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**The buffer role of psychological flexibility against the impact
of major life events on depression symptoms**

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Dissertação de Mestrado em Psicologia Clínica e de Saúde

(Especialização em Intervenções Cognitivo-Comportamentais nas

Perturbações Psicológicas e de Saúde) sob a orientação da

Professora Doutora Cláudia Ferreira

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**THE BUFFER ROLE OF PSYCHOLOGICAL FLEXIBILITY AGAINST THE
IMPACT OF MAJOR LIFE EVENTS ON DEPRESSION SYMPTOMS**

Dissertação sob a orientação da Professora Doutora Cláudia Ferreira para a obtenção do grau de Mestre em Psicologia Clínica e de Saúde na subárea de Intervenções Cognitivo-Comportamentais nas Perturbações Psicológicas e de Saúde

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O papel amortecedor da flexibilidade psicológica contra o impacto de acontecimentos de vida *major* nos sintomas depressivos

Resumo

Objetivos: Acontecimentos de vida *major* têm sido associados positivamente a sintomas depressivos. Embora a flexibilidade psicológica tenha sido associada a estratégias de *coping* adaptativas e negativamente a sintomas depressivos, ainda não está claro se a flexibilidade psicológica pode funcionar como um processo protetor contra o impacto pervasivo dos acontecimentos de vida *major*. Assim, o presente estudo teve como objetivo explorar o efeito moderador da flexibilidade psicológica na associação entre o número cumulativo de acontecimentos de vida *major*, sua avaliação negativa e os sintomas depressivos.

Métodos: Quatrocentos e um participantes ($N = 401$), 280 do sexo feminino e 121 do masculino, com idades compreendidas entre os 18 e 65 anos, preencheram um conjunto de medidas de auto-resposta, avaliando o número de acontecimentos de vida *major* e sua avaliação, a flexibilidade psicológica e os sintomas depressivos.

Resultados: As análises de correlação mostraram uma associação negativa e forte entre a flexibilidade psicológica e os sintomas depressivos. As *path analyses* revelaram que a flexibilidade psicológica atenuou o efeito do número cumulativo de acontecimentos de vida *major* (nos últimos 12 meses) e o seu impacto negativo nos sintomas depressivos.

Conclusões: O estudo destaca o papel amortecedor da flexibilidade psicológica na associação entre o número de acontecimentos de vida *major*, sua avaliação negativa e os sintomas depressivos. Estes resultados sugerem que ser capaz de entrar em contacto com

o momento presente numa atitude de aceitação e não julgamento das suas experiências internas e envolver-se em ações comprometidas pelos valores, pode proteger os indivíduos contra o impacto pervasivo dos acontecimentos de vida *major* nos sintomas depressivos.

Palavras-chave: Acontecimentos de vida *major*; Flexibilidade psicológica; Sintomas depressivos; Análises de moderação; Terapia da aceitação e do compromisso.

The buffer role of psychological flexibility against the impact of major life events on depression symptoms

Abstract

Purpose: Major life events have been positively associated with depression symptoms. Although psychological flexibility has been associated with adaptive coping skills and negatively linked with depression symptoms, it remains unclear whether psychological flexibility may operate as a protective process against the pervasive impact of major life events. Thus, the present study aimed to explore the moderator effect of psychological flexibility on the association between the cumulative number of major life events and its negative appraisal with depression symptoms.

Methods: Four hundred one participants (280 female and 121 male) aged between 18 and 65 years old completed a set of self-report measures assessing the number of major life events and its appraisal, psychological flexibility, and depression symptoms.

Results: Correlation analyses showed a negative and strong association between psychological flexibility and depression symptoms. Path analyses revealed that psychological flexibility attenuated the effect of the cumulative number of major life events (in the last 12 months) and its negative impact on depression symptoms.

Conclusions: The study highlights the buffer role of psychological flexibility on the association between the number of major life events, its negative appraisal, and depression symptoms. These findings suggest that being able to contact with the present moment with an accepting and non-judging attitude towards internal experiences, and to

engage in valued-based action, may protect individuals against the pervasive impact of major life events on depression symptoms.

Keywords: Major life events; Psychological flexibility; Depression symptoms; Moderation analyses; Acceptance and commitment therapy.

