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Maltreatment Experiences and Depression in Adolescents: The Moderating Effect of Psychosocial Functioning

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Abstract

Depression is a serious health problem among adolescents which may be associated with poor psychosocial functioning and may be a consequence of maltreatment experiences. The aims of this study are to explore the predictive effect of the occurrence of maltreatment and poor psychosocial functioning in depressive symptoms, and the moderating effect of psychosocial functioning in the relation between maltreatment experience and depressive symptomatology, that is underexplored in the literature. The sample consists of 432 adolescents (between 13-17 years, mostly female) who participated in a Portuguese study about prevention of adolescent depression (PTDC/MHC-PCL/4824/2012). Two self-report questionnaires were used: the *Childhood Trauma Questionnaire-Short Form* (CTQ-SF; Bernstein et al., 2003; Portuguese version: Matos & Pereira, 2012) to evaluate the maltreatment experience, and the *Children's Depression Inventory* (CDI; Kovacs, 1985; Portuguese version: Marujo, 1994) to measure the level of depressive symptomatology. To assess the psychosocial functioning of adolescents was applied the *Adolescent Longitudinal Interval Follow-Up Evaluation* (A-LIFE, Keller et al., 1993; Portuguese version: Matos & Costa, 2011). Results showed that the experience of emotional maltreatment and poor psychosocial functioning are predictors of depressive symptoms. The psychosocial functioning has a moderating effect on the relationship between emotional abuse experience and depressive symptoms. Adolescents with high scores of emotional abuse and a poor

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psychosocial functioning get higher levels of depression. These findings emphasize the importance of developing intervention strategies in the occurrence of emotional abuse, aimed particularly to improve the adolescent psychosocial functioning, in order to prevent or reduce the symptoms of depression.

Keywords: Psychosocial functioning; maltreatment; depressive symptomatology; adolescents.

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1. Introduction

Adolescence is a stage of development that involves hormonal, physical, cognitive, social and emotional changes (Alloy, Zhu, & Abramson, 2003; Rao & Chen, 2009), as well as an increase in responsibilities, which can lead to emotional or behavioral difficulties (Alloy et al., 2003). Among the emotional difficulties, mood disorders can arise which are one of the major causes of morbidity and mortality (World Health Organization, 2008).

Depression is a serious mental health problem which is prevalent, recurrent and incapacitating among adolescents (Costello et al., 2002; Kessler, Chiu, Demler, & Walters, 2005; Lewinsohn, Rohde, & Seeley, 1998). It is essentially characterized by a depressed or irritable mood in the case of children/adolescents and/or decreased interest or pleasure in activities (American Psychiatric Association, 2013). The first episode of Major Depressive Disorder (MDD) marks the beginning of recurrences, even after its remission or recovery, which may lead to several lifelong difficulties due to its debilitating and chronic character (Arnarson & Craighead, 2009; Lewinsohn, Rohde, Klein, & Seeley, 1999; Mueller et al., 1999), especially in an early onset (Costello et al., 2002).

It is at the end of adolescence, between the ages of 15 and 18 years old, that higher rates of mood disorders are found and where there is a greatest risk for the first episode to arise (Hankin et al., 1998). In adolescence, the prevalence rate per year goes from 4% to 7%, compared with 2% in childhood, taking into account the gender and age differences (Costello et al., 2002). Between the ages of 13 and 15 years old and till adulthood female become twice more likely to develop depression than males (Costello et al., 2002; Nolen-Hoeksema, 2001; Saluja et al., 2004).

Within the various risk factors that can trigger depression, experiences of maltreatment can be one of them. In adolescence, a period of life in which there should be a sense of reciprocity, connection, equality and a development of the self, experiences of maltreatment can be particularly compromising (Wekerle, Miller, Wolfe, & Spindel, 2006). These experiences may disrupt the normative development of the child or adolescent in an unpredictable way, triggering numerous physical, emotional, social, cognitive and behavioral consequences (Alberto, 2006; Wolfe, Rawana, & Chiodo, 2006), and even neurobiological changes (Wekerle et al., 2006).

