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### **Social anxiety disorder and depressive symptoms in adolescence : the mediator role of the impact of traumatic shame experiences**

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**SOCIAL ANXIETY DISORDER AND DEPRESSIVE  
SYMPTOMS IN ADOLESCENCE:  
THE MEDIATOR ROLE OF THE IMPACT OF TRAUMATIC SHAME EXPERIENCES**

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**Abstract:** Social Anxiety Disorder (SAD) and Major Depressive Disorder are highly prevalent and comorbid in adolescence. On the other hand, both social anxiety (SA) and depressive symptoms are associated with traumatic shame experiences (TSE). Despite data relating any two of these three constructs, there is no data exploring the relation between the three of them. Therefore, this study aimed to explore the associations between the impact of TSE, SA and Depression, and the role of the impact of TSE in the relationship between SA and Depression. Two adolescent samples (general population and adolescents with SAD) were assessed for SA, depressive symptoms and the impact of TSE. We found a moderate association between the impact of TSE and depression, and a weak association between TSE and SA. In the general population sample and in the clinical sample SA and Depression were, respectively, moderately and weakly associated, and the impact of TSE was found to be a partial and a full mediator of the association between SA and Depression. Our findings confirm that SA/SAD and Depression are related, with SA predicting Depression, and that the impact of TSE has a role in this relationship. Theoretical and clinical implications of these findings are presented.

**Keywords:** Social anxiety disorder (SAD), Depression, Social anxiety (SA), Impact of traumatic shame experiences (TSE).

**Resumo:** A Perturbação de Ansiedade Social (PAS) e a Perturbação Depressiva Major são altamente prevalentes e comórbidas na adolescência. Por outro lado, tanto depressão como ansiedade social (AS) estão associadas com experiências traumáticas de vergonha (ETV). Apesar de a literatura ligar estes constructos dois a dois, não existem estudos que explorem a relação entre os três. Nesse sentido, o presente estudo explorou as associações entre impacto das ETV, AS e depressão, e o papel do impacto das ETV na relação entre AS e depressão. Duas amostras de adolescentes (população geral e adolescentes com PAS) foram avaliadas em termos de AS, sintomatologia depressiva e impacto das TSE. Foi encontrada uma associação moderada entre o impacto das ETV e a depressão e uma associação fraca entre o impacto das ETV e a AS. Na população geral e na amostra clínica a AS e a depressão encontraram-se, respetivamente, moderadamente e fracamente associadas e o impacto das ETV revelou-se um mediador parcial e total (também respetivamente) da relação entre AS e depressão. Os resultados confirmaram que AS/PAS e Depressão estão relacionadas (com AS a prever depressão) e que o impacto das ETV detém um papel nesta relação. Questões teóricas e implicações clínicas destes resultados são apresentadas.

**Palavras-chave:** Perturbação de ansiedade social (PAS), Depressão, Ansiedade social (AS), Impacto das Experiências traumáticas de vergonha (ETV).

## **Adolescence and Social Anxiety**

Social interactions with peers play an important role in the adolescents' psychosocial adjustment and in the performance of new social roles (Tillfors, Persson, Willén, & Burk, 2012). Adolescents develop a progressive capacity to understand the complexity of social interactions, think about themselves as social objects, become aware of the importance of the impression they cause in others, and long for peer acceptance (Cunha & Salvador, 2000). If the novelty of events is interpreted as too threatening, it may evoke excessive social anxiety (SA) and elicit dysfunctional self-protective behaviors (Tillfors et al, 2012). This may lead to a decrease in peer acceptance and to an increase in peer victimization, interfering with the development and maintenance of close relationships (Tillfors et al., 2012). Thus, if excessive SA is present, it may impair adjustment and day-to-day functioning (Cunha & Salvador, 2000).

According to DSM-5 (APA, 2013), Social Anxiety Disorder (SAD) is characterized by a marked fear or anxiety about one or more social situations in which the individual is exposed to the possible scrutiny of others. The social situations almost always provoke out of proportion fear or anxiety and are avoided or endured with great difficulty, which accounts for the clinical significant distress or impairment. For example, to evade the perception of negative evaluation by others, individuals with SAD may avoid speaking to someone they don't know very well, expressing an opinion in a group, or speaking to the opposite sex or to an authority figure (Neal & Endelmann, 2003). As most of everyday life involves contact with others, SAD can be extremely disruptive, causing great distress in individuals, with impact on many areas of the individual's life (Neal & Endelmann, 2003).

