

# THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

## Prevalence and Gender Differences in Worry and Social Anxiety among Greek High School Adolescents

**Christina Tsilingiri**

Ph.D. Candidate, Department of Educational and Social Policy,  
University of Macedonia, Greece

**Gregoris Simos**

Professor, Department of Educational and Social Policy,  
University of Macedonia, Greece

### **Abstract**

*Anxiety disorders are very common in adolescence. Research findings suggest that worry and social anxiety symptoms (social interaction anxiety and social phobia) correlate with anxiety and depression disorders in adolescence and adulthood. The present study investigated the relationship between worry and social anxiety by examining correlations and mean/median differences among male and female Greek adolescents. A total of 439 adolescents studying in the 9<sup>th</sup> grade participated in the study. The short forms of Penn State Worry Questionnaire and the Social Interaction Anxiety Scale and the Social Phobia Scale were used. Results showed that worry correlated significantly with both aspects of social anxiety. Significant differences between the female and male adolescents were found only in the worry levels. There were no significant gender differences in social anxiety. Overall, participants showed medium levels of worry and high levels of social anxiety. This finding suggests that both male and female adolescents experience significant levels of social anxiety symptoms and female adolescents seem to experience higher levels of worry. Implication for further research and mental health disorders prevention in adolescence are discussed.*

**Keywords:** Adolescence, social anxiety, worry, gender differences

### **1. Introduction**

Adolescence is considered a crucial developmental period for the increase of anxiety symptoms, as well as for the onset of many anxiety disorders (Kessler, Berglund, & Demler, et al., 2005). Early onset of anxiety disorders correlates with more severe outcomes and increases the probability of a diagnosis in adulthood (Yonkers et al., 2001; Garber & Weersing, 2010).

Epidemiological studies have shown the high prevalence of Social Anxiety Disorder (SAD) in adolescents (Merikangas et al., 2010; Kessler, Petukhova, Sampson et al., 2012). Prevalence rates as high as 12% have been estimated for SAD (Ruscio, Brown, Chiu et al., 2008). The clinical manifestation of Social Anxiety Disorder is characterized by fearfulness, social isolation and inhibition in social interactions (Beidel, Turner, & Morris, 1999). Social anxiety is linked with social avoidance which can result in social withdrawal and can have a serious impact in an adolescent's daily life (Rapee & Spence, 2004).

Generalized Anxiety Disorder (GAD) is also common in adolescents. Burstein et al. (2014) found that in a national representative sample of 10,123 American adolescents, 3% met the criteria for GAD. Chronic, elevated and uncontrollable worry is considered a key feature of Generalized Anxiety Disorder (Meyer et al., 1990). Worry is considered a cognitive process, used by the individual, in order to manage anticipated negative outcomes (Borkovec & Roemer, 1995). It has been proposed as a mechanism used by the individual, in order to suppress negative emotionality (Borkovec, Alcaine, & Behar, 2004) or to sustain a certain level of emotional distress that prepares the individual for something worse (Newman & Llera, 2011). The frequency of worrisome thoughts in adolescents has been associated with anxiety and depression (Brown, Teufel, Birch, & Kancherla, 2006).

Anxiety symptoms such as worry, and social fears are part of the human experience and not necessarily of clinical significance. Problems occur when these symptoms become persistent and excessive (Beesdo, Knappe, & Pine, 2009). Elevated worry and social anxiety symptoms can have severe consequences regarding daily functioning, interpersonal relationships and academic performance (La Greca & Lopez, 1998). A vast amount of research has documented higher prevalence rates of worry and social anxiety in adolescent girls in particular (Lewinsohn, Gotlib, Lewinsohn, & Seeley, 1998; Ohayon & Schatzberg, 2010; Essau, Lewinsohn, Olaya, & Seeley, 2014).