Within the possible effects that experiences of maltreatment can have we can find mood instability, greater reactivity to external events and a greater difficulty in creating and maintaining affective ties (Wekerle et al., 2006). These consequences may cause an impact in several areas of adolescents' functioning, such as in interpersonal relations and in school (Harkness, Lumley, & Truss, 2008: Wise, 2006). These experiences are not defining but they are predictive of psychopathological symptoms throughout life, compromising a productive and satisfying life (Wekerle et al., 2006).

Maltreatments can be divided into five types: emotional abuse (verbal aggression, humiliation, depreciation or threats); physical abuse (bodily assaults with risk of resulting in injury); sexual abuse (contact or sexual behavior with coercion); emotional neglect (failure to provide basic emotional and psychological needs, such as love, belonging, nutrition and support) and physical neglect (failure to meet the basic physical needs, such as shelter, security, food and adequate

clothing). These acts are directed to the child from an adult or older person, for example, a caregiver (Bernstein et al., 1994; Bernstein et al., 2003). With exception of sexual abuse, caregivers are the main abusers (Wekerle et al., 2006). Physical abuse is sometimes the easiest one to identify due to physical evidence (Wise, 2006), while neglect is considered more difficult to identify, although it is a common condition, pervasive and chronic (Wekerle et al., 2006).

Depressive symptoms have been associated with experience of maltreatment in childhood. Adolescents with a history of maltreatment report between two to four times greater propensity to be depressed during adolescence and early adulthood than those who do not have these backgrounds (Brown, Cohen, Johnson, & Smailes, 1999; Wekerle et al., 2006; Widom, DuMont, & Czaja, 2007). Therefore, occurrence of maltreatment in childhood becomes a high risk factor for the development of recurrent and persistent depressive episodes (Kaplan et al., 1998; Kim & Ciccheti, 2006; MacMillan et al., 2001; Nanni, Uher, & Danese, 2012; Widom et al., 2007).

As emotional abuse provides explicitly negative information to the victim being a direct attack to his/her self-esteem, it has often been considered the most important type of abuse, which leads mainly to the development of internalizing problems (McGee, Wolfe, & Wilson, 1997; Rose & Abramson, 1992), for example, depression (Kim & Cicchetti, 2006). However, according to Kaufman (1991), it is the physical abuse that is associated with higher levels of depressive symptomatology. Sexual abuse is also a risk factor for the development of depression (Buzi, Weinman, & Smith, 2007), however, there are controversial results in relation to this abuse (e.g. Widom et al., in 2007, did not find a significant association between the two variables).

Since effects of maltreatment experience in the development of the subjects are well documented, it is important to investigate psychological and biological mediators and moderators present in the relationship between the occurrence of maltreatment and depression, in order to better understand the mechanisms by which these experiences lead to different trajectories, as well as which variables can influence this relationship (Cicchetti & Toth, 2005). Thus, it will be relevant to analyze the moderating effect of psychosocial functioning (PF) on depressive symptomatology. PF is a term that is similar to the concept of competence, and refers to successfully achieving the expected tasks in the development of the individual, taking into account their age and cultural context (Masten & Coatsworth, 1995).

Kaufman et al. (2004), in a sample of 101 children aged from 5 to 15 years old (57 with a history of abuse and the others as a control group), found that even in the presence of a genotype that can confer vulnerability to depression in abused children, quality and availability of social support were environmental factors predictors of resilience. According to Thoth and Cicchetti (1996), based on a sample of 92 children aged between 8 and 12 years old (52 with experiences of abuse and the other as a control group), abused children with negative patterns of relationship with their mothers, presented a higher level of depressive symptomatology than abused children with a positive relationship with their mothers.

Although genetic and biological factors may be implicated in adolescent depression, Lewinsohn et al. (1998), in a longitudinal study of approximately one year, integrated in Oregon Adolescent Depression Project (OADP), with a sample of 1.709 adolescents from the community aged from 14 to 18 years old, showed that psychosocial factors contribute equally and significantly to the etiology of depression in adolescents. In that study, 19.4% of participants with invalidation in PF and 7.3% without invalidation developed MDD. In the study of Goldstein et al. (2009) with 446 subjects aged between 7 and 17, diagnosed with Bipolar Disorder, an increase in psychosocial invalidation was related to an increase in the severity of depressive symptoms. Then, a poor PF can be considered as a risk factor for the onset of depression as well as for its maintenance (Goldstein et al., 2009;

Lewinsohn et al., 1998). On the contrary, a decrease of depressive symptoms correlates with a growing improvement in PF (Vitiello et al., 2011).