## **Social Anxiety and Depression**

SAD and Major Depressive Disorder (MDD) are two of the most prevalent mental disorders (Kessler, Chiu, Demler, Merikangas, & Walters, 2005), with adolescence as the most probable period to develop both SAD and MDD (APA, 2013; Fergusson, Horwood, Ridder, & Beautrais, 2005). In fact, both disorders are highly comorbid conditions, both in adulthood (Kessler et al., 2005) and in adolescence (Chavira, Stein, Bailey & Stein, 2004; Ohayon & Schatzberg, 2010) and the comorbidity between SAD and MDD is associated with a marked risk for a more malignant course of depressive illness (Stein et al., 2001).

Furthermore, SAD is associated with an increased likelihood of lifetime MDD and the age of onset of SAD predates that of MDD, being important to notice that SAD during adolescence or young adulthood, is an important predictor (and a risk factor) of subsequent depressive disorders (Beesdo et al., 2007; Chavira et al., 2004; Stein, et al., 2001).

## Traumatic Shame Experiences

Shame is a multifaceted experience (Gilbert, 2002) that guides behavior and influences the way we see ourselves, being intrinsically associated with the relation between the self and the others (Tangney & Dearing, 2002).

Shame-proneness lies in early negative experiences of shame, abandonment, emotional control, harsh parenting styles (Gilbert & Gerlsma, 1999), emotional neglect and abuse (Gilbert & Gerlsma, 1999; Kuo et al., 2011), and repetitive experiences of shame, put-down, devaluation and rejection can lead to the development of internal models of the self as inferior, inadequate and vulnerable (Gilbert, 2003). Subsequently, these experiences of shame become foundations for self-beliefs, being present in the memory systems as emotionally textured experiences (Gilbert, 2003).

In line with this, Pinto-Gouveia and Matos (2011) found that shame experiences are recorded in autobiographical memory as powerful and distressing emotional memories. They become a central key to identity and emerge as crucial for the organization of autobiographical knowledge, being perceived as reference points to everyday inferences. These experiences reveal traumatic memory characteristics (intrusions, avoidance and hyperarousal), have an impact on shame in adulthood and amplify the impact of shame and depression (Matos & Pinto-Gouveia, 2010). When early shame experiences function as anchoring events and generate future expectations, they shape the individuals' negative perceptions of the way they believe they exist in the minds of others (Pinto-Gouveia & Matos, 2011), judging themselves as inferior, undesirable, defective, bad or inadequate (Matos & Pinto-Gouveia, 2010; Pinto-Gouveia & Matos, 2011).

## Traumatic Shame Experiences and Depression

Several recent studies have found that traumatic shame experiences (TSE) are related to depression: shame traumatic memories (with intrusion, hyperarousal and avoidance characteristics) moderate the impact of shame on depression (Matos & Pinto-Gouveia, 2010); the centrality of shame memories contributes to the prediction of depression, anxiety and stress (Pinto-Gouveia & Matos, 2011); shame traumatic memories from shame experiences with attachment figures (caregivers) have a direct effect on depression, predicting depression symptoms in adults (Matos, Pinto-Gouveia, & Costa, 2011); shame experiences with others are associated with depressive symptoms (Matos et al, 2011; Carvalho, Dinis, Pinto-Gouveia & Estanqueiro, 2014); traumatic shame memories with attachment figures have impact on shame and depression (Matos & Pinto-Gouveia, 2014); shame memories have impact on depression symptoms and their entanglement with painful internal experiences and/or the attempt to control them is pervasive (Dinis, Carvalho, Pinto-Gouveia, & Estanqueiro, 2015). Last but not the least,

shame memories predict greater depression in adolescents through feelings of shame (internal and external) (Cunha, Matos, Faria, & Zagalo, 2012).

### **Traumatic Shame Experiences and Social Anxiety**

In individuals with SAD, negative self-images are seen as true images of the self, linked with early socially traumatizing experiences in childhood (Hackmann, Clark, & McMannus, 2000) and are associated with higher anxiety levels, self-focused attention, negative appraisal of performance, negative self-cognitions and post-event processing (Makkar & Grisham, 2011). The specific memories of adverse social events (e.g., being mocked by peers, being harshly criticized, blushing) are associated with memories of negative impression of the self (Hackmann et al., 2000) and reinforce anxiety and avoidance behaviors (Kimbrel, 2008).

