UNIVERSIDADE D COIMBRA

Joana Sá Ferreira

# Beyond Test Anxiety: Shame and Self-Compassion in the Relationship between Test Anxiety and Depression in Adolescents

**Dissertação no âmbito do Mestrado em Intervenções Cognitivo-Comportamentais em Psicologia Clínica e da Saúde, orientada pela Professora Doutora Maria do Céu Salvador, e apresentada à Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra.**

Julho de 2024

Faculdade de Psicologia e de Ciências da
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**Statement of integrity**

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

**Institutional framework**

The present dissertation was developed within the strategic project of the Center for Research in Neuropsychology and Cognitive-Behavioral Intervention (CINEICC; UIDB/00730/2020)

***To my grandmother.***

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Às minhas colegas de tese, obrigada por partilharem este ano comigo

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## Abstract

While there is a substantial body of literature on depression, the investigation into the relationship between test anxiety and depression remains limited, especially in adolescents. Nevertheless, research has shown that test anxiety is linked to the emergence of shame and depression. Furthermore, external shame, an emotion organized through social rank mentality, is associated with psychopathology, with studies showing a strong link to feelings of depression. Moreover, there is growing evidence that self-compassion is negatively associated with test anxiety, shame and depression. Since there were no prior studies addressing all these variables together, this was the aim of the present study, particularly to explore the effects of test anxiety on depression, through external shame and to determine whether this association would be moderated by levels of self-compassion. The sample consisted of 387 adolescents between 14 and 18 years old (M = 15.87; SD = 1.32). Results showed that test anxiety, external shame and depression correlated positively with each other and negatively with self-compassion. Self-compassion was a significant moderator in the relationship between test anxiety and depression and between test anxiety and external shame. External shame had a mediating role in the relationship between test anxiety and depression but only in low and medium levels of self-compassion (partial meditation). Our study points to clinical implications related to compassion-based interventions as approaches to work with adolescents with test anxiety, depression and high levels of shame.



*Keywords:* test anxiety; external shame; depression; self-compassion; adolescents

**Resumo**

Embora exista uma quantidade considerável de literatura sobre depressão, a investigação sobre a relação entre a ansiedade aos testes e a depressão é limitada, especialmente em adolescentes. No entanto, a investigação tem mostrado que a ansiedade aos testes está ligada ao desenvolvimento de vergonha e depressão. Além disso, a vergonha externa, uma emoção organizada através da mentalidade de hierarquia social, está associada à psicopatologia, com estudos a mostrarem uma forte ligação com sintomas depressivos. Ademais, existem crescentes evidências de que a autocompaixão está negativamente associada à ansiedade aos testes, vergonha e depressão. Uma vez que, não existiam estudos que relacionassem todas estas variáveis em conjunto, esse foi o objetivo do presente estudo, particularmente, explorar os efeitos da ansiedade aos testes na depressão, através da vergonha externa, e determinar se esta associação seria moderada pelos níveis de autocompaixão. A amostra foi constituída por 387 adolescentes entre os 14 e os 18 anos (M = 15,87; DP = 1,32). Os resultados mostraram que a ansiedade aos testes, a vergonha externa e a depressão se correlacionaram positivamente entre si e negativamente com a autocompaixão. A autocompaixão foi um moderador significativo na relação entre a ansiedade aos testes e a depressão e entre a ansiedade aos testes e a vergonha externa. A vergonha externa teve um papel mediador na relação entre a ansiedade aos testes e a depressão, mas apenas em níveis baixos e médios de autocompaixão (mediação parcial). O nosso estudo aponta para implicações clínicas relacionadas com intervenções baseadas na compaixão como abordagens para trabalhar com adolescentes que experienciam ansiedade aos testes, depressão e níveis elevados de vergonha.

*Palavras-chave:* ansiedade aos testes; vergonha externa; depressão; autocompaixão; adolescentes

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# Introduction

## Depression and Test Anxiety

The most common psychological problems of adolescence are depression and anxiety (Patton et al., 2014; Rapee et al., 2019). Depression varies in its presentation but, despite this variability, common symptoms of major depression include apathy, loss of energy and interest, anhedonia, and cognitive impairments (APA, 2013). Individuals with depression often perceive themselves as inferior, failures, or trapped, with a pessimistic outlook on the future (Abramson et al., 1989; Gilbert & Allan, 1998).

Depression is widespread among children and adolescents globally, with prevalence rates of major depression at 3.7%. Among adolescents aged 10–18 years, depression was significantly more common, compared to children under 10 years old, with a prevalence approximately four times higher (Lu et al., 2024). Depressive episodes during pre-adulthood frequently predict difficulties in relationships, academic and professional pursuits, poor quality of life, increased likelihood of both physical and mental health issues, along with recurring depressive episodes, and a higher risk of self-harm and suicide (Hawrilenko et al., 2021; Hetrick et al., 2021; Naicker, 2013).

Many factors could explain the observed increase in prevalence during post-puberty, attributed to adolescence's marked biological and social transformations. Among the frequently suggested factors are puberty itself, alongside brain and cognitive maturation (Cyranowski et al., 2000; Patton & Viner, 2007). They include improved social understanding and self-awareness, changes in brain circuits responsible for processing rewards and threats, and increased levels of reported stress (Blakemore, 2008; Nelson et al., 2005; Silberg et al., 1999).

Another important factor possibly contributing to the increasing occurrence of depression among children and adolescents is the increased academic pressure (Dong et al., 2023). Despite this potential link, research exploring the relationship between anxiety in school performance settings and depression in adolescents remains relatively scarce. However, some studies have highlighted an increased risk for subsequent depression among adolescents with hight test anxiety (Bashir et al., 2018; Januário, 2011; Putwain et al., 2021), with high-test-anxious adolescents reporting higher levels of depression and more hopelessness compared to low-test-anxious students (Warren et al., 1996). Such patterns are likely to persist into young adulthood, as evidenced by a study in which more than half of university students experiencing clinical levels of test anxiety were also diagnosed with depression (Herzer et al., 2014).