The relationship between worry and social anxiety is mostly studied in clinical samples. For example, in a recent study by Rabner et al. (2017) worry was significantly correlated with social anxiety symptoms among adolescents recruited from an outpatient anxiety clinic. The chronic course of both worry and social anxiety (Vaananen, Frojd, Ranta et al., 2011; Rabner, et al., 2017), as well as their high co-morbidity with depression and anxiety disorders (e.g. Starcevic,

1995; Starr & Davila, 2008) suggest that early recognition and management of elevated symptoms, even at a non-clinical level, is important. The investigation of symptom severity and gender differences in community samples can aid mental health prevention and intervention programs (Pickering, Hadwin, Kovshoff, 2019).

Since social anxiety symptoms and worry levels seem to increase during mid-adolescence (Kessler, Berglund, & Demler, et al., 2005), aim of the present study was to assess the severity of these symptoms in a sample of mid-teens and examine the relationship and possible gender differences between social anxiety and worry.

### 1.1. Study Hypotheses

- Female adolescents will show higher levels of worry and social anxiety than male adolescents
- Social anxiety will correlate positively with worry

## 2. Method

### 2.1. Participants

A total of 439 adolescents (296 females and 143 males) completed the study questionnaires in their school settings. All participants were 9<sup>th</sup> grade students, aged 14 to 16 years old ( $M_{age}=15,35$ ,  $SD=0.5$ )

### 2.2. Procedure

Participants were recruited from high schools in Northern Greece, from September to December 2017. The data is part of a larger study concerning rates of anxiety and depression in adolescence. The study materials were approved by the Ethical Committee of the Greek Ministry of Education, Research and Religious Affairs and the University of Macedonia, Educational and Social Politic Department Ethics Committee. Participation was voluntary and parental informed consent was obtained prior to the administration of the study measures.

### 2.3. Measures

#### 2.3.1. Penn State Worry Questionnaire- brief version (Topper, Emmelkamp, Watkins, & Ehring, 2014)

The Penn State Worry Questionnaire was developed by Meyer et al (1990). It is a widely used and valid tool with 16 items, that assesses pathological worry based on the generality, the intensity and difficulty to control (Meyer et al., 1990). The original form has been translated in Greek and used in adult samples (OCWG, 2003). In the present study we used the brief version developed by Topper et al. (2014) which consists of 5 items of the original form. Participants rate worry in a 5-point scale (from 1= not at all typical for me to 5=very typical of me). The 5-item PSWQ has been used in adolescent and adult samples and shows high internal consistency (Cronbach  $\alpha$  range from .84 to .91). In the present study the Cronbach  $\alpha$  was .81, indicating excellent reliability.

#### 2.3.2. Social Interaction Anxiety and Social Phobia Scale-short form (SIAS-6 / SPS-6, Peters, Sunderland, Rapee, & Mattick, 2012)

The Social Interaction Anxiety Scale (20 items) and the Social Phobia Scale (20 items) are considered reliable measures that assess two central aspects of social phobia: social interaction anxiety and scrutiny fears (Mattick & Clarke, 1998). Peters et al. (2012) developed the combined shortened version, which we used in the present study. SIAS-6/SPS-6 comprises of 12 items and it possesses good psychometric properties (Peters et al., 2012). The measure was translated by the second author, with the permission of the scale developers and has been used in studies with adults in Greece (e.g. Meskou, Simou, & Simos, 2014). In the present study the item "I find it difficult mixing comfortably with the people I work" was replaced by the phrase "I find it difficult mixing comfortably with my classmates in school". Participants rated social anxiety in a 5-point scale (from 1= not at all true for me to 5=very true for me). The reliability coefficient for the total SIAS-6/SPS-6 in our study was .85. Cronbach  $\alpha$  for the SIAS subscale was .75 and .81 for the SPS subscale, indicating very good and excellent reliability respectively.