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PAPER I

Fonseca, S., & Ferreira, C. (2018). *The buffer role of psychological flexibility against the impact of major life events on depression symptoms.*

**The buffer role of psychological flexibility against the impact of major life events
on depression symptoms**

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Abstract

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Keywords: Major life events; Psychological flexibility; Depression symptoms; Moderation analyses; Acceptance and commitment therapy.

1. Introduction

Research has shown that stressful life events are associated with depressive symptomatology (e.g., Hassanzadeh et al, 2017; Sokratous, Merkouris, Middleton, & Karanikola, 2013; You, & Conner, 2009). The concept of life event has been described as “objective occurrences of sufficient magnitude to bring about change in the usual activities of most individuals who experience them” (Dohrenwend, Krasnoff, Askenay, & Dohrenwend, 1978, p. 207), provoking emotional changes that require a behavioural readjustment. These issues may include both unwanted (such as divorce, illness or death of a relative) and desirable events (such as academic or professional success or marriage) (Luhmann, Hofmann, Eid, & Lucas, 2012). When assessing the psychological impact of life events, it is important to assess how one interprets the stress produced by them and whether the appraisal of the event is negative or positive (Ono et al, 2017).

Life events can be classified as minor or major depending on their magnitude. Minor events are adverse events with trivial impact (with short to medium term) that occur in the context of everyday life. On the other hand, major life events, due to their greater magnitude, have a long-term impact in the individual's life, requiring a greater readjustment (Yue, Dajun, Yinghao, & Tianqiang, 2016). Factors such as the type of the events, one's appraisal of their impact, and one's characteristics and strategies to deal with them, contribute not only to a diversity of responses to these events but also to different degrees of emotional impact on one's life (Yunes, & Szymanski, 2001).

Concerning the relationship between negative major life events and depression, several studies found that these negative life events can be a risk factor for the development of psychopathology and can predict the onset of depressive symptoms (e.g., Kendler, & Gardner, 2016; Sokratous, Merkouris, Middleton, & Karanikola, 2013).

Kessler (1997) found that depressed individuals reported a higher number of stressful life events in the last 12 months, when compared to the non-depressed. Indeed, the accumulation of major life events has been related to psychopathology, particularly to depression (e.g., Mitchell, Tynes, Umaña-Taylor & Williams, 2015; Shrira, 2012; Tennant, 2002). Slopen and colleagues (2011) found an association between the number of events experienced in the last 12 months and a higher risk for the onset of depression symptoms. According to Suliman (2009) and Sokratous (2013) studies, participants who experienced multiple life adversities were more likely to report more severe depression symptoms, compared to those who did not report any stressful life event or only a single event in the last 12 months. Furthermore, higher appraisals of the negative impact of recent major life events have also been associated with depression symptoms (Charbonneau, Mezulis, & Hyde, 2009; Espejo, Hammen, & Brennan, 2012).

Emotion regulation processes, such as psychological flexibility, have been associated with adaptive coping skills and inversely linked to depression symptoms (Kashdan, & Rottenberg, 2010; Masuda, & Tully, 2012). Psychological flexibility, a central therapeutic process in Acceptance and Commitment Therapy (ACT), is defined as the ability to be in the present moment and to take action guided by values, even in the presence of life adversities. Psychological flexibility can be conceptualized as the result of the interaction between six interrelated psychological processes (Hayes, Luoma, & Bond, 2006). ACT is a contextual behavioural approach developed to diminish human suffering through a focus on promoting psychological flexibility. Broadly speaking, ACT's purpose is to reduce experiential avoidance (by increasing acceptance of internal events without trying to change their content) and increase valued-based behaviour (Hayes, Pistorello, & Levin, 2012).

Processes that promote psychological flexibility are acceptance (active and aware embrace of aversive private events without attempts to change their frequency or form) vs. experiential avoidance; cognitive defusion (the ability to see thoughts as transient and subjective events happening in the mind instead of true representations of reality) vs. cognitive fusion; contact with the present moment (non-judgmental contact with psychological and environmental events as they naturally occur) vs. dominance of the conceptualized past and future; self as context (the sense of oneself as the external observer of thoughts, feelings and experiences) vs. attachment to the conceptualized self; values (chosen concepts in different life's domains that provide a sense of meaning and clear one's path for a fulfilled life) vs. lack of values clarity; and committed action (development of larger patterns of choices and actions linked to chosen values) vs. lack of commitment (Hayes, Pistorello, & Levin, 2012). Recently, a comprehensive measure of the ACT processes (CompACT) was developed to measure psychological flexibility and its sub-processes as conceptualized within ACT model. CompACT is composed of three factors: openness to experience (acceptance and cognitive defusion); behavioural awareness (contact with the present moment); and valued action (values and commitment action) (Francis, Dawson, & Golijani-Moghaddam, 2016).