Studies show that the presence of depressive symptomatology predicts greater psychosocial invalidation, for example in school/work area, on social and family area, on the investment in recreational activities, on a low satisfaction with life and on a more negative perception of current health (e.g. Coryell et al., 1993; Costa, 2011; Field, Diego, & Sanders, 2001; Goldstein et al., 2009; Hirschfeld et al., 2002; Lewinsohn, Rohde, Seeley, Klein, & Gotlib, 2003; Weissman et al., 1999; Wells et al., 1989).

Even children in risk of depression, and not only children with severe depressive symptomatology, present invalidation in PF, although not so high, according to the study of McCabe, Ricciardelli and Banfield (2011) conducted with a sample of 510 children from 7 to 13 years old. Melvin et al. (2013), in a study of 3 to 9 years of follow-up with 140 teenagers (with a mean age of 15) with Depressive Disorder (Major, Dysthymia or Not Otherwise Specified), found that adolescents who suffer from depression are at high risk of psychosocial invalidation. Puig-Antich et al. (1993) with a sample of 62 adolescents with MDD and 38 without psychiatric history, found out that adolescents with episode of MDD (mean age of 15) with psychosocial dysfunction in multiple domains (e.g. school performance and interpersonal relations), when dysfunction in the relationship with the parents was present, the risk of dysfunction in the relationship with peers and school performance increased.

Studies with LIFE (Longitudinal Interval Follow-up Evaluation) allowed to corroborate these results. Judd et al. (2000) and Judd et al. (2008), with samples composed of adults with MDD, found that depression was associated with a poor or very poor psychosocial invalidation.

Regarding the relationship between PF and socio-demographic variables, such as age and gender, two Portuguese investigations using A-LIFE (Adolescent Longitudinal Interval Follow-Up Evaluation) with clinical samples, though of small size, found no significant relationships between the total score of PF and age (Costa, 2011; Martins, 2014). Also no differences were found regarding gender (Costa, 2011; Goldstein et al., 2009; Martins, 2014).

Having into account the literary review performed, this research aims to analyze: 1) the relationship between the occurrence of maltreatment and depressive symptomatology; 2) the relationship between psychosocial functioning and depressive symptomatology; 3) the moderating effect of psychosocial functioning on the relationship between the experience of maltreatment and depressive symptoms, in a sample of Portuguese adolescents.

2. Methods

2.1. Participants

The sample consists of 432 adolescents from the general population who attend school from the 8th to the 12th grade ($M = 9.34$, $SD = .58$). Of the total sample, 283 are females (65.5%) and 149 male (34.5%), between the ages of 13 and 17 years old ($M = 14.59$, $SD = .80$). Most of the participants belong to the central region of the country (93.8%) and the rest to the northern region. All subjects belong to a wider research project about prevention of adolescent depression (PTDC/MHC-PC L/4824/2012) in which the present study is integrated.

2.2. Procedure

First, the research project was authorized by the entities that govern research in Portugal. In schools that approved this research, students were elucidated about the goals and procedures of the

study, its voluntary participation and the confidentiality of the data, which was intended solely to research. The adolescents who were willing to participate filled an informed consent, as well as their respective parent.

The application of the self-report measures was held in a classroom context in the presence of researchers. The interview was administered individually in an appropriate, calm and comfortable space.

2.3. Measures

Children's Depression Inventory (CDI; Kovacs, 1985; Portuguese version: Marujo, 1994). The CDI is a self-report instrument that evaluates depressive symptomatology in children and adolescents, aged from 7 to 17. It consists of 27 items, scored from 0 to 2, in which higher values correspond to more severe symptoms. Items feature three response possibilities and the individual must indicate the one that best describes how he felt in the past two weeks. Total score is achieved by summing the scores of each item, ranging from 0 to 54 points (Dias & Gonçalves, 1999; Kovacs, 1985). In the original version of the scale, Kovacs (1985) demonstrated good psychometric qualities of the instrument, in terms of internal consistency with Cronbach's alphas (α) between .83 and .94 and in terms of test-retest reliability. In the Portuguese version, Marujo (1994) and later Dias and Gonçalves (1999), found a unifatorial structure with a Cronbach's alpha of .80. In the present investigation an alpha of .90 was found for the total score of the CDI, revealing good internal consistency.

