & Paunonen, 2007). Thus, less conscientious individuals are likely to experience more failure in school than their more conscientious counterparts. Repeated failure might make school unpleasant and somewhat threatening, which would explain less conscientious individuals' higher prevalence of symptoms of school anxiety.

Finally, agreeableness and openness were only weakly related to anxiety symptoms. These results mirrored those obtained in adult clinical groups (Ozer & Benet-Martínez, 2006). In fact, Kotov et al. (2010) found in their meta-analysis that adult respondents with a diagnosis of generalized anxiety disorder, posttraumatic stress disorder, panic disorder, or social phobia scored similarly to a control group on agreeableness and openness. It should be noted, however, that our instrument also seemed less suited to measure the forms of anxiety that agreeableness (fear of disharmonious relationships) and openness (fear of appearing dull and unintelligent) most likely tap into on theoretical grounds.

Theoretical and Practical Implications

This study has relevant theoretical and practical implications. For what regard theoretical implications, our results challenge approaches that examine effects of personality on broad factors of internalizing psychopathology (e.g., De Bolle, Beyers, De Clercq, & De Fruyt, 2012) by revealing that personality is differentially associated with various specific anxiety symptoms. In particular, we found that extraversion, a primarily social trait, was negatively related to symptoms of social phobia. Conscientiousness, that is associated with cognitions, emotions, and behaviors, such as responsibility, dutifulness, pragmatism, adherence to societal morals, linked to school performance (Furnham et al., 2013; Ozer & Benet-Martínez, 2006), resulted as the personality trait more strongly related to symptoms of school anxiety. Additionally,

in line with our hypothesis, emotional stability was the personality trait more strongly related to symptoms of various forms of anxiety. Thus, our results obtained among adolescents and emerging adults drawn from the general population largely replicate findings obtained in a meta-analysis on adults with anxiety disorder diagnoses (Kotov et al., 2010). That is, emotional stability was strongly associated with all forms of anxiety, whereas low extraversion was specifically related to social phobia (school anxiety cannot be diagnosed among adults for obvious reasons).

In terms of the clinical implications of this study, it was previously noted in the introduction that anxiety symptoms can lead to the development of an anxiety disorder which potentially can take on a chronic course and continue into adulthood (Roza et al., 2003). In order to detect individuals that are potentially at-risk for developing anxiety disorders, this study gave attention to personality traits as risk factors. The knowledge gained in this study can improve future screening programs. In fact, current results suggest that adolescents with lower levels of extraversion might be more likely to experience symptoms of social anxiety, those with low levels of conscientiousness might be more vulnerable to school anxiety, and those with low emotional stability are more likely to exhibit a variety of anxiety symptoms. Therefore, adolescents who report low extraversion, conscientiousness, and emotional stability might represent an at-risk group that would benefit from targeted early interventions.

Furthermore, intervention studies (therapeutic interventions or school/community prevention reduction programs) aimed at reducing youth anxiety and promoting positive well-being might test how fostering personality development in line with the maturity principle (e.g., increasing extraversion, conscientiousness, and emotional stability) could result in reducing anxiety symptomatology. For instance, Magidson, Roberts, Collado-Rodriguez, and Lejuez (2014) proposed a theory-driven intervention aimed at increasing conscientiousness. Future studies could test to what extent this intervention, by stimulating conscientiousness, could have also beneficial effects in reducing school anxiety.

Strengths and Limitations of this Study and Suggestions for Future Research

A first strength of this study is the focus on associations between personality and specific anxiety symptoms of panic, social phobia, separation anxiety, generalized anxiety disorder, and school anxiety. In this way, it was possible to extend previous literature shifting from a focus on the broad category of symptoms of overall anxiety or internalizing problems to more specific symptoms. Although we focused on anxiety symptoms that are widely studied in young people (Birmaher et al., 1997, 1999), it is worthwhile to further develop this line of investigation by examining additional anxiety symptoms not taken into account in this study (e.g., symptoms of obsessive-compulsive disorder; Muris, Merckelbach, van Brakel, Mayer, & van Dongen, 1998). Furthermore, focusing on specific fears (e.g., fear of disharmonious relationships and fear of appearing dull and unintelligent) could highlight the relevance of personality traits of agreeableness and openness, which in the current study were only weakly related to the symptoms of anxiety taken into account.