In fact, socially anxious individuals are particularly prone to interpret a variety of experiences as distressing or traumatic (Carleton et al., 2011) and their negative underlying assumptions can mediate the development of a general shame-prone style after trauma or can be related with shame in response to trauma-relevant stimuli (Platt & Freyd, 2012). These individuals demonstrate re-experiencing, avoidance and hyperarousal related to stressful events, with intensities that interfere with the processing of such events (Erwin, Heimberg, Marx, & Franklin, 2006).

Although research on traumatic shame memories linked with SAD in adolescents and adults is still scarce, it is important to notice that traumatic shame memories are associated with SA in adults, being regarded as central components of personal identity and life history and taken as reference points to give meaning to the past (Matos, Pinto-Gouveia, & Gilbert, 2012). These traumatic shame memories are related to beliefs that others see them negatively, as unattractive or socially undesirable, becoming internalized self-evaluations and feelings (Matos et al., 2012). Also, adolescents whose traumatic shame memories reveal traumatic characteristics and regard shame events as key to their identity and as turning points in their life history, tend to develop a sense of self as existing negatively in the eyes of others and in their own eyes (Cunha et al., 2012).

With this review in mind, this study aimed to ascertain the relationship between SA, the impact of TSE and depression, in a sample of adolescents from the general population and in a clinical sample of adolescents with SAD. It also aimed to explore the possible mediator role of the impact of TSE in the association between SA and depression in both samples.

## **Study I: The mediating role of the impact of *Traumatic Shame Experiences* in the association between *Social Anxiety* and *Depression* in a sample from the general population**

### **Method**

#### *Participants*

The sample from the general population was composed by 1018 adolescents aged between 14 and 18 years-old. The subjects that did not filled out all the items or showed difficulties in understanding their content, were excluded to avoid future statistical implications. This sample was composed mainly by girls ( $n = 582$ ; 57.2%). Adolescents mean age was 15.97 ( $SD = 1.20$ ) and the mean of school years was 10.44 ( $SD = .61$ ). Adolescents with medium socioeconomic level were the most prevalent (61.7%), Adolescents aged between 15 and 17 years-old constituted 76% of the sample and the ones in the 10th grade were the most prevalent (37.8%). The only statistically significant difference between girls and boys was found in the school years ( $t(2) = -2.904$ ;  $p = .004$ ), where girls had more years of education than boys although the effect size was considered small (Cohen, 1977).

#### *Measures*

A set of self-report questionnaires were selected to assess SA, the impact of TSE, and depressive symptoms.

The **Social Anxiety Scale for Adolescents** (SAS-A; La Greca & Lopez, 1998) has 22 items (including 4 *filler items*) and assesses social anxiety experiences and fear of negative evaluation in the adolescents' peer relationships. The answers are given in a 5-point *Likert* scale and higher scores correspond to higher social anxiety. This scale has three factors: (1) *Fear of Negative Evaluation* (FNE), (2) *Social Avoidance Specific to New Situations* (SAD-N) and, (3) *Social Avoidance and Distress in General* (SAD-G), with acceptable to very high internal consistencies and moderate to strong temporal stability (La Greca & Lopez, 1998). In the Portuguese study (Cunha, Pinto-Gouveia, Alegre & Salvador, 2004), the same factor structure was found, with acceptable to high internal consistencies, acceptable temporal stability and, satisfactory convergent and divergent validities. The cut-of-point of 55 allows the differential classification between adolescents with and without SAD. This scale is also sensible to the changes due to treatment (Salvador, 2009). In the present study, SAS-A's internal consistency was very high (.919).

The **Impact of Event Scale-Revised** (IES-R; Weiss & Marmar, 1997) has 22 items and assesses traumatic stress reactions and subjective suffering due to any specific life event. The answers are given in a 5-point *Likert* scale and high scores correspond to high traumatic symptomatology, expressed in the 3 subscales: (1) *Intrusion*; (2) *Avoidance*, and (3) *Hyperarousal*. This instrument has

acceptable to very high internal consistencies, moderate to very strong temporal stability (Weiss & Marmar, 1997) and high convergent validity. The Portuguese adolescent version (Zagalo, 2011) has an unidimensional structure, a very high internal consistency, a moderate temporal stability, and good convergent and divergent validities. In the present study, the internal consistency was very high (.933).