Childhood Trauma Questionnaire-Short Form (CTQ-SF; Bernstein et al., 2003; Portuguese version: Matos & Pereira, 2012). The CTQ-SF is a brief self-report instrument, destined to adolescents (from 12 years old) and adults belonging to clinical or non-clinical populations. Through 25 items, it evaluates five types of traumatic experiences of maltreatment in childhood (with 5 items each): emotional abuse; physical abuse; sexual abuse; emotional neglect and physical neglect. There are also 3 additional items that intend to assess the trend of denial or minimization of experiences of maltreatment. The score for each subscale (5 to 25 points) is obtained by the sum of the corresponding items, using a Likert scale of 1 to 5, with options from 1-*"Never true"* to 5-*"Very often true"*, which reflect the frequency of abuses (Bernstein et al., 1994; Bernstein et al., 2003; Dias et al., 2013). In the short original version, the CTQ-SF obtained good results in convergent and divergent validity, temporal stability and internal consistency (α = .61 to .95) (Bernstein et al., 2003). In a study with Portuguese population of Dias et al. (2013), validity characteristics were found acceptable, with an internal consistency of .79 to .71 (with the exception of the physical neglect subscale which obtained a α = .47). In this study, Cronbach's alpha demonstrated good internal consistency for emotional abuse (α = .82), sexual abuse (α = .89) and emotional neglect (α = .86). Physical abuse (α = .76) presented a reasonable internal consistency, while physical neglect was excluded from our analysis due to its unacceptable internal consistency (α = .49).

Adolescent Longitudinal Interval Follow-Up Evaluation (A-LIFE; Keller et al., 1993; Portuguese version: Matos & Costa, 2011). The A-LIFE, a semi-structured interview for adolescents was developed from a clinical interview for adults - LIFE (Longitudinal Interval Follow-up Evaluation, Keller et al., 1987). The main objective is not diagnosis but the assessment of psychopathological symptoms and their severity in a follow-up period of usually 6 months. This investigation focused on the section of the PF which assesses four areas of functioning: 1) school performance; 2) interpersonal relationships with the family (parents, siblings, stepfather/stepmother, boyfriend/girlfriend and other significant family members); 3) interpersonal relationships with friends; 4) recreational activities. These are classified according to the subject's

usual degree of social adjustment through a scale of 1 to 5 points from 1-"*very good*" to 5-"*very poor, severe invalidation*". This score is assigned to each month of the 6 months preceding the interview (Costa, 2011; Keller et al., 1987). In this study, the total score of each dimension was determined by the means of the functioning during the evaluation period. The total value of PF was calculated by summing the scores of each dimension and dividing it by the number of dimensions.

According to the study of Keller et al. (1987) correlation coefficients were found between the items of the PF (.52 to .98) as well as very high inter-evaluator reliability on most measures of PF and psychopathology in LIFE.

2.4. Analytical Strategy

Data analysis was conducted using the *Statistical Package for Social Sciences* (SPSS, version 22.0 for Windows).

To explore gender differences in the variables under study, Student's *t*-tests for independent samples were performed. To examine the associations between the variables maltreatment, PF (total) and depressive symptomatology, Pearson correlation analyses were conducted, interpreted by Pestana and Gageiro (2008), where: *r* less that .20 – very low correlation; between .20 and .39 – low correlation; between .40 and .69 –moderate correlation; between .70 e .89 – high correlation and between .90 and 1 – very high correlation.

To investigate the predictor effect of types of maltreatment and PF (total) on depressive symptoms in adolescence, regression coefficients were analyzed, obtained through multiple linear regression models (after verifying respective assumptions).

The moderating effect of PF on the relationship between each type of maltreatment and depressive symptoms in adolescents, was analyzed using hierarchical multiple regressions. According to Baron and Kenny (1986), there is no moderation when the nature of the relationship between a dependent variable and an independent variable is affected in direction or strength, in the presence of a third moderator variable.