### 2.4. Statistical Procedure

All statistical analysis was conducted with the IBM SPSS, version 20. Preliminary analysis included the use of Principal Component Analysis for the reliability of the scales and subscales of each variable. Due to the non-normality of the data Spearman's rho correlation coefficients were used for the examination of the correlations between the variables. For the same reason we used the Mann-Whitney U test to examine significant differences between male and female participants scores.

## 3. Results

### 3.1. Principal Component Analysis (PCA)

In order to examine the reliability of the scales, Principal Component Analysis with varimax rotation was performed for the PSWQ scale, the SIAS-6/SPS-6 scale and subscales. Kaiser-Meyer-Olkin (KMO) values ranged from .84 to .89 and a statistically significant value in the Bartlett's test of sphericity (BS) verified the factorability of the data (Hair et al., 2006) for all the scales. For the PSWQ scale, all items loaded in one factor. Factor loadings ranged from .73 to .79. The one factor solution explained 57,68% of the total variance. For the SIAS-6/ SPS-6, the analysis revealed two factors,

accounting for 49% of the total variance. The one factor solution was also reliable in our data, accounting for 38,71% of the variance. All items loaded above .40.

### 3.2. Descriptives

Adolescents in our sample had a mean of 16,20 for worry and 22,26 for social anxiety. In the table below the means and standard deviations of the two scales and the subscales of SIAS and SPS are presented (Table 1).

	<b>M</b>	<b>SD</b>
PSWQ	16,20	4.7
SIAS-6/SPS-6	22,26	7.9
SIAS subscale	10,95	4.1
SPS subscale	11,31	4.8

Table 1: Descriptives for the Total Sample N=439  
(Means and Standard Deviations)

### 3.3. Gender Comparison for the Variables of Worry and Social Anxiety

In order to examine the statistical significance of the differences between female and male adolescents in our sample we used the Mann-Whitney U test. The results of the Mann-Whitney U tests are presented in Table 2. The analysis indicated that the female adolescents in our sample had statistically significant higher levels of worry (Mdn= 17) than the male adolescents (Mdn=14),  $U = 12282$ ,  $p=.000$ . On the other hand, no statistically significant difference was found between the levels of social anxiety (SIAS-6/SPS-6 females (Mdn=20) and males (Mdn=21),  $U=20357$ ,  $p=.517$ ).

	<b>Male (N=143)</b>		<b>Female (N=296)</b>		Mann -Whitney U	Asymp. Sign
	Mean (SD)	Median	Mean (SD)	Median		
PSWQ	13,97 (4.2)	14	17,29 (4.5)	17	12282	.000
SIAS-6/SPS-6	21,75 (7.4)	21	22,51 (8.2)	20	20357	.517
SIAS	11,04 (4.1)	10	10,91 (4)	10	20953	.773
SPS	10,71 (4.3)	10	11,60 (5)	10	19047	.079

Table 2: Mann-Whitney U Test Gender Comparisons: Means, Medians, U Values and Significance

### 3.4. Correlations between Worry and Social Anxiety

Spearman's rho correlations between the variables for the total sample, the male and the female subsamples showed that worry correlated positively with the total scale and the subscales of social anxiety. All correlations were found statistically significant ( $p < 0.01$ ). Somewhat higher correlations were found for the female adolescents. Correlation coefficients for each variable and gender are presented below in Table 3.

	<b>PSWQ</b>		
	Total sample	Male subsample	Female subsample
SIAS-6/SPS-6	.33**	.31**	.38**
SIAS	.29**	.34**	.31**
SPS	.32**	.22**	.39**

Table 3: Spearman's Rho Correlations between Worry (PSWQ) and Social Anxiety Scale (SIAS/SPS), Social Interaction Subscale (SIAS), Social Phobia Subscale (SPS) in the Total Sample, the Male and the Female Subsamples  
\*\* Correlation Is Significant at the 0.01 Level (2-Tailed)

## 4. Discussion

The Principal Components Analysis and the Cronbach a coefficient for the scales, showed that the scales had good reliability and internal consistency in order to be able to proceed with our analysis.