The **Children's Depression Inventory** (CDI; Kovacs, 1985) has 27 items, each with three possible answers, and assesses the presence of depressive symptoms in children and adolescents in the two previous weeks. Higher total scores correspond to higher depressive symptoms severity. Five factors were identified: (1) *Negative mood*, (2) *Interpersonal Problems*, (3) *Ineffectiveness*, (4) *Anhedonia* and (5) *Negative Self-esteem* (Kovacs, 1985) with an acceptable to good internal consistency and an acceptable temporal stability (Smucker, Craighead, & Green, 1986). The Portuguese studies (Marujo, 1994; Dias & Gonçalves, 1999) did not replicate the multidimensional structure found in the English version, pointing instead to a one factor structure with a high internal consistency. In this study, the internal consistency was high (.847).

### *Procedure*

Authorizations from the national ethical regulating bodies (CNPDP1, DGIDC2) and from eleven schools were obtained. Adolescents and parents informed consents were gathered, being highlighted the study's volunteer and confidential character.

A protocol with all the measures just described was administered in a classroom setting, including a brief socio-demographic questionnaire relevant to the sample description. Each protocol took around 30 minutes and was balanced to avoid answer contamination and fatigue effects.

## **General Analytic Strategy**

The interpretation of internal consistencies followed Pestana and Gageiro (2003) reference values: Cronbach's  $\alpha$  below .60 is considered unacceptable, between .61 and .70 weak, between .71 and .80 acceptable, between .81 and .90 high, and between .91 and 1 very high.

In order to test for significant differences between both genders for all the variables included in this study, we applied the *T-Student* test for age and school years, and the *Qui-square* test for socioeconomic status.

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<sup>1</sup>CNPDP-Comissão Nacional de Protecção de Dados

<sup>2</sup>DGIDC-Direcção Geral de Inovação e de Desenvolvimento Curricular



To test the associations between SA, impact of TSE and Depression, *Pearson* correlations were computed having Pestana and Gageiro (2003) values as reference: a correlation coefficient below .20 is considered very weak, between .21 and .39 weak, between .40 and .69 moderate, between .70 and .89 strong, and above .90 very strong.

As for the mediation process, we followed the four steps indicated by Baron and Kenny (1986): 1) simple regression analysis with SA predicting Depression (path c); 2) a simple regression analysis with SA predicting the impact of TSE (path a); 3) a simple regression analysis with the impact of TSE predicting Depression (path b); 4) a multiple regression analysis with SA and the impact of TSE predicting Depression (path c').

All the statistical analysis were performed using the SPSS3 (17.0 version for Windows).

## Results

### **Preliminary Analysis: Gender differences for *Social Anxiety, Impact of Traumatic Shame Experiences and Depression***

Significant differences were found for SA ( $t(1016) = -6.228, p = .000$ ), impact of TSE ( $t(1016) = -6.548, p = .000$ ) and depressive symptoms ( $t(1016) = -8.643, p = .000$ ) with girls scoring higher than boys in every measure. Therefore, gender was controlled in all following analysis.

### **Associations between *Social Anxiety, Impact of Traumatic Shame Experiences and Depression***

Partial *Pearson* correlations were computed between all variables, controlling for gender. SA showed a significant positive weak association with the impact of TSE ( $r = .36, p < .001$ ) and a significant positive moderate association with Depression ( $r = .54, p < .001$ ). A significant moderate association between the impact of TSE and Depression was also found ( $r = .46, p < .001$ ).

### **The mediating role of the impact of *Traumatic Shame Experiences* in the association between *Social Anxiety* and *Depression***

Gender was introduced in the first model of each regression to control the already tested gender effects in the variables under study. Gender was always a significant predictor, both for SA, accounting for 6,3% ( $R^2 = .063; F(1, 1016) = 67.962; p = .000$ ) of its variance, and for the impact of TSE, accounting for 4% ( $R^2 = .040; F(1, 1016) = 42.882; p = .000$ ) of its variance.