Before carrying out the analysis of moderation the values of the predictor variables (CTQ-SF factors) and the moderator variable (PF) were standardized to reduce potential multicollinearity problems and so that interpretation of intercepts of the model was more simplified (Marôco, 2010). In this way, variables were adapted to a mean value of 0 and a standard deviation of 1. Then, variables that corresponded to the multiplicative term between the independent variable (CTQ-SF factors) and the moderator variable (PF total) were created.

Later, multiple hierarchical regressions were performed for CTQ-SF factors that were previously predictors of depressive symptomatology (emotional abuse and emotional neglect). At first, depressive symptomatology was inserted as a dependent variable; secondly each CTQ-SF factor (standardized) was introduced as a predictor; thirdly, PF total (standardized) was entered as a moderator variable; and fourthly, the interaction term (standardized) between these two latter variables was inserted. There is an effect of moderation if the interaction is significant ($p <. 05$).

Finally, the statistically significant moderating effect found was graphically represented in SPSS.

3. Results

3.1. Preliminary analysis

Based on the Kolmogorov-Smirnov test it is possible to observe that the variables under study do not have a normal distribution (*K-S*, $p \leq .001$). However, the measures of symmetry (Skewness)

and flattening (Kurtosis) do not reveal severe violations to the normality of the distribution, in the extent that values of sk < |3| and ku < |10| are considered acceptable (Kline, 2011).

To ensure the adequacy of the data to multiple hierarchical regression analysis, preliminary analyses were performed where no problems of multicollinearity were found among variables [tolerance values >.10 and Variance Inflation Values (VIF) <10], homoscedasticity, linearity, normality of residuals, autocorrelation and independence of errors (Durbin-Watson). In relation to the presence of outliers, no values of Cook's Distance > 1 were found (Pestana & Gageiro, 2008). Thus, the adequacy of data for regression analyses was ensured.

3.2. Descriptive analysis

Means and standard deviations for the sample are represented in table 1.

Table 1. Cronbach's alphas (α); Means (M) and Standard Deviations (SD) for the total sample (N = 432) and for both genders, with student's t-tests for gender differences

Measures	α	Total sample $(N = 432)$		Female $(n = 265)$		Male $(n=143)$		t	P
		M	SD	M	SD	M	SD		
Depressive symptoms (CDI)	.90	9.84	7.13	11.16	7.62	7.34	5.26	-6.10	.00
Emotional abuse (CTQ-SF)	.82	6.31	2.65	6.43	2.59	6.09	2.76	-1.28	.20
Physical abuse (CTQ-SF)	.76	5.31	1.17	5.27	1.04	5.38	1.38	.89	.37
Sexual abuse (CTQ-SF)	.89	5.23	1.48	5.20	1.10	5.28	2.02	.58	.56
Emotional neglect (CTQ-SF)	.86	8.29	3.86	8.25	3.90	8.35	3.81	.24	.81
Total PF (A-LIFE)	-	1.68	.47	1.69	.49	1.65	.43	-.81	.42

Note. α = Cronbach's alpha; M= Mean; SP = Standard Deviation; CDI = Children's Depression Inventory; CTQ-SF = Childhood Trauma Questionnaire-Short Form; Total PF (A-LIFE) = Total Psychosocial Functioning (Adolescent - Longitudinal Interval Follow-up Evaluation), where lower scores correspond to better functioning.

3.3. Gender differences in depressive symptoms in maltreatment and psychosocial functioning

Student's *t*-tests for independent samples were conducted, in order to study possible gender differences (cf. Table 1). Results showed that there are significant differences for the total of the CDI, $t_{(400)}$ = -6.10, p<.001. Females presented higher values (*M* = 11.16, *SD* = 7.62) than males (*M* = 7.34, *SD* = 5.26). In CTQ-SF factors and PF (total) no differences were found, thus, no control of the variable gender was made in later analysis.