Worry mean levels reported by the adolescents in our study, were lower than those reported in other relevant studies (e.g. Chorpita et al., 1997 report a mean value of 19,24 in adolescent samples). The fact that a statistically significant gender difference was found in worry, agrees with the literature. (Robischaud, Douglas & Conway, 2003). Both boys and girls in our study showed high social anxiety levels. Topper et al. (2014) in their study, reported a mean level of 13.36 for female adolescents and a mean of 10.86 for boys. In our sample levels of social anxiety were higher (females= 22, 51, males= 21,75),but contrary to our hypothesis, there was no statistically significant difference between them. Literature suggests that female adolescents report more social anxiety symptoms, but studies in clinical adult samples find no gender differences in social anxiety levels (McLean, Asnaani, Litz, & Hoffman, 2011; Yonkers, Dyck, & Keller, 2001).

The positive correlations found in our data, between worry and social anxiety, indicate there is a connection between generalized worry and fears/anxiety about social activities in adolescents. Relevant research suggests that a possible link between social anxiety and worry is rumination (Hall et al., 2019).

## 5. Conclusions, limitations, and implications

In conclusion our results showed that:

- Worry levels correlate with social anxiety
- Female adolescents have higher levels of worry
- Both genders report high levels of social anxiety

The present study adds to the literature about the presence and the severity of worry and social anxiety in adolescents. Generalized Anxiety Disorder and Social Anxiety Disorder are common, underdiagnosed and consequently untreated in adolescents (Bandelow & Michaelis, 2015), although research shows substantial clinical improvement through treatment (Newman & Brokovec, 2002; Kashdan & Herbert, 2001). The examination of the susceptibility to worry and social anxiety in community samples can provide valuable information for the treatment and prevention of adolescent disorders.

One important limitation in our study is the higher numbers of female participants (67% of the total sample were females). Gender comparisons with more balanced and larger samples are needed. Also, our study examined correlations and mean/median differences. Future research is needed in order to investigate possible common factors affecting the relationship between them.

## 6. Acknowledgments

Funding: This research is co-financed by Greece and the European Union (European Social Fund - ESF) through the Operational Programme «Human Resources Development, Education and Lifelong Learning» in the context of the project "Scholarships programme for post-graduate studies - 2<sup>nd</sup> Study Cycle" (MIS-5003404), implemented by the State Scholarships Foundation (IKY).