In fact, “we live in a test-conscious, test-giving culture in which the lives of people are in part determined by their test performance” (Sarason, 1959, p.26). Zeidner (1998), confirmed the same in the 1990s, highlighting how tests and evaluative situations provoked significant anxiety due to their pivotal role in determining individuals' academic and professional paths. In contemporary society, these statements, written such a long time ago, still hold true, given the multitude of ways tests shape people’s lives, it is therefore not surprising that the testing situations frequently trigger anxiety reactions (Schillinger et al., 2021).

The terms 'test anxiety,' 'exam stress,' or 'test stress' are often used interchangeably and refer to a set of psychological, physiological, and behavioural responses that accompany concerns about potential negative consequences or failure in exams (Zeidner, 1998). Test anxiety can be experienced before, during, and after examinations and other evaluative scenarios (Beidel & Turner, 1988). This anxiety comes with feelings of insecurity and concern, along with intrusive thoughts about possibly performing poorly and the repercussions this might have on others' perceptions and future outcomes (Zeidner, 1998).

Youth experiencing test anxiety face an increased likelihood of receiving poor grades, repeating a grade, and exhibiting lower performance in evaluative situations compared to their non-test-anxious counterparts, despite possessing comparable intellectual abilities (Beidel & Turner, 1988; Hembree, 1988; King et al., 2000). College students experiencing test anxiety not only report academic challenges but also describe struggling with poor mental health and psychosomatic symptoms (Depreeuw & DeNeve, 1992). Therefore, this type of anxiety is an important research and clinical theme, even more when research suggests that a significant percentage of students - between 15% to 22% - experience high levels of test anxiety (Putwain & Daly, 2014; Thomas et al., 2018).

## Depression and Test Anxiety from the perspective of the Evolutionary Model

Human survival relies on the way individuals interact with one another, which significantly impacts their well-being (Gilbert & Irons, 2009). Gilbert (1989) proposed the Theory of Social Mentalities, in which social mentalities serve as structured frameworks that transform cognitive, emotional, and behavioural patterns into coherent sequences, enabling individuals to adopt social roles to address diverse social challenges (Gilbert, 2000a, 2005a). The internal structure and cohesion of these mentalities are shaped during their developmental trajectories through interaction with the social environment (Gilbert, 2000a). Gilbert highlights one of the social mentalities known as social ranking. This mentality involves striving to be

valued by others, seeking status for social acceptance or control, and heightened sensitivity to social comparisons, often accompanied by fears of inadequacy or inferiority, and increased sensitivity to shame (Gilbert 2004, 2005a).

Shame is a complex and socially oriented emotion associated with threats to the (social) identity of the self and an automatic defensive response once a threat is detected (Gilbert, 2007; Tracy et al., 2007). It is organized through the social rank mentality, meaning it revolves around concepts of social standing, reputation, and relative attractiveness (Gilbert, 2002). It arises from our abilities to be aware of "how we exist for others" and make predictions of what they think and feel about us. Thus, shame is often defined as an experience linked to having deficits, failures, and flaws exposed, as well as a perception of low rank (Cheung et al., 2004; Lewis, 1992; Tangney & Dearing, 2002).

Gilbert distinguishes two dimensions of shame: internal and external. External shame refers to the fear of negative evaluation by others (e.g., inferior, incompetent) (Gilbert 2002, 2007). The attention and monitoring systems are externally directed, and focused primarily on what is going on in the minds of others (Gilbert, 2007), and behaviour might be directed towards trying to influence our image in the minds of others by appeasing or displaying qualities we hope will be appreciated (Matos et al., 2013). However, based on their relationships with others, humans also develop social relationships with themselves, recruiting some defensive strategies to this self-to-self relationship. In line with this, internal shame refers to a negative self-assessment centered on one's own mistakes and flaws, leading to feelings of inferiority and unacceptability (Gilbert & Procter, 2006).

Shame is a transdiagnostic process associated to psychopathology (Gilbert & Procter, 2006; Pinto-Gouveia et al., 2014). Evidence shows that key factors causing shame (e.g., social rejection, having a low-status position, and ongoing social conflict) are strongly linked to feelings of depression (Gruenewald et al., 2007; Kim et al., 2011). In fact, both shame and depression are seen as defensive strategies in situations of defeat, major social losses, and humiliations, such as rank losses (Brown et al., 1995; Gilbert et al., 1995; Sloman et al., 2003). They have similar attributional patterns that focus on an intractable and enduring "bad self", involving self-relevant negative evaluations, such as direct attacks on a person's self-esteem, events undermining a person's sense of rank, social attractiveness and value (Gilbert 1997; Gilbert et al., 1995; Kim et al., 2011).

Competitive atmospheres, particularly in academic examinations, can also trigger a rank-focused social mentality, leading to increased social comparison, concerns regarding inferiority, and rejection (Gilbert, 1989, 1992, 2005b), as well as heightened sensitivity to

others' opinions of oneself (Gilbert et al., 2009). This perception of inferiority or inadequacy and the belief that, compared to others, one is lacking in some way, increasing the likelihood of being overlooked or rejected, can evoke feelings of shame (Gilbert, 2000b). Indeed, research has shown a positive correlation between test anxiety and shame among adolescents and undergraduate students (Januário, 2011; Santos, 2020; Tang, 2019).

In conclusion, shame, especially external shame, is closely linked to the perception of lacking valued abilities or having characteristics that others disapprove of or do not value. In academic settings, such as tests, anticipating or following failing to achieve desired outcomes (i.e., high grades) can result in feelings of failure and subsequently foster perceptions of low rank in valued contexts. This perception of having already lost status can trigger submissive responses, such as depression (Callow et al., 2021; Gilbert, 2000b; Turner et al., 2002).

## Self-Compassion, Depression and Test Anxiety

In the face of negative or disturbing life events (e.g., experiences of failure, shame), self-compassion can be an effective and adaptive emotion regulation strategy (Neff, 2003a; Neff & McGehee, 2010). Compassion is a construct derived from Buddhism, which involves connecting with others' or one's suffering, not avoiding or disconnecting from it, and eliciting warm feelings and a desire to alleviate it (Gilbert, 2005a; Neff, 2003a, 2003b). When a compassion motivation and compassionate behaviours are directed toward oneself, it is referred to as self-compassion (Neff, 2003a).