3.4. Study of the correlation between variables

With Pearson's correlation analysis the relationship between the variables in study was examined (cf. Table 2). Pearson correlation coefficients showed that emotional abuse (*r* = .38, *p*<.001) and emotional neglect (*r* = .37, *p*<.001) correlate significantly with the depressive symptomatology (CDI), though the correlation is low. Physical abuse (*r* = .20, *p*<.001) obtained a significant low correlation and sexual abuse a non-significant correlation (*r* = .04, *p*>.05), being excluded from further analysis. PF (total) obtained a significantly positive and low correlation (*r* = .28, *p*<.001) with depressive symptoms, i.e., high scores in PF, which correspond to poor PF, lead to higher levels of depressive symptomatology. With the CTQ-SF factors, the PF (total) obtained significant but very low correlations (Pestana & Gageiro, 2008).

All variables correlated positively with depressive symptomatology.

Table 2. Pearson correlations between CDI, CTQ-SF factors and Total PF (A-LIFE) ($N = 432$)

Measures	1.	2.	3.	4.	5.	6.
1. Depressive symptoms (CDI)	-					
2. Emotional abuse (CTQ-SF)	.38***	-				
3. Physical abuse (CTQ-SF)	.20***	.46***	-			
4. Sexual abuse (CTQ-SF)	.04	.37***	.49***	-		
5. Emotional neglect (CTQ-SF)	.37***	.47***	.19***	.09	-	
6. Total PF (A-LIFE)	.28***	.15***	.12*	.10*	.17***	-

*Note. *$*p \le .05$*, ***$*p \le .001$*; CDI = Children's Depression Inventory; CTQ-SF = Childhood Trauma Questionnaire-Short Form; Total PF (A-LIFE) = Total Psychosocial Functioning (Adolescent - Longitudinal Interval Follow-up Evaluation).*

3.5. Analyses of prediction effects

In order to better understand if CTQ-SF factors, which exhibited significant correlations with the CDI (emotional abuse, physical abuse and emotional neglect) and if PF (total) are predictors of depressive symptomatology, multiple regression analyses were performed (enter method).

Results showed that the CTQ-SF factors produce a significant model ($R^2 = .191$; $F_{(3, 428)} = 33.682$, $p<.001$) that explains 18.5% of the variance in depressive symptomatology. Emotional neglect appears as the best predictor of depressive symptomatology ($\beta = .245$, $p<.001$), followed by emotional abuse ($\beta = .246$, $p<.001$). Both contribute significantly and independently to the prediction of depression. Physical abuse was not a predictor of depressive symptomatology ($\beta = .037$, $p=.446$). It should be noted that the effects found are positive, indicating that more experiences of maltreatment are associated with higher levels of depressive symptomatology.

The PF (total) produced a significant model ($R^2 = .076$; $F_{(1, 430)} = 35.407$, $p<.001$), explaining 7.4% of the variance in depressive symptomatology and proved to be a predictor of this depressive symptomatology ($\beta = .276$, p $<.001$).

3.6. The moderating effect of psychosocial functioning in the relationship between the experience of maltreatment and depressive symptoms

Taking into account previous results, PF (total) was examined as a moderator of the relationship between experience of abuse and depressive symptomatology, in the CTQ-SF factors that emerged as significant predictors of depressive symptoms (emotional abuse and emotional neglect), through multiple hierarchical linear regressions.

No significant interaction effect was found for emotional neglect ($\beta = -.051$, $p=.244$). However, the interaction of emotional abuse with PF (total) revealed a significant effect ($\beta = -.105$, $p=.025$). Both isolated variables are also predictors of depressive symptomatology (emotional abuse: $\beta = .379$, $p<.001$, psychosocial functioning: $\beta = .223$, $p<.001$) (cf. Table 3).

Table 3. Regression coefficients for the three steps of the hierarchical multiple regression with emotional abuse (CTQ), psychosocial functioning (A-LIFE) and interaction term ($N = 432$)

| Model	Predictors	*β*	*t*	*p*
1	Emotional abuse	.379	8.493	.000
2	Emotional abuse	.345	7.845	.000
	Total PF	.223	5.067	.000
3	Emotional abuse	.380	8.179	.000
	Total PF	.232	5.285	.000
	Emotional abuse * Total PF	-.105	-2.255	.025

These variables originated statistically significant models in the two previous steps (cf. Table 4): step 1: R^2 = .144, $F_{(1,430)}$ = 72.129, p<.001; step 2: R^2 =.192, $F_{(2,429)}$ = 50.972, p<.001. In the third step, the interaction term was inserted, which also originated a statistically significant model and a significant increase in R^2 (R^2 = .201, $F_{(3,428)}$ = 36.000, p<.001), that is, an increase in the variability explained in relation to depressive symptomatology. The interaction term explained 20.1% of this variance. This statistically significant coefficient of the interaction term indicates that the slope that predicts changes in depressive symptomatology according to the level of emotional abuse, differs significantly depending on low or high PF (total).