## 7. References

- i. Beidel, D. C., Turner, S. M., Morris, T.L. (1999). Psychopathology of childhood social phobia. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38, 643-650.
- ii. Beesdo, K., Knappe, S., & Pine, D. S. (2009). Anxiety and anxiety disorders in children and adolescents: developmental issues and implications for DSM-V. *Psychiatric Clinics of North America*, 32 (2), 483-524.
- iii. Burstein, M., Beesdo-Baum, K., He, J. P., & Merikangas, K. R. (2011). Threshold and subthreshold generalized anxiety disorder among US adolescents: prevalence, sociodemographic and clinical characteristics. *Psychological Medicine*, 44 (11), 2351-2362.
- iv. Borkovec, T. D., Alcaine, O., & Behar, E. S. (2004). Avoidance theory of worry and generalized anxiety disorder. In: Heimberg RG, Mennin DS, Turk CL, (Eds). *Generalized Anxiety Disorder: Advances in Research and Practice*. New York: Guilford, 77-108.
- v. Borkovec, T. D. & Roemer L. (1995). Perceived functions of worry among generalized anxiety disorder subjects: distraction from more emotionally distressing topics? *Journal of Behavior Therapy and Experimental Psychiatry*, 26, 25-30.
- vi. Brown, S. L., Teufel, J. A., Birch, D. A., & Kancherla, V. (2006). Gender, age, and behavior differences in early adolescent worry. *Journal of School Health*, 76(8), 430-437.
- vii. Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate data analysis* (6th ed.). Upper saddle River, N.J.: Pearson Prentice Hall.
- viii. Hall, K. A., Quinn, M. E., Vanderlind, W. M., & Joorman, J. (2019). Comparing cognitive styles in social anxiety and major depressive disorders: an examination of rumination, worry and reappraisal. *British Journal of Clinical Psychology*, 58 (2), 231-244.
- ix. Chorpita, B. F., Tracey, S. A., Brown, T. A., Collica, T.J., Barlow, D. H. (1997). Assessment of worry in children and adolescents: an adaptation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, 35 (6), 569-581.
- x. Essau, C. A., Lewinsohn, P. M., Olaya, B., Seeley, J. R. (2014). Anxiety disorders in adolescents and psychosocial outcomes at age 30. *Journal of Affective Disorders*, 163, 125-132.
- xi. Garber, J. & Weersing, V. R. (2010). Comorbidity of anxiety and depression in youth: implications for treatment and prevention. *Clinical Psychology*, 17 (4), 293-306.
- xii. Gazelle, H. & Rubin, K. H. (2010). Social anxiety in childhood: bridging developmental and clinical perspectives. *New Directions for Child and Adolescent Development*, 127, 1-16.
- xiii. Hayward, C., Wilson, K. A., Lagle, K., Kraemer, H. C., Killen, J. D., & Taylor, C.B. (2008). The developmental psychopathology of social anxiety in adolescents. *Depression and Anxiety*, 25 (3), 200-206.
- xiv. Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-iv disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62, 593-602.
- xv. Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., Wittchen, H. U. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, 21 (3), 169-184.
- xvi. Laugesen, N., Dugas, M. J., Bukowski, W. M. (2003). Understanding adolescent worry: The application of a cognitive model. *Journal of Abnormal Child Psychology*, 31 (1), 55-64.