According to Neff (2003a), self-compassion is a multifaceted construct that comprises three interconnected components: (i) Self-kindness, which is the ability to be gentle and understanding with oneself instead of adopting a critical and punitive stance (Self-judgment); (ii) Common Humanity, which involves perceiving one's own experiences as integral to a broader human experience rather than seeing them as separating and isolating (Isolation); and (iii) Mindfulness, which entails balanced awareness and acceptance of one's own feelings and discomforts without over-identifying with them (Overidentification).

Shame is activated by threat and inhibits the ability to generate feelings of self-directed warmth, soothing, reassurance, and self-liking (Gilbert, 2009). However, it might be possible to help shame-prone people create within themselves a focus for self-soothing and compassion (Gilbert & Procter, 2006). This could diminish the perception of threat because self-compassion activates feelings of safety, contentment, and connectedness, which help regulate elevated threat-oriented emotions, like shame, and effectively address shame-related issues

(Gilbert, 2009). In fact, researchers found self-compassion was strongly negatively correlated with shame (Figueiredo, 2016; Johnson & O'Brien, 2013; Xavier et al., 2016).

Several studies have found that self-compassion is positive and significantly associated with life satisfaction in adolescents (Bluth & Blanton, 2015; Neff & McGehee, 2010). Conversely, self-compassion has consistently been found to be negatively associated with depression (Lahtinen et al., 2020; Marsh et al., 2018) and test anxiety (Tang, 2019) in adolescents. A study by Neff and colleagues (2005) on self-compassion and academic failure showed that self-compassion is positively associated with mastery goals, intrinsic motivation, and adaptive coping strategies, while it is negatively associated with performance avoidance, also finding that self-compassion is positively linked to perceived competence and negatively linked to fear of failure, a common characteristic among students with test anxiety. Furthermore, self-compassion is associated with lower levels of anxiety and worry in academic settings (Williams et al., 2008).

## Aims

From the existent literature, only a few studies linked test anxiety with depression, test anxiety with shame, and shame with depression. Such studies are even scarcer with adolescent samples. From our knowledge, there are no studies investigating the relationship between test anxiety, external shame, depression, and self-compassion in adolescents, and this was therefore the main and general aim of the present study. Particularly, we aimed to investigate the effects of test anxiety on depression, through external shame and to determine whether this association would be moderated by levels of self-compassion.

In line with this, we expected positive, moderate and significant correlations between test anxiety, external shame, and depression, and negative, moderate and significant correlations of test anxiety, depression, and shame with self-compassion (H1). Furthermore, it was expected a moderated effect of self-compassion in every path of the mediation (H2). Finally, we expected that external shame would be a significant mediator in the association between test anxiety and depression in all levels of self-compassion (H3).

## Method

### Participants

To achieve the objectives of the present study a cross-sectional study was carried out,

using a sample of adolescents from the general population aged between 13 and 18. The sample was collected from seven schools in Basic Education (9th grade) and Secondary Education (10th to 12th grade), in the Centre region of Portugal. Exclusion criteria included: (i) ages below 13 and above 18 years; (ii) incomplete filling of the instruments; and (iii) evidence of randomness in questionnaire responses.

The final sample comprised 387 adolescents of which 218 female (56.3%) and 169 were male (43.7%), aged between 14 and 18 (*M* = 15.87; *SD* = 1.32). No statistically significant differences were found between gender and age ($t_{(385)}$ = 1.707; p = .089). Regarding education, the subjects were distributed between the 9th and 12th grades (*M* = 10.31; *SD* = 1.14), and the 9th grade was the most frequent year of schooling (31.9%). In terms of the socioeconomic level, most participants had a low socioeconomic level (58.9%), followed by the medium (34.4%), and the high (6.2%). There were statistically significant gender differences in terms of year of schooling ($t_{(384)}$ = 2.42; p = .016), however, the effect size revealed to be small (*d* = .25). Gender had no influence on the socioeconomic level ($\chi^2_{(3)}$ = 1.183; *p* = .757). The majority of the sample did not report any medical or psychological illness, with only 7.4% reporting to be receiving psychological counselling at the time of the filling.

**Measures**

Sociodemographic questionnaire: A sociodemographic overview questionnaire was used to obtain information about sex, age, year of schooling, and socioeconomic status. Furthermore, information was asked about health issues and having psychological counselling.

***Reactions to Tests***

The Reactions to Tests (RT; Portuguese version for adolescents by Vicente, 2011) is a self-report questionnaire designed to assess anxiety in test situations. The scale consists of 34 items (40 in the original version), divided into 4 factors: Worry (10 items), Tension (8 items), Test-Irrelevant Thinking (9 items) and Bodily Symptoms (7 items). Participants respond using a 4-point Likert scale, ranging from 1 ("Not Typical") to 4 ("Very Typical"). Higher scores indicate higher levels of anxiety. In the original study (Sarason, 1984), the RT demonstrated good internal consistency for the total score ($\alpha$ = .78) and for the sub-scales (between .68 and .81). In the Portuguese version for adolescents (Vincente, 2011), it exhibited excellent internal consistency (α = .93) as well as good temporal stability (*r* = .83). In this study, only the total score of the scale was used, which demonstrated excellent internal consistency. ($\alpha$ = .94).

### *Depression Anxiety Stress Scale - 21*

The Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995) is a self-report scale consisting of 21 items that assess three dimensions of psychological symptoms - depression, anxiety, and stress - each one composed by 7 items. Items are rated on a 4-point Likert scale (0 = "Did not apply to me at all"; 3 = "Applied to me very much or most of the time"). Higher scores indicate more negative affective states. The three scales showed good internal consistency in the original study, ranging from .84 to .91. The adaptation of the DASS-21 for Portuguese adolescents is still in preparation by Pires and Salvador. In the present study, only the subscale of depression was used, presenting an excellent internal consistency ($\alpha$ = .90).