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<sup>3</sup>SPSS: *Statistical Package for the Social Sciences*

Regarding each step, in the first step (path c), both models were significant, with SA significantly predicting and accounting for 26.9% of Depression ( $\Delta R^2 = .269$ ;  $\Delta F(1, 1015) = 409.056$ ;  $p = .000$ ). In the second step (path a), the models were also significant and SA significantly predicted and accounted for 12.4% of the impact of TSE ( $\Delta R^2 = .124$ ;  $\Delta F(1, 1015) = 150.189$ ;  $p = .000$ ). As for the third step (path b) of the mediation process, the models were also significant and the impact of TSE significantly predicted and accounted for 19.5% of Depression ( $\Delta R^2 = .195$ ;  $\Delta F(1, 1015) = 266.029$ ;  $p = .000$ ) (Table 1).

**Table 1.** Linear Regression analysis: Independent effects of gender and Social Anxiety on Depression (path c); Independent effects of gender and Social Anxiety on TSE (path a); Independent effects of gender and the impact of TSE in Depression (path b).

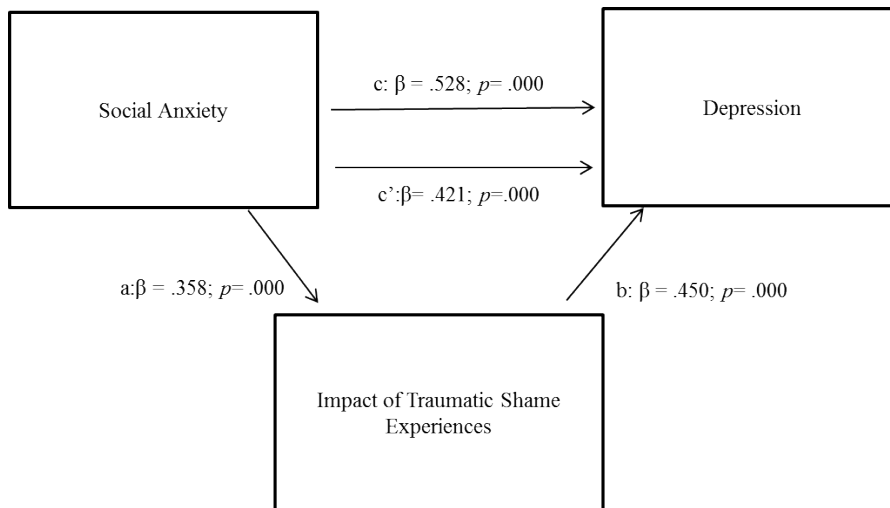
	Predictors	R	R <sup>2</sup>	B	$\beta$	F	t	p
Path c	Model 1	.250	.063			67.962		.000
	Gender			3.101	.250		8.244	.000
	Model 2	.576	.332			252.157		.000
	Gender			1.865	.151		5.766	.000
	SAS-A			.263	.528		20.225	.000
	Path a	Model 1	.201	.040			42.882	
Gender			6.972	.201			6.548	.000
Model 2	.405	.169			99.684		.000	
Gender			4.629	.134			4.573	.000
SAS-A			.498	.358			12.255	.000
Path b	Model 1	.250	.063			67.962		.000
	Gender			3.101	.250		8.244	.000
	Model 2	.507	.257			175.859		.000
	Gender			1.978	.160		5.785	.000
	IES-R			.161	.450		16.310	.000

Note: SAS-A= Social Anxiety Scale for Adolescents, IES-R= Impact of Event Scale-Revised

Last but not the least, in the fourth step (path c') we found that all the models were significant [Model 1:  $R^2 = .063$ ,  $F(1, 1016) = 67.962$ ,  $p = .000$ ; Model 2:  $R^2 = .332$ ,  $F(2, 1015) = 252.157$ ,  $p = .000$ ; Model 3:  $R^2 = .407$ ,  $F(2, 1014) = 231.525$ ,  $p = .000$ ]. SA and the impact of TSE significantly predicted Depression, accounting,

respectively for 26.9% ( $\Delta R^2 = .269$ ;  $\Delta F(1, 1015) = 409.056$ ;  $p = .000$ ) and 7.5% ( $\Delta R^2 = .075$ ;  $\Delta F(1, 1014) = 127.439$ ;  $p = .000$ ) of Depression. The effect of the impact of SA on Depression remained significant after the impact of TSE was introduced, which pointed to a *partial mediation* since both predictors still significantly predicted Depression, although the effect of SA has decreased (Image 1).