Psychological flexibility enables one to be aware and committed to behaviours congruent with deeply held values and to shift behavioural repertoires when they compromise personal or social functioning and to adapt to diverse situational demands (Kashdan, & Rottenberg, 2010). Therefore, when stressful events occur, these psychological processes may have a particularly important role in preventing the onset of depression (Biglan, Hayes, & Pistorello, 2008). Several studies point out that promoting the processes from the psychological flexibility model can reduce depression symptoms and promote mental health (e.g., A-Tjak et al, 2015; Najvani, Neshatdoos, Mokarian, &

Abedi, 2015; Pots, Trompetter, Schreus, & Bohlmeijer, 2016). In several randomized controlled trials, ACT has in fact been demonstrated an efficacious treatment for depression (Bohlmeijer et al, 2011; Clarke, Kingston, James, Bolderston, & Remington, 2014) with experiential avoidance, acting with awareness, and acceptance emerging as mediators of change (Forman, Herbert, Moitra, Yeomans, & Geller, 2007).

Since the cumulative number of major life events and their negative appraisal by the individual can be associated with depression symptoms (e.g. Mitchell, Tynes, Umaña-Taylor, & Williams, 2015; Sokratous, Merkouris, Middleton, & Karanikola, 2013; Suliman et al, 2009), it may be important to explore the psychological process which may underlie these associations. Given that psychological flexibility has been pointed out as an adaptive process key to psychological well-being (e.g. Charbonneau, Mezulis, & Hyde, 2009; Espejo, Hammen, & Brennan, 2012), the present study aimed to analyse whether this process moderates the relationship of cumulative number of major life events and their negative appraisal with depressive symptomatology. We hypothesise that psychological flexibility will buffer the negative impact of major life events in this outcome.

2. Material and Methods

2.1. Participants

The sample included 401 participants (280 women and 121 men) from the Portuguese general population. Participants presented ages that ranged from 18 to 65 years, with a mean age of 30.91 ($SD = 11.66$) and 14.15 ($SD = 2.863$) years of education. Two hundred and seventy-one participants were single (67.6%), 102 (25.4%) were married/ living with a partner, 27 (6.7%) divorced, and 1 (0.2%) widowed. Most of the

sample was from an urban area ($n = 252$; 62.8%), while 149 (37.2%) participants were from a rural area.

2.2. Measures

2.2.1. *Major Life Events Questionnaire* (MLEQ: Trindade & Ferreira, 2017).

MLEQ was based on the Psychological-Stress Index (Cohen, Tyrrel, & Smith, 1991), and comprises 22 items that represent major life events that may happen in one's life (e.g., marriage, divorce, pregnancy, serious illness, being robbed). For each item, participants are asked to report the occurrence or absence of the specific event in the previous 12 months. For each event identified, participants are, also, asked to evaluate in a 3-point scale its positive (1-“Slightly good”; 2-“Moderately good”; 3-“Very good”) or negative (1-“Slightly bad”; 2-“Moderately bad”; 3-“Very bad”) impact in their lives. In this study, three variables were computed from this scale: number of major life events in last 12 months, positive appraisal and negative appraisal.

2.2.2. *Comprehensive Assessment of Acceptance and Commitment Therapy Processes* (CompACT; Francis, Dawson & Golijani-Moghaddam, 2016; Portuguese version by Trindade, Ferreira, Mendes, & Ferreira, 2018). CompACT is a 23-item self-report measure designed to assess psychological flexibility. This scale comprises three subscales: Openness to experience (e.g., “Thoughts are just thoughts – they don't control what I do”); behavioural awareness (e.g., “I rush through meaningful activities without being really attentive to them”) and valued action (e.g., “I behave in line with my personal values”). Participants are asked to rate the degree to which is statement is true for them using a 7-point Likert scale (0-“Never true” to 6-“Always true”). This self-report measure has demonstrated good internal consistencies for the total scale ($\alpha = 0.91$) and for each

subscale ($\