- xvii. La Greca, A. M., Lopez, N. (1998). Social anxiety among adolescents: linkages with peer relations and friendships. *Journal of Abnormal Child Psychology*, 26, 83-94.
- xxviii. Lewinsohn, P.M., Gotlib, I. H., Lewinsohn, M., Seeley, J. R., & Allen, N. B. (1998). Gender differences in anxiety disorders and anxiety symptoms in adolescents. *Journal of Abnormal Psychology*, 107 (1), 109-117.
- xix. Mattick, R. P., & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy*, 36, 455-470.
- xx. McLean, C. P., Asnaani, A., Litz, B. T., & Hoffman, S. G. (2011). Gender differences in anxiety disorders: prevalence, course of illness, comorbidity and burden of illness. *Journal of Psychiatric Research*, 45 (8), 1027-1035.
- xxi. Merikangas, K. R., He, J. P., Burnstein, M., Swanson, S. A., Avenevoli, S., Cui, L., Benjet, C., Georgiades, K., Swendsen, J. (2010). Lifetime prevalence of mental disorders in US adolescents: results from the National Comorbidity study-adolescent supplement (NSC-A), *Journal of the American Academy of Child and Adolescent Psychiatry*, 49 (10), 980-989.
- xxii. Meskou, A.S., Simou, M., & Simos, G. (2014). Social anxiety, body dissatisfaction and the influence of self-esteem in a young adult female sample. Oral presentation at the 2<sup>nd</sup> joint congress of the "World Psychiatric Association Thematic Conference on Intersectional Collaboration", the "Fifth European Congress of the International Neuropsychiatric Association" and the "Second Interdisciplinary Congress on Psychiatry and Related Sciences" organized jointly by the World Psychiatric Association (WPA), the International Neuropsychiatric Association (INA) and the Hellenic Society for the Advancement of Psychiatry and Related Sciences (HSAPRS), Athens 30/10/2014. CD: Abstracts, p=107.
- xxiii. Meyer, T. J., Miller, M. L., Metzger, R. L., Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, 28 (6), 487-495.
- xxiv. Newman, M. G., Borkovec, T. D. (2002). Cognitive behavioural therapy for worry and generalised anxiety disorder. In: Simos G. (Ed.). *Cognitive Behaviour Therapy: A Guide for the Practising Clinician* (pp 150-172). New York: Taylor & Francis.
- xxv. Newman, M. G., & Llera, S. J. (2011). A novel theory of experiential avoidance in generalized anxiety disorder: a review and synthesis of research supporting a Contrast Avoidance Model of worry. *Clinical Psychology Review*, 31, 371-82.
- xxvi. Obsessive Compulsive Cognitions Working Group. (2003). Psychometric validation of the obsessive beliefs questionnaire and the interpretation of intrusions inventory: Part I. *Behaviour Research and Therapy*, 41(8), 863-878.
- xxvii. Ohayon, M. M. & Schatzberg, A. F. (2010). Social phobia and depression: prevalence and comorbidity, *Journal of Psychosomatic Research*, 68, 235-243.
- xxviii. Peters, L., Sunderland, M., Rapee, R. M., & Mattick, R. P. (2012). Development of a short form Social Interaction Anxiety (SIAS) and Social Phobia Scale (SPS) using nonparametric item response theory: the SIAS-6 and the SPS-6. *Psychological Assessment*, 24 (1), 66-76.
- xxix. Pickering, L., Hadwin, J. A., Kovshoff, H. (2019). The role of peers in the development of social anxiety in adolescent girls: a systematic review. *Adolescent Research Review*, <https://doi.org/10.1007/s40894-019-00117-x>.
- xxx. Rabner, J., Mian, N. D., Langer, D. A., Comer, J. S., & Pincus, D. (2017). The relationship between worry and dimensions of anxiety symptoms in children and adolescents. *Behavioural and Cognitive Psychotherapy*, 45 (2), 124-138.
- xxxi. Rapee, R. M., & Spence, S. H. (2004). The etiology of social phobia: empirical evidence and an initial model. *Clinical Psychology Review*, 24, 737-767.
- xxxii. Robischaud, M., Douglas, M. J., & Conway, M. (2003). Gender differences in worry and associated cognitive-behavioral variables. *Journal of Anxiety Disorders*, 17, 501-516.
- xxxiii. Ruscio, A. M., Brown, T. A., Chiu, W.T., Sareen, J., Stein, M. B., Kessler, R.C. (2008). Social fears and social phobia in the USA: results from the National Comorbidity Survey Replication. *Psychological Medicine*, 38, 15-28.
- xxxiv. Starcevic, V. (1995). Pathological worry in major depression: A preliminary report. *Behaviour Research and Therapy*, 33 (1), 55-56.
- xxxv. Starr, L. R., & Davila, J. (2008). Differentiating interpersonal correlates of depressive symptoms and social anxiety in adolescence: Implications for models of comorbidity, *Journal of Clinical Child & Adolescent Psychology*, 37 (2), 337-349.
- xxxvi. Stein, M. B., Fuetsch, M., Müller, N., Höfler, M., Lieb, R., Wittchen, H.-U. (2001). Social anxiety disorder and the risk of depression: a prospective community study of adolescents and young adults. *Archives of General Psychiatry*, 58, 251-256.
- xxxvii. Topper, M., Emmelkamp, P. M. G., Watkins, E., Ehring, T. (2014). Development and assessment of brief versions of the Penn State Worry Questionnaire and the Ruminative Response Scale, *British Journal of Clinical Psychology*, 53, 402-421.
- xxxviii. Vaananen, J.-M., Frojd, S., Ranta, K., Marttunen, M., Helminen, M., Kaltiala-Heino, R. (2011). Relationship between social phobia and depression differs between boys and girls in mid-adolescence, *Journal of Affective Disorders*, 133, 97-104.
- xxxix. Yonkers, K. A, Dyck, I. R., Keller, M. B. (2001). An eight-year longitudinal comparison of clinical course and characteristics of social phobia among men and women. *Psychiatric Services*, 52, 637-643.