**Image 1:** The mediating role of the impact of TSE between Social Anxiety and Depression.



**Study II: The mediating role of the impact of Traumatic Shame Experiences in the association between Social Anxiety and Depression in adolescents with SAD**

**Method**

*Participants*

The sample was comprised of 47 adolescents with SAD, aged between 14 and 18 years-old. The same exclusion criteria used in the Study I were applied. Adolescents that were already in treatment were maintained in the sample, as long as they were at the beginning of the treatment and still maintained the diagnosis of SAD.

This sample was composed by 25 boys (53.2%) and 22 girls (46.8%). Adolescents mean age was 15.28 (SD = 1.02) and the mean of school years was 9.91 (SD = .78). Adolescents with medium socioeconomic level were the most prevalent (61.7%). Adolescents aged between 14 and 16 years-old constituted 89.3% of the clinical sample and the ones in the 10th grade were the most

prevalent (46.8%). There were no significant differences between boys and girls in age, school years and socioeconomic status.

### *Measures*

The measures used in study I were also used in study II. Their internal consistencies in this study ranged between high and very high: .905 for the SAS-A, .881 for the IES-R, and .832 for the CDI.

Only the **Anxiety Disorders Interview Schedule for DSM-IV, Child Version** (ADIS-IV-C; Silverman & Albano, 1996) was added to the protocol already described in Study I, to establish or rule out diagnosis.

The ADIS-IV-C is a semi-structured interview used to diagnose Anxiety Disorders and other possible disorders in childhood and adolescence, based on DSM-IV criteria. The interview takes from 60 to 120 minutes. "Yes" or "No" answers are given, depending on the symptom presence/absence. When answers like "don't know" or "sometimes" arise, additional explorations must be done to clarify the answer (Silverman, Saavedra & Pina, 2001). The problem's interference is explored and each interfering classification (above 4, in a scale from 0 to 8) is taken into account to verify if any DSM-IV-TR (APA, 2000) diagnosis applies. This interview has an excellent temporal reliability and accuracy for SAD Disorder and for Separation Anxiety Disorder and, good accuracy for SAD and Generalized Anxiety Disorder (Silverman et al., 2001). Good concurrent validity was found for SAD, Separation Anxiety and Panic Disorder Diagnosis (Wood, Piacentini, Bergman, McCracken, & Barrios, 2002). Rao et al. (2007) established the reliability between evaluators for SAD Disorder and symptom interference, as well as the concurrent validity in comparison to self-report scales and behavioral assessment. The Portuguese ADIS-IV-C was translated and adapted by Cunha and Salvador (2003) and the study of its psychometric properties found showed good concurrent and discriminant validities and high agreement between evaluators (Casanova & Salvador, 2013). This interview is sensible to changes due to treatment (Salvador, 2009).

### *Procedure*

A sample from the general population was obtained following the same procedure as in Study I. Then, a *screening* procedure was conducted to select adolescents with answers above the cut-off point in either the SAS-A or CDI. Researchers were blind to the reason why adolescents had been selected by the *screening* procedure, so that there were no bias during the interview with the ADIS-IV-C. The interviews took up to an hour and a half and allowed to diagnose the 47 adolescents with SAD that constituted the sample.

## General Analytic Strategy

The General Analytic Strategy was similar to the one conducted in Study I.

For the regression analysis involved in the mediation process, Stevens guideline (2002), in which a minimum of 15 subjects is required in order to conduct a multiple regression analysis was observed, given that we had two predictors in a sample of 47 subjects.

## Results

### **Preliminary Analysis: Gender differences for Social Anxiety, Impact of Traumatic Shame Experiences and Depression**

No significant differences in gender were found for SA ( $t(45) = -.935, p = .355$ ), impact of TSE ( $t(45) = -1.034, p = .307$ ) or Depressive Symptoms ( $t(45) = -.673, p = .504$ ).

### **Associations between Social Anxiety, Impact of Traumatic Shame Experiences and Depression**

Correlations showed that SA had a significant positive weak association with the impact of TSE ( $r = .36, p < .05$ ) and with Depression ( $r = .35, p < .05$ ). The correlation between the impact of TSE and Depression was moderate ( $r = .41, p < .01$ ).