A second strength of the present study is the large sample drawn from the general population. This is highly important because clinical samples are restricted in the range of anxiety symptoms, leading to an underestimation of associations with personality. The sample also covered a wide age range spanning from early adolescence to emerging adulthood (from 11 to 26 years). However, a main shortcoming is the cross-sectional design of the study, which does not allow testing of reciprocal effects of personality and anxiety symptoms over time and in-depth analyses of developmental trends. Different models examining the direction of effects between axis-1 psychopathology (e.g., anxiety symptoms) and personality traits have been proposed (e.g., vulnerability model, scar model; Krueger, 1999; Tackett, 2006). Thus, longitudinal studies monitoring development from adolescence to adulthood in non-clinical samples are needed to further explain interrelations between personality and anxiety symptoms.

Conclusion

Overall, this study highlighted a specific pattern of associations between personality traits and various anxiety symptoms. Findings indicated strong associations between extraversion and symptoms of social phobia; conscientiousness and symptoms of school anxiety; emotional stability and symptoms of panic, separation, generalized, and school anxiety. These results were consistent across gender and age groups in youth drawn from the general population.

References

Abe, J. A. A. (2005). The predictive validity of the five-factor model of personality with preschool age children: A nine year follow-up study. *Journal of Research in Personality*, 39, 423–442.

Bernstein, G. A., & Victor, A. M. (2008). *Childhood anxiety disorder*. In S. H. Fatemi and P. J. Clayton (Eds.), The medical basis of psychiatry (pp. 375–390). Totowa, NJ, USA: Humana Press.

Birmaher, B., Brent, D. A., Chiappetta, L., Bridge, J., Monga, S., & Baugher, M. (1999). Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED): A replication study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38, 1230–1236.

Birmaher, B., Khetarpal, S., Brent, D., Cully, M., Balach, L., Kaufman, J., et al. (1997). The Screen for Child Anxiety Related Emotional Disorders (SCARED): Scale construction and psychometric characteristics. *Journal of the*

American Academy of Child and Adolescent Psychiatry, 36, 545–553.

Bosquet, M., & Egeland, B. (2006). The development and maintenance of anxiety symptoms from infancy through adolescence in a longitudinal sample. *Development and Psychopathology*, 18, 517–550.

Byrne, B.M. (2012). *Structural equation modeling with Mplus: Basic concepts, applications, and programming* (2nd Ed.). New York: Routledge, Taylor & Francis Group.

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling-a Multidisciplinary Journal*, 14, 464–504.

Crocetti, E., Hale, W. W. III, Dimitrova, R., Abubakar, A., Gao, C. H., & Pesigan, I. J. A. (2015). Generalized anxiety symptoms and identity processes in cross-cultural samples of adolescents from the general population. *Child & Youth Care Forum*, 44, 159–174.

Crocetti, E., Hale, III, W. W., Fermani, A., Raaijmakers, Q., & Meeus, W. (2009). Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in the general Italian adolescent population: A validation and a comparison between Italy and The Netherlands. *Journal of Anxiety Disorders*, 23, 824–829.

Crocetti, E., Klimstra, T., Keijsers, L., Hale III, W. W., & Meeus, W. (2009). Anxiety trajectories and identity development in adolescence: A five-wave longitudinal study. *Journal of Youth and Adolescence*, 38, 839–849.

Crocetti, E., & Meeus, W. (2014). "Family comes first!" Relationships with family and friends in Italian emerging adults. *Journal of Adolescence*, 37, 1463–1473.

Crocetti, E., Scrignaro, M., Sica, L. S., & Magrin, M. E. (2012). Correlates of identity configurations: Three studies with adolescent and emerging adult cohorts. *Journal of Youth and Adolescence*, 41(6), 732–748.

De Bolle, M., Beyers, W., De Clercq, B., & De Fruyt, F. (2012). General personality and psychopathology in referred and nonreferred children and adolescents: An investigation of continuity, pathoplasty, and complication models. *Journal of Abnormal Psychology*, 121, 958–970.

Denissen, J. J. A., & Penke, L. (2008a). Neuroticism predicts reactions to cues of social inclusion. *European Journal of Personality*, 22, 497–517.

Denissen, J. J. A., & Penke, L. (2008b). Motivational individual reaction norms underlying the five-factor model of personality: First steps towards a theory-basedconceptual framework. *Journal of Research in Personality*, 42, 1285–1302.