### *Other As Shamer Scale – 2*

The Other as Shamer Scale – 2 (OAS2; Portuguese version for adolescents by Cunha et al., 2017) is a shortened version of the Other as Shamer Scale (Goss et al., 1994), developed by Matos and collaborators (2015). It is a scale that assesses external shame (i.e., a perception that the self exists in a negative way in the mind of others), using 8 items rated on a 5-point scale (0 = "Never"; 4 = "Almost always"). Higher overall scores suggest higher levels of external shame. The original version of the scale (Matos et al., 2015) demonstrated good internal consistency ($\alpha$ = .82), and the Portuguese version for adolescents (Cunha et al., 2017) also showed excellent internal consistency ($\alpha$ = .92) and good temporal stability ($r$ = .73). In this study, the scale revealed an excellent internal consistency for the total score ($\alpha$ = .93).

### *Self-Compassion Scale*

The Self-Compassion Scale (SCS; Portuguese version for adolescents by Cunha et al., 2013 – SCS-A) is a self-report scale designed to measure the three main components of self-compassion, as defined by Neff (2003a). This scale consists of 26 items divided into six subscales: Self-Kindness (5 items); Self-Judgment (5 items); Common Humanity (4 items); Isolation (4 items); Mindfulness (4 items); and Over-Identification (4 items). Participants are instructed to indicate how often they act as described in each item by using a Likert scale that ranges from 1 ("Almost never") to 5 ("Almost always"), in which a higher overall score is associated to a higher level of self-compassion. Regarding psychometric properties, both the original version of the scale (Neff, 2003a) and the Portuguese version for adolescents (Cunha et al., 2013) demonstrated an excellent internal consistency ($\alpha$ = .92 and $\alpha$ = .85, respectively) and temporal stability ($r$ = .93 and $r$ = .83, respectively). Only the total scale was used, with a good Cronbach's alpha ($\alpha$ = .89).

## Procedure

The present study utilized a database from a broader research project, entitled "Perfectionism and Test Anxiety in Adolescents: The Role of Self-Criticism and Self-Compassion". This main study was previously approved by the Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Coimbra, the National Data Protection Commission, and the Directorate-General for Innovation and Curriculum Development. The data were collected from various schools of the Centre region of Portugal. The Boards of these schools were previously contacted to obtain consent to carry out the sample collection. Additionally, as the sample comprised minors, authorization was obtained not only from the students but also from the students' legal guardians, providing both of them relevant information about the research. Students were also properly informed about the voluntary and confidential nature of their participation, thus ensuring the ethical principles of the research. The research protocol was implemented in the classroom, and its completion took approximately 20 minutes. To prevent the effects of response contamination, the order of the questionnaires was counterbalanced.

## Data Analysis

Statistical analysis was carried out using the IBM SPSS Statistics software (Statistical Package for the Social Sciences, version 27, SPSS Inc, Chicago II, USA) and the and PROCESS MACRO for SPSS (Hayes, 2022 – Model 59).

Adherence to normality was assessed using the Kolmogorov-Smirnov test, and deviations were examined though Skewness (*Sk*) and Kurtosis (*Ku*) of each variable, with values between -2 and 2 being considered reasonably normally distributed (George & Mallery, 2010). Outliers were analysed through the graphical representation of the results (boxplots) (Rousseeuw & Hubert, 2011).

Descriptive statistics were performed to analyse sociodemographic variables and variables under study. Gender differences in sociodemographic variables (age, year of schooling and socioeconomic status) were analyzed using t-tests for continuous variables and chi-square tests for categorical variables (Field, 2013). Gender differences for all the variables under study were explored using univariate analyses of variance (One-Way ANOVA). The interpretation of the Effect Size parameter was based on Cohen`s criteria (1988), according to which partial eta squared values from .01 to .06 are considered small, from .07 to .13 medium and above .14 are considered high.

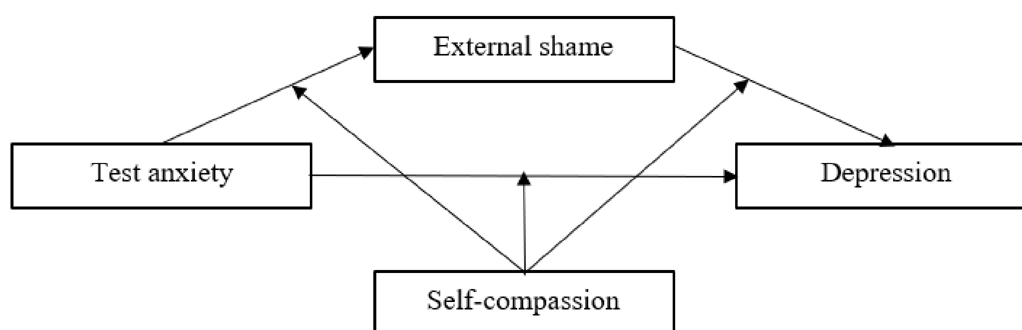
Internal consistency was assessed through Cronbach's alpha. According to George and Mallery (2019), values below .50 are considered unacceptable, from .50 to .59 are considered poor, from .60 to .69 are considered questionable, from .70 to .79 are considered sufficient, from .80 to .89 show good internal consistency, and .90 or above represent an excellent internal consistency.

Correlations were conducted using Pearson's parametric test, and their magnitudes were interpreted using the values suggested by Dancey and Reidy (2020). According to their guidelines, correlation coefficients below .30 represent a weak association, between .30 and .69 a moderate association, and above .70 a strong association.

A moderated-mediation model (Model 59 from Process; Hayes, 2022) was used. Test Anxiety was used as independent variable, depression as the dependent variable external shame as mediator, and self-compassion as moderator. The moderated-mediation effects were evaluated using a bootstrapping procedure with 10.000 resamples which creates a 95% bias-corrected and accelerated confidence intervals. The effects were considered significant ($p < .05$) if zero was not included within the lower and upper bounds of the confidence intervals.