### **The mediating role of the Impact of Traumatic Shame Experiences in the association between Social Anxiety and Depression**

Gender effects were not controlled given that there were no significant differences regarding gender in the variables under study.

In the first step (path c), the model was significant, with SA significantly predicting and accounting for 12.4% of Depression ( $R^2 = .124; F(1, 44) = 6.206; p = .017$ ). Fulfilling the second step (path a), the model was significant, with SA significantly predicting 12.9% of the impact of TSE ( $\Delta R^2 = .129; \Delta F(1, 45) = 6.692; p = .013$ ). In the third step of the mediation process (path b), the model was also significant, and the impact of TSE significantly predicted and accounted for 17.1% of Depression ( $\Delta R^2 = .171; \Delta F(1, 44) = 9.099; p = .004$ ) (Table 2).

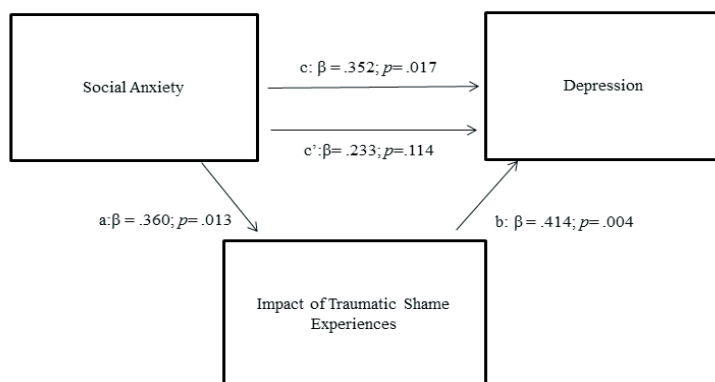
**Table 2.** Linear Regression analysis: Independent effects of Social Anxiety on Depression (path c); Independent effects of Social Anxiety in the impact of TSE (path a); Independent effects of the impact of TSE on Depression (path b).

	Predictors	R	R2	B	$\beta$	F	t	p
Path c	Model 1	.352	.124			6.206		.017
	SAS-A			.200	.352		2.491	.017
Path a	Model 1	.360	.129			6.692		.013
	SAS-A			.425	.360		2.587	.013
Path b	Model 1	.414	.171			9.099		.004
	IES-R			.202	.414		3.016	.004

Note: SAS-A= Social Anxiety Scale for Adolescents, IES-R= Impact of Event Scale-Revised

In the fourth step (path c') we found that all the models were significant [Model 1:  $R^2 = .124$ ,  $F(1, 44) = 6.206$ ,  $p = .017$ ; Model 2:  $R^2 = .219$ ,  $F(1, 43) = 6.019$ ,  $p = .005$ ]. SA significantly predicted Depression, accounting for 12.4% ( $\Delta R^2 = .124$ ;  $\Delta F(1, 44) = 6.206$ ;  $p = .017$ ) of it. When the impact of TSE was introduced, its effect on Depression was also significant, accounting for 9.5% of its variance ( $\Delta R^2 = .095$ ;  $\Delta F(1, 43) = 5.236$ ;  $p = .027$ ). Nonetheless, once the impact of TSE was introduced, the predictive effect of SA on Depression was no longer significant, indicating a *full mediation* of the impact of TSE in the relation between SA and Depression (Image 2).

**Image 2:** The mediation role of the impact of TSE between Social Anxiety and Depression.



## Discussion

Adolescence is a difficult developmental period with several physical and psychological changes and challenges. Social interactions play an important role in the adolescents' psychological adjustment and in the performance of new social roles (Tillfors et al., 2012) and, within these new social contexts, SA may impair their day-to-day functioning (Cunha & Salvador, 2000).

SAD and MDD are highly comorbid in adolescence (Chavira et al., 2004) and SA is associated with TSE in adults (Matos et al., 2012). However, studies in clinical and in non-clinical samples concerning SA, TSE and depression in adolescents are in fact scarce, if not inexistent. Therefore the present study aimed to ascertain the relationship between these variables and to explore the possible mediator role of the impact of TSE in the well-established association between SA and depression in two samples.