Denissen, J. J. A. van Aken, M. A. G., Penke, L., & Wood, D. (2013). Self-regulation underlies temperament and personality: An integrative developmental framework. *Child Development Perspectives*, 7, 255–260.

Durbin, C. E., & Hicks, B. M. (2014). Personality and psychopathology: A stagnant field in need of development. *European Journal of Personality*, 28, 362–386.

Ehrler, D. J., Evans, J. G., & Mcghee, R. L. (1999). Extending big-five theory into childhood: A preliminary investigation into the relationship between big-five personality traits and behavior problems in children. *Psychology in the Schools*, 36, 451–458.

Erikson, E. H. (1950). *Childhood and society.* New York: Norton.

Essau, C. A., Muris, P., & Ederer, E. M. (2002). Reliability and validity of the Spence Children's Anxiety Scale and the Screen for Child Anxiety Related Emotional Disorders in German children. *Journal of Behavior Therapy and Experimental Psychiatry*, 33, 1–18.

Essau, C. A., Anastassiou-Hadjicharalambous, X., & Munoz, L. C. (2013). Psychometric properties of the screen for child anxiety related emotional disorders (SCARED) in Cypriot children and adolescents. *European Journal of Psychological Assessment*, 29, 19–27.

Feingold, A. (1994). Gender differences in personality: A meta-analysis. *Psychological Bulletin*, 116, 429–456.

Ferguson, E. (2000). Hypochondriacal concerns and the five factor model of personality. *Journal of Personality*, 68, 705–724.

Ferdinand R. F., & Verhulst F. C. (1995). Psychopathology from adolescence into young adulthood: an eight-year follow-up study. *American Journal of Psychiatry*, 15, 1586–1594.

Furnham, A., Nuygards, S., & Chamorro-Premuzic, T. (2013). Personality, assessment methods and academic performance. *Instructional Science*, 41, 975–987.

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment*, 4, 26–42.

Hale, III, W. W., Crocetti, E., Raaijmakers, Q., Meeus, W. (2011). A meta-analysis of the cross-cultural psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED). *Journal of Child Psychology and Psychiatry*, 52, 80–90.

Hale III, W. W., Engels, R., & Meeus, W. (2006). Adolescent's perceptions of parenting behaviours and its relationship to adolescent generalized anxiety disorder symptoms. *Journal of Adolescence*, 29, 407–417.

John, O. P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (Vol. 2, pp. 102–138). New York: Guilford Press.

Klimstra, T. A., (2013). Adolescent personality development and identity formation. *Child Development Perspectives*, 7, 80–84.

Klimstra, T. A., Beyers, W., & Besevegis, E. (2014). Personality dynamics in adolescence. *Journal of Adolescence*, 37, 643–646.

Klimstra, T., Crocetti, E., Hale, W. W., Fermani, A., & Meeus, W. (2011). Big Five personality dimensions in Italian and Dutch adolescents: A cross-cultural comparison of mean-levels, sex differences, and associations with internalizing symptoms. *Journal of Research in Personality*, 45, 285–296.

Klimstra, T. A., Hale, W. W., Raaijmakers, Q. A. W., Branje, S. J. T., & Meeus, W. H. J. (2009). Maturation of personality in adolescence. *Journal of Personality and Social Psychology*, 96, 898–912.

Klimstra, T. A., Luyckx, K., Germeijs, V., Meeus, W. H. J., & Goossens, L. (2012). Personality traits and educational identity formation in late adolescents: Longitudinal associations and academic progress. *Journal of Youth and Adolescence*, 41, 346–361.

Kotov, R., Gamez, W., Schmidt, F., & Watson, D. (2010). Linking "big" personality traits to anxiety, depressive, and substance use disorders: A meta-analysis. *Psychological Bulletin*, 136, 768–821

Krueger, R. F. (1999). Personality traits in late adolescence predict mental disorders in early adulthood: A prospective-epidemiological study. *Journal of Personality*, 67, 39–65.

Lefkowitz, E.S. (2005). "Things have gotten better". Developmental changes among emerging adults after the transition to university. *Journal of Adolescent Research*, 20, 40–63.

Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling*, 9, 151–173.

Magidson, J. F., Roberts, B. W., Collado-Rodriguez, A., & Lejuez, C. W. (2014). Theory-driven intervention for changing personality: Expectancy value theory, behavioral activation, and conscientiousness. *Developmental Psychology*, 50, 1442–1450.