Table 4. Model of the three steps of the hierarchical multiple regression, with emotional abuse as a predictor of depressive symptoms and the PF (total score) as moderator ($N = 432$)

Model	F	P	R	R^2
1	72.129	.000	.379	.144
2	50.972	.000	.438	.192
3	36.000	.000	.449	.201

To interpret the moderating effect, a graphic of the results was computed (cf. Figure 1). Two levels were considered for emotional abuse (below and above average) and three levels for PF (total) (low: till M-1SD; medium: between M-1SD and M+1SD; high: above M+1SD). Considering the main effects, it is possible to observe that higher levels of emotional abuse are related to higher levels of depressive symptomatology and smaller scores obtained in the PF (i.e. a better PF) predict less depressive symptomatology. These two variables present a positive slope, that is, positively predict depressive symptomatology.

With regard to the interaction, it can be said that when emotional abuse is high, a low PF leads to greater depressive symptomatology, compared with average or high levels of PF. However, when emotional abuse is low, depressive symptomatology tends to be similar when the PF is low, medium or high, which is visible through the alignment of the lines in the graphic.
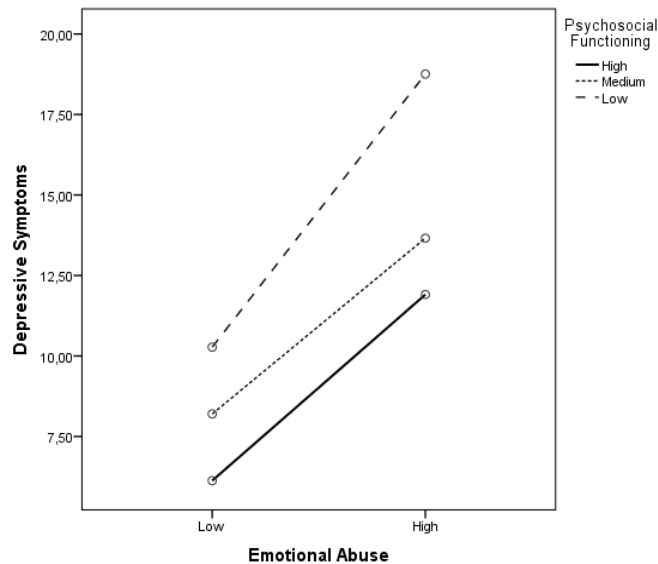
Fig. 1. Graphical representation of the moderating effect psychosocial functioning (total score) on the relationship between emotional abuse experiences and depressive symptoms

4. Discussion

In the present investigation the relationship between experiences of maltreatment and depressive symptomatology was examined, as well as the relationship between PF and depressive symptoms, and also the moderating effect of PF in the relationship between experiences of maltreatment and depressive symptomatology.

Numerous studies found an association between experiences of maltreatment and depressive symptomatology (e.g. Brown et al., 1999; Kaplan et al., 1998; Kim & Ciccheti, 2006; Macmillan et al., 2001; Nanni et al., 2012; Puig-Antich et al., 1993; Wekerle et al., 2006; Widom et al., 2007).

Emotional abuse and neglect, according to literature, due to the direct attack that is made to the child or adolescent's self-esteem, are identified as strong predictors of internalizing adverse consequences, such as depression (Kim & Cicchetti, 2006; McGee et al., 1997; Rose & Abramson, 1992). In this study, emotional abuse and emotional neglect were the best predictors of depressive symptomatology, i.e. adolescents who suffered this kind of abuse tend to show higher levels of depressive symptomatology. Physical abuse, unlike findings from Kaufman (1991), was not a significant predictor of depressive symptomatology. As for the sexual abuse, it did not significantly correlate with depressive symptoms in adolescents, which is consistent with the study of Widom et al., 2007. However, this result may be influenced by the low number of adolescents who reported experiences of physical or sexual abuse.