**Figure 1**

*Conceptual diagram of the proposed model*




## Results

### Preliminary Data Analysis

The distribution of sample values was examined through the Kolmogorov-Smirnov test. Although the variables did not follow a normal distribution (K-S, $p < .001$), no severe violations to normal distribution of the variables were verified once normal values of kurtosis and skewness were found (-.26 to 1.21). Despite the presence of outliers, we chose not to remove them from the sample to preserve ecological validity (< 5%).

When gender differences were investigated, we found significant differences regarding most of our study variables (test anxiety, external shame, depression, and self- compassion). Female participants scored significantly higher on test anxiety, external shame and depression whereas male participants scored significantly higher on self-compassion. All significant differences revealed low partial eta square values, except for test anxiety, which had a hight partial eta square. For this reason, we decided to control for gender in our subsequent analyses, introducing it as a covariate (Figure 2). Table 1 presents a summary of gender differences.

**Figure 2**

*Conceptual diagram of the proposed model with Gender as covariate*

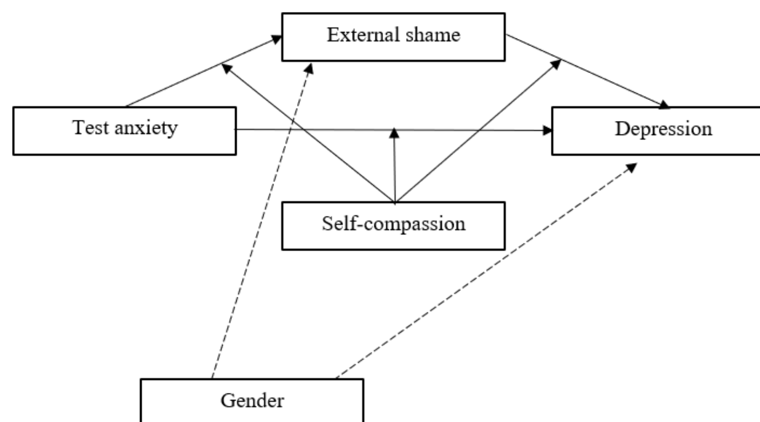



**Table 1.**
*Means, Standard Deviations, and One-Way Analyses of Variance in variables under study*

| | Female | | Male | | *F* | *p* | $\eta^2$ |
|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | | | |
| RT_T | 80.23 | 19.16 | 65.59 | 16.56 | 62.57 | .001 | .140 |
| OASB_T | 8.17 | 6.81 | 5.92 | 5.88 | 11.61 | .001 | .029 |
| DASS-21_Dep | 6.08 | 5.44 | 4.14 | 4.52 | 14.09 | .001 | .035 |
| SCS-A_T | 75.86 | 16.45 | 83.32 | 13.39 | 22.97 | .001 | .056 |

*Note*. RT_T = Total score of Reactions to Tests; OASB_T = Total score of Other as Shamer Scale – 2; DASS-21_DEP = Depression factor of the DASS-21; SCS-A_T = Total score of Self-Compassion Scale for Adolescents

**Correlations**

Bivariate associations were explored among study variables and are presented in Table 2. The correlation analysis revealed that associations between test anxiety, external shame and depression were positive, significant and moderate. Furthermore, all these variables were significantly and negatively associated to self-compassion.

**Table 2**
*Correlations between Study Variables*

| Variables | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. RT_T | 1 | | | |
| 2. OASB_T | .46** | 1 | . | . |
| 3. DASS-21_Dep | .54** | .66** | 1 | |
| 4. SCS-A_T | -.50** | -.55** | -.58** | 1 |

Note. * $p < .05$; ** $p < .01$
RT_T = Total score of Reactions to Tests; OASB_T = Total score of Other as Shamer Scale – 2; DASS-21_DEP = Depression factor of the DASS-21; SCS-A_T = Total score of Self-Compassion Scale for Adolescents

**The moderated mediation: Indirect effects of External Shame in the association between Text Anxiety and Depression, with Self-Compassion as moderator**

The moderating effect of Self-Compassion in all paths of the mediation of External Shame in the relationship between Test Anxiety and Depression was explored, using gender as a covariate (cf. Figure 2). Table 3 presents the results of our analysis, where Model 1 represents the prediction of External Shame and Model 2 represents the prediction of Depression.

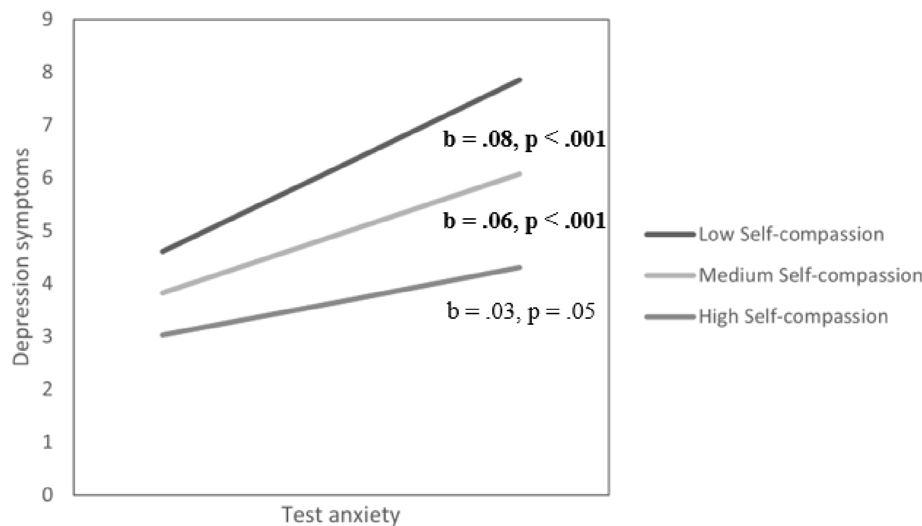
Considering the regressions, test anxiety significantly predicted external shame and depression, and external shame significantly predicted depression. Gender was not a significant predictor of external shame nor of depression. Regarding the moderation, self-compassion moderated the relationship between test anxiety and depression, as well as between test anxiety and external shame, at low and medium levels (see Figure 3 and Figure 4). Concerning the slopes, the relationship between test anxiety and depression, and between test anxiety and external shame were stronger at low self-compassion levels. In other words, self-compassion operated as a buffer between text anxiety and depression, and between test anxiety and external shame. That is, for the same levels of text anxiety, adolescents with higher self-compassion levels had lower levels of external shame and lower level of depression.