McCrae, R. R., & Costa Jr., P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, 52, 81–90.

Merikangas, K. R., He, J.-P., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., … Swendsen, J. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: Results from the national comorbidity survey replication-adolescent supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, 49, 980–989.

Muris, P., Mayer, B., & Schubert, T. (2010). "You might belong in gryffindor": Children's courage and its relationships to anxiety symptoms, big five personality traits, and sex roles. *Child Psychiatry and Human Development*, 41, 204–213.

Muris, P., Merckelbach, H., van Brakel, A., Mayer, B., & van Dongen, L. (1998). The Screen for Child Anxiety Related Emotional Disorders (SCARED): Relationship with anxiety and depression in normal children. *Personality and Individual Differences*, 24, 451–456.

Muthén, L. K. and Muthén, B. O. (1998–2012). *Mplus User's Guide* (7th Ed.). Los Angeles, CA: Muthén & Muthén.

Nelemans, S. A., Hale, W. W., Branje, S. J. T., Raaijmakers, Q. A. W., Frijns, T., Van Lier, P. A. C., & Meeus, W. H. J. (2014). Heterogeneity in development of adolescent anxiety disorder symptoms in an 8-year longitudinal community study. *Development and Psychopathology*, 26, 181–202.

O'Connor, M. C., & Paunonen, S. V. (2007). Big five personalitypredictors of post-secondary academic performance. *Personality and Individual Differences*, 43, 971–990.

Ollendick, T. H., & King, N. J. (1994). Fears and their level of inference in adolescents. *Behaviour Research and Therapy*, 32, 635–638.

Ozer, D. J., & Benet-Martínez, V. (2006). Personality and the prediction of consequential outcomes. *Annual Review of Psychology*, 57, 401–421.

Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin*, 132, 1–25.

Roza, S. J., Hofstra, M. B., Van Der Ende, J., Verhulst, F. C. (2003). Stable prediction of mood and anxiety disorders based on behavioral and emotional problems in childhood: A 14-year follow-up during childhood, adolescence, and young adulthood. *American Journal of Psychiatry*, 160, 2116–2121.

Sauter, F. M., Heyne, D., & Westenberg, P. M. (2009). Cognitive behavior therapy for anxious adolescents: Developmental influences on treatment design and delivery. *Clinical Child and Family Psychology Review*, 12, 310–335.

Scott, L., & O'Hara, M. W. (1993). Self-discrepancies in clinically anxious and depressed university students. *Journal of Abnormal Psychology*, 102, 282–287.

Soto, C. J., John, O. P., Gosling, S. D., & Potter, J. (2011). Age differences in personality traits from 10 to 65: Big Five domains and facets in a large cross-sectional sample. *Journal of Personality and Social Psychology*, 100, 330–348.

Su, L., Wang, K., Fan, F., Su, Y., & Gao, X. (2008). Reliability and validity of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in Chinese children. *Journal of Anxiety Disorders*, 22, 612–621.

Tackett, J. L. (2006). Evaluating models of the personality-psychopathology relationship in children and adolescents. *Clinical Psychology Review*, 26, 584–599.

Van de Schoot, R., Lugtig, P., & Hox, J. (2012). A checklist for testing measurement invariance. *European Journal of Developmental Psychology*, 9, 486–492.

Vecchione, M., Alessandri, G., Barbaranelli, C., & Caprara, G. (2012). Gender differences in the big five personality development: A longitudinal investigation from late adolescence to emerging adulthood. *Personality and Individual Differences*, 53, 740–746.

Vermulst, A. A., & Gerris, J. R. M. (2005). *QBF: Quick Big Five persoonlijkheidstest handleiding* [Quick Big Five personality test manual]. Leeuwarden, the Netherlands: LDC Publications.

Vreeke, L. J., & Muris, P. (2012). Relations between behavioral inhibition, big five personality factors, and anxiety disorder symptoms in non-clinical and clinically anxious children. *Child Psychiatry and Human Development*, 43, 884–894.

Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin*, 96(3), 465–490.

White, J. K., Hendrick, S. S., & Hendrick, C. (2004). Big five personality variables and relationship constructs. *Personality and Individual Differences*, 37, 1519–1530.

World Health Organization (2012). *Adolescent mental health*. Geneva, Switzerland: WHO Press.