PF is also recognized as a predictor of depressive symptomatology (Goldstein et al., 2009; Lewinsohn et al., 1998), although most studies refer to the impact of depression on the subject's PF (e.g. Coryell et al., 1993; Costa, 2011; Field, et al., 2001; Hirschfeld et al., 2002; Judd et al.,2000; Judd et al., 2008; Lewinsohn et al., 2003; McCabe et al., 2011; Melvin et al., 2013; Vitiello et al., 2011; Weissman et al., 1999; Wells et al., 1989). Results in the present study revealed an association between PF and depressive symptomatology with PF being a significant predictor in regression analyses. Thus, high scores obtained in PF in A-LIFE, which represent a poor PF, are associated with higher levels of depressive symptomatology.

In the present investigation, the moderating effect of PF on the relationship between experience of abuse (specifically emotional abuse and neglect) and adolescents' depressive symptomatology is also an important and innovative contribution. A significant interaction was found, suggesting the presence of a moderating effect of PF on the relationship between emotional abuse and depressive symptoms. Low scores on emotional abuse seem to work as a protective factor of depressive symptomatology. When emotional abuse is low, depressive symptomatology tends to be similar regardless of the value of PF (low, medium or high), but when emotional abuse is high, a low PF leads to greater depressive symptomatology. We can say that when there are high scores in emotional abuse, PF assumes great relevance in predicting depressive symptomatology; a low PF predicts a significantly higher score in depressive symptomatology. Results reveal that PF moderates the impact of emotional abuse in depression. These findings are in accordance with results obtained in other studies. Kaufman et al. (2004) found that availability and quality of social support are protective factors for depression in adolescents with a history of abuse. Toth and Cicchetti (1996) showed that abused children, with negative patterns of relationship with the mother, presented higher levels of depressive symptomatology.

The present study has important clinical implications. It contributes to a better understanding of depression risk factors and its conclusions may have important implications for the development of evaluation strategies and for more effective intervention and prevention of depression, especially in cases of adolescents with a history of abuse. Having into account the large number of recurrence and relapse episodes in depression (Arnarson & Craighead, 2009; Costello et al., 2002; Kessler, et., 2005; Lewinsohn, et al., 1998; Lewinsohn et al., 1999; Mueller et al., 1999), it will be important to

develop intervention strategies aimed to improve PF, so that more stable recoveries can be achieved. Interventions should promote a better functioning in various areas, in particular in family relationships and among friends, in recreational activities and school performance, especially in adolescents who were victims of maltreatment. Early detection and intervention in child abuse and neglect are also essential for the prevention and treatment of depression in adolescence. Results of this study highlight the impact of emotional maltreatment in depressive symptomatology.

However, the current investigation has some limitations that should be mentioned. The investigation involves a sample of the general population of specific geographical areas of the country. In the future, the study should be replicated in clinical samples and in broader samples of the community that are representative of the Portuguese population, in order to allow generalization of results. Other variables that were not controlled may have influenced subjects' responses, such as social desirability and denial/minimization. In fact, adolescents may have had difficulties in admitting that they had gone through experiences of maltreatment, trying to bring out a positive social image of themselves, which may have affected the results obtained in the CTQ-SF (especially in physical and sexual abuse). Therefore, social desirability and defensive strategies should be controlled in future studies. The time of completion of the research protocol was also extensive because it corresponded to the battery of questionnaires used in the broader research project mentioned above, in which the present study is integrated. This fact may have negatively affected the concentration and motivation of adolescents in the completion of the self-report instruments. Finally, the cross-sectional design of the investigation prevents the possibility to draw causal conclusions, also preventing the study of variations in depressive symptoms over time, thus it would be important to perform longitudinal studies in the future.

In addition, it is our goal to analyze the specific contribution of each dimension of the PF and their interaction with the various factors of maltreatment in future studies, to be possible to perceive which PF dimensions have the greatest impact on depressive symptoms and on the relationship between abuse and depression.

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