In the moderated mediation, significant indirect effects of external shame in the

relationship between test anxiety and depression were found in low and medium levels of the moderator, and direct effects were kept significant also only in low and medium levels of the moderator, statistically controlling for gender, meaning that, in these levels, the relationship between test anxiety and depression happens partially due to external shame. In other words, in high levels of self-compassion there was no direct nor indirect effects of test anxiety on depressive symptomatology. The coefficient, Se, [95 CI], and conditional indirect and direct effects are presented in Table 3.

**Figure 3**

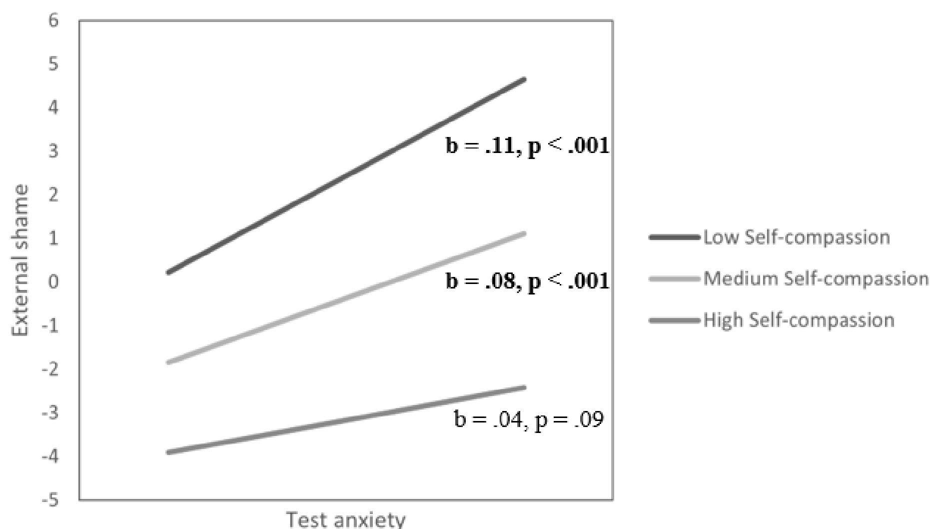
*The moderating role of Self-Compassion in the association between Test anxiety and Depressive symptoms*




*Note*. Significant effects in bold.

**Figure 4**

*The moderating role of Self-Compassion in the association between Test anxiety and External shame*




*Note*. Significant effects in bold.

**Table 3**
*Testing the moderated mediation effect of Test Anxiety on Depression considering Self-Compassion as a moderator and External Shame as a mediator, controlling for Gender*

| | Total score of Test Anxiety | | | | | |
|---|---|---|---|---|---|---|
| | Model 1 | | | Model 2 | | |
| Predictors | *B* | *SE* | 95%CI | *B* | *SE* | 95%CI |
| Test Anxiety (TA) | **.07** | **.02** | **[.04; .11]** | **.06** | **.01** | **[.04; .08]** |
| Self-Compassion (SC) | **-.18** | **.02** | **[-.22; -.14]** | **-.08** | **.06** | **[-.11; -.05]** |
| TA x SC | **-.002** | **.00** | **[-.00; -.00]** | **-.002** | **.00** | **[-.00; -.00]** |
| Gender | .28 | .58 | [-.86; 1.41] | .28 | .39 | [-.49; 1.04] |
| External Shame (ES) | | | | **.31** | **.04** | **[.24; .38]** |
| ES x SC | | | | -.00 | .002 | [-.005; .003] |
| $R^2$ | .36 | | | .55 | | |
| F | 54.8*** | | | 77.2*** | | |
| Conditional indirect effects | | | | | | |
| Low | | | | **.04** | **.01** | **[.02; .06]** |
| Medium | | | | **.02** | **.01** | **[.01; .04]** |
| High | | | | .01 | .01 | [-.00; .03] |
| Conditional direct effects | | | | | | |
| Low | | | | **.08** | **.01** | **[.06; .11]** |
| Medium | | | | **.06** | **.01** | **[.04; .08]** |
| High | | | | .03 | .02 | [-.00; .07] |

*Note:* Significant effects in bold.
Model 1 represents the prediction of External Shame, and Model 2 represents the prediction of Depression

## Discussion

All over the world people are judged by their skills, abilities and achievements, and such evaluations are primarily based on how they perform on tests (Rana & Mahmood, 2010). Previous research has shown that test anxiety is a common problem among adolescents and that higher levels of test anxiety are related to depression (Akinsola & Nwajei, 2013; Bashir et al., 2019; Torrano et al., 2020; Türk & Katmer, 2019). Furthermore, shame was found to be

correlated with test anxiety (Tang, 2019) and depression (Webb et al., 2007), while self-compassion was found to be negatively associated with test anxiety, depression and shame (Gilbert et al., 2011; O'Driscoll & McAleese, 2022; Sedighimornani et al., 2019).

Therefore, considering the limited number of studies on the relationship between test anxiety and depression, particularly for middle and high school students, and especially concerning clinical variables, we found it relevant to investigate the factors that might contribute to the development of depression in this population. Hence, this study's general aim was to investigate the mediating role of external shame in the association between test anxiety and depression, and the moderating effect of self-compassion on this mediation. The results demonstrated that self-compassion can help reduce the negative impact of test anxiety on depression symptoms and on external shame in adolescents. The relationship between test anxiety and depression symptoms was mediated by external shame, but only in adolescents with low and medium levels of self-compassion.