In the present studies we found that adolescents presented an association between the impact of TSE, SA and depression. The significant relationship found between the impact of TSE and SA, although weak in both samples, but almost reaching moderate magnitude, concurs with the association found by Matos et al (2012) in adults from the general population. In fact, socially anxious individuals present re-experiencing, avoidance and hyperarousal related to stressful events that interfere in the processing of such events (Erwin et al., 2006). Furthermore, Platt & Freyd (2012) found that these individuals' underlying assumptions can lie in the core of a general shame-prone style development after trauma.

Several recent studies found that TSE are associated with depression in adults (Matos & Pinto-Gouveia, 2010; Pinto-Gouveia & Matos, 2011; Matos, Pinto-Gouveia & Costa, 2011; Carvalho et al., 2014; Matos & Pinto-Gouveia, 2014; Dinis et al., 2015). In adolescents, Cunha and collaborators (2012), found that traumatic shame memories also predicted depression (through internal and external shame). In line with these findings, we found that the impact of TSE was associated and predicted depression in both our samples. Therefore, we can infer that, also in adolescents, shame experiences encoded in autobiographical memory as central keys to identity and with traumatic characteristics may have an impact on shame in future adulthood and amplify the impact of shame and depression, as Matos and Pinto-Gouveia (2010) found in their study.

Nonetheless, the IES-R assesses the impact of TSEs in terms of intrusions, hyperarousal and avoidance. Thus, another possible explanation for the low correlations found, similar to Matos Pinto-Gouveia and Gilbert (2012) findings with SA and TSE but against Cunha et al (2012) results where moderate to strong correlations were found between TSE and depression, might be that adolescents could have avoided schema activation while answering the self-report questionnaire, in order to avoid the intense emotionality linked to their experiences. Besides, the adolescents' answers might have been biased due to social desirability and since the IES-R asks to remember a specific shame event,

adolescents might have been unable to capture the essence of the impact of the TSE, to focus on specific shame experiences, to appraise accurately their experiences, and/or their selective memories might have contaminated the results. Adolescents could hence, have presented variability in the interpretation of what constitutes a traumatic experience or a selection of memories might have occurred. Having said this, we would recommend that this experience should be assessed by emotionally activating strategies instead of paper and pencil methods, in order to allow a more accurate assessment of traumatic shame experiences and their impact. Moreover, adolescents with SAD may also not be experiencing the impact of TSE in the way the IES-R assesses it (intrusions, hyperarousal and avoidance).

In line with the literature, we also found a significant association between SA and depression. Other studies support our results: adolescence is the most probable developmental stage to develop both SAD and MDD (APA, 2013; Ferguson et al., 2005) they are highly comorbid conditions in this period (Chavira et al., 2004) and this comorbidity is a strong risk for a more malignant course of Depression (Stein et al., 2001).

We also ascertained the role the impact of TSE in the well-established association between SA and depression in adolescents. In Study I, we found a partial mediation, and in Study II, we found a full mediation of the impact of TSE. On one hand, in the general sample, SA and the impact of TSE significantly predicted Depression and share the explanation of it (both variables remained significant predictors of depression). On the other hand, in the clinical sample, we found that once the impact of TSE was introduced, it was the only predictor, fully mediating the impact of SA on depression. Nevertheless, since the sample was not very big, we suggest these results should be interpreted with caution. One possible explanation for this mediational role of the impact of TSE is that not only SAD in adolescence is an important predictor (and risk factor) for subsequent depressive disorders (Beesdo et al., 2007; Chavira et al., 2004; Stein et al., 2001) but also that SAD may have this impact through TSE.

The findings presented here should be considered taking into account some methodological limitations. First, the sample was collected in the center region of Portugal. Therefore we cannot generalize the results obtained. Second, all analysis depended on cross-sectional data. Longitudinal studies would be better to further explore etiological/causal pathways. Third, the sample of adolescents with SAD was small and therefore might not reflect or allow a better results' comprehension.

Future research might profit from the use of non-self-report instruments such as structured interviews that allow a more insightful, accurate and comprehensive exploration of the impact of TSE. Moreover, it might also profit from the use of activating strategies to enhance the assessment of the traumatic characteristics of shame events and their impact.



Despite these limitations, this study is a contribution for the understanding of SA, TSE and Depression in adolescents, pointing to the importance of addressing the impact of TSE in the psychotherapeutic process of adolescents with SAD and depressive symptoms. Also, adolescents may profit from treatment protocols where both SA and depressive symptoms are addressed.

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