Regarding our study aims, and as hypothesized (H1) test anxiety, external shame and depression were positively and significantly associated with each other, and all these variables were significantly and negatively correlated with self-compassion. These results are in line with previous research showing that in today´s competitive world, the pressure for high achievement is increasing, as tests and exams play a crucial role in students' futures (Embse & Hasson, 2012; Schillinger et al., 2021; Sridevi, 2013). This pressure is a major cause of test anxiety and a risk factor for psychopathology in adolescents, with depression being a good example (Akinsola & Nwajei, 2013; Putwain et al., 2021; Warren et al., 1996). Furthermore, perceiving oneself as socially unattractive due to feelings of inferiority and failure, particularly when comparing one's grades to those of peers, can evoke feelings of shame (Januário, 2011; Gilbert, 2005b; Santos, 2020; Tang, 2019). This could happen due to high expectations from parents or teachers. If teachers and parents set extremely high expectations for achievement, students may feel less in control and have lower expectations of success, leading to shame and anxiety (Banks & Smyth, 2015; Putwain, 2009). Moreover, a moderate and positive significant correlation between external shame and depression was found. This result is plausible and in line with the evolutionary model of shame and depression. Shame indicates a dangerous state of social rejection that threatens our fundamental need to belong. Such threat can predict depressive symptoms as a defensive response to feeling inferiority to others, defeated and powerless (Gilbert et al., 2002; Gilbert & Allan, 1998; Cunha et al., 2016; Kim et al., 2011).

A moderate and significantly negative correlation between self-compassion and test anxiety was found. Self-compassionate individuals experience higher levels of perceived

competence and lower levels of anxiety and fear of failure. They approach failures with kindness and understanding rather than harsh self-criticism, which enables them to see failures as opportunities for learning rather than as reflections of their self-worth (Neff et al., 2005; O'Driscoll & McAleese, 2022). The correlation between shame and self-compassion was also found to be moderate, negative and significant. Shame is a self-conscious emotion that arises in instances of threats to the "social self", linked to having deficits, failure, and flaws exposed (Kim et al., 2011; Tangney & Dearing, 2002). On the other hand, self-compassion involves recognizing that suffering, failure, and imperfections are part of being human, and that everyone, including oneself, deserves compassion (Neff, 2003). Thus, the lower adolescents' self-compassion levels, more space is left to shame to arise, as they do not recognize their mistakes as acceptable and part of being human. These results are consistent with several studies that found negative associations between shame and self-compassion (Castilho et al., 2017; Ferreira et al., 2013; Sedighimornani et al., 2019; Woods & Proeve, 2014). Finally, the correlation between depression and self-compassion was significant, negative and moderate. These findings corroborate earlier research on the protective role of self-compassion in depression both in adolescents and in adults (Bluth et al., 2016; Raes, 2010; Steindl et al., 2021). This could be due to the depressive rumination, which is often a symptom of depression. Self-compassionate people may experience less negative affect (i.e., depression) following a negative event because they ruminate less or not at all, about their perceived failures and its possible negative implications (Allen & Knight, 2005; Leary et al., 2007).

Considering the moderated mediation, we hypothesized significant moderation in all paths of the mediation. This hypothesis (H2) was only partially confirmed. The results revealed that self-compassion moderated the path between test anxiety and depressive symptoms, but only at low and medium levels of self-compassion. That is, test anxiety is associated with increased depressive symptoms, and this positive association seems to be mitigated only by high levels of self-compassion. If self-compassion is below a certain level, meaning if self-compassion is not strong enough, it may keep self-condemning responses in depression (Dundas et al., 2016). At high levels of self-compassion, regardless of text anxiety levels, depressive symptoms stay low. The self-compassion elements of self-kindness and recognizing shared humanity may help reduce self-criticism and feelings of loneliness (difference and isolation) that are common during adolescence, thereby lowering the risk of depression in adolescents (Murphy et al., 2002). A few studies also found that self-compassion may have a buffer role on depressive symptoms in adolescents experiencing academic difficulties (Lahtinen et al., 2020) and self-condemnation responses (Dundas et al., 2016). Our results

reinforce the importance of developing self-compassion skills in adolescents with test anxiety.

As hypothesized, self-compassion also moderated the path between test anxiety and external shame but also only at low and medium levels of self-compassion. In other words, higher test anxiety associates with higher levels of external shame, but this relationship appears to be moderated by self-compassion. When self-compassion is high, external shame tends to remain low regardless of the level of test anxiety, which, once again, reinforces the importance of developing self-compassion skills in these students. By developing self-compassion skills, such as recognizing common humanity, adolescents come to see their failures as an inevitable part of being human. They are also more aware of their present moment experience of suffering but without becoming overidentified with it, and they learn to respond to failure with self-kindness, acceptance, and understanding, rather than with criticism (Bluth et al, 2016; Neff, 2003a). This approach contrasts with the negative self-focus of shame and the generalization of failure experiences (O'Driscoll & McAleese, 2022). The results align with previous research showing a buffering effect of self-compassion on external shame (Callow et al., 2021; Gilbert & Procter, 2006; Matos et al., 2017).

Unexpectedly, self-compassion did not moderate the relationship between external shame and depression. In other words, regardless of the level of self-compassion, the impact of external shame on depressive symptoms was not altered. This may imply that independently of how self-compassionate a person may be, if they perceive that others see them as inferior or incompetent (due to their performance in tests), depressive symptoms will follow. It is possible that in the presence of external shame, particularly related with being seen as inferior or inadequate due to possible lower achievement (what usually triggers test anxiety) may need additional factors to subside, such as being open to and receiving compassion from others, rather than relying solely on self-compassion. Further research is needed to explore this hypothesis.

Regarding the moderated mediation, external shame was a significant mediator in the association between test anxiety and depressive symptoms but again only in low and medium levels of self-compassion, with the total model explaining 55% of the depressive symptoms' variability. This result partially corroborates H3, suggesting that in adolescents with low and medium self-compassion, the association between test anxiety and depressive symptoms seems to happen partially through the presence of external shame. In other words, results showed that unless adolescents are highly compassionate with themselves, the relationship between feeling anxious about their potential failure in exams and depressive symptoms occurs through the fear of existing in a negative way the others' minds (external shame). This finding is consistent with

the literature that reports the association between shame and depression and considers shame a transdiagnostic emotion linked with psychopathology (Kim et al., 2011; Pinto-Gouveia et al., 2014). Although there is no literature specifically addressing the mediating effect of external shame in the relationship between test anxiety and depression, it has been found that social anxiety, which is characterized by the fear of being negatively evaluated and perceived as inferior by others, mediates the relationship between test anxiety and depression (Pires et al., 2022). Also, several studies have demonstrated the mediating role of external shame in the relationship between other related constructs and depression. These include the effects of experienced stigma (Wood & Irons, 2017), peer victimization in adolescents (Yaghoubi et al., 2021), and the centrality of shame memory in adolescents (Cunha et al., 2012). Furthermore, if adolescents have high levels of self-compassion, there is no relationship between test anxiety and depressive symptoms, and no indirect effects of external shame in the relationship. These results reinforce the positive role of self-compassion in adolescents (Bluth & Blanton, 2015; Marsh et al., 2018).

## Clinical Implications

Although using a non-clinical sample limits the ability to generalize the findings to clinical populations, test anxiety, external shame, depression, and self-compassion are processes and mechanisms that operate across both clinical and non-clinical settings. This allows us to draw some clinical implications from this study.

Test anxiety and external shame were identified as predictive factors for depression. Therefore, preventive interventions for depression should focus on addressing and mitigating test anxiety and external shame. Additionally, the significant role of external shame as a mediator in depression underscores the importance of integrating this concept into prevention and intervention programs for test anxiety.

In this sense, our study underscores the clinical benefits of implementing more compassion training programs for adolescent patients experiencing test anxiety, high levels of shame, and depression. Mindful Self-Compassion (MSC; Neff & Germer, 2013) is a training program designed for both clinical and nonclinical settings that teaches crucial mindfulness and self-compassion skills. MSC emphasizes the importance of acknowledging one's own suffering, fostering a desire to alleviate that suffering, and treating oneself with understanding and concern during painful experiences and difficult life situations, such as feelings of inadequacy or failure. Additionally, a program for adolescents, "Making Friends with

Yourself," has been developed based on the principles of MSC to help adolescents cultivate these essential skills (Bluth et al., 2015). Participants in MSC programs have shown reduced depression, anxiety, and stress, as well as increased self-compassion, mindfulness, compassion for others, and life satisfaction.

Gilbert and his colleagues have also developed Compassion-Focused Therapy (CFT; Gilbert, 2010) to specifically address issues of self-criticism and shame, as well as those who use competitive and social rank strategies. In developing the compassionate self, CFT proposes three flows or orientations of compassion: compassion from ourselves to others, compassion from others to ourselves, and compassion from self to self (Gilbert, 2009, 2019). Our results indicate that self-compassion alone may not be sufficient enough to moderate the relationship between external shame and depression. Exploring other dimensions of compassion may help to better moderate this relationship. In a pilot study, Compassionate Mind Training (CMT), a group therapy approach based on CFT (Gilbert & Irons, 2005), showed significant decreases in depression, self-attacking, shame, and feelings of inferiority (Gilbert & Procter, 2006). Unfortunately, from our knowledge, there is currently no adolescent version of this program. However, a specific contextual intervention program for adolescents with high levels of test anxiety and also includes compassion-focused contents is presently under way, with good feasibility and preliminary results (Pires et al., 2023).

In sum, developing self-compassion components seems to be crucial for adolescents experiencing test anxiety. Being kind and understanding towards oneself, acknowledging and being mindful of painful thoughts and emotions, and recognizing them as normal aspects of the human experience foster compassionate emotions and predict greater life satisfaction. Embracing perceived flaws or imperfections with compassion may counteract the detrimental effects of test anxiety on shame and on depressive symptoms.

**Limitations, contributions and future studies**

This study has several limitations. The sample included only adolescents from the central region of the country, which limits the generalizability of the findings. Additionally, since the sample was a community sample, it may not be representative of clinical populations, possibly preventing more robust results. Future research should replicate this study with clinical samples and larger, more diverse community samples to address these limitations. Another limitation is the study's cross-sectional design, which only allows for the identification of associations between variables, not causal relationships. Longitudinal studies are needed to

explore how these variables impact adolescents' mental health over time. Lastly, the study relied solely on self-report questionnaires, future research should incorporate structured interviews to provide a more comprehensive assessment.

Since compassion is not static and its flows can influence one another, relying solely on the 'self' to alleviate suffering may have limited effectiveness (Kirby et al., 2019). Future research should investigate the protective effects of experiencing feelings of being soothed by, safe with, and connected to others in the relationship between test anxiety and depressive symptoms in adolescents, as well as how receiving compassion from others can help buffer against depression.

Despite the limitations pointed out, this study contributes to the literature on adolescents by adding robustness and specificity to the research that associates test anxiety and depression in adolescents. It also highlights the role of external shame in this relationship and underscores the protective role of self-compassion.

## Conclusion

The aim of the present study was to explore the effects of test anxiety on depression through external shame, and to determine whether this association would be moderated by levels of self-compassion. Our results suggest that when adolescents exhibit low to medium levels of self-compassion, those with test anxiety may develop depression symptoms partially due to experiencing high levels of external shame (i.e., perceiving themselves as inferior in the eyes of others). However, when adolescents exhibit high levels of self-compassion, there is no direct effect between test anxiety and depression nor a mediating effect of external shame in this relationship. It was also found that the relationships between test anxiety and depression, as well as between test anxiety and external shame, may be moderated by high levels of self-compassion. These findings underscore the protective role of developing high levels of self-compassion in mitigating the relationship between test anxiety and depression, and highlights the crucial need for early intervention in adolescents with test anxiety. Overall, and since self-compassion is developed when one experiences others to be compassionate with one’s flaws and suffering, efforts must be made to foster a healthier compassionate climate around performance and competition in academic settings, thereby breaking the unhealthy competitiveness pattern that modern life seems to demand. Since this was the first study to approach these issues, more research is needed to further explore these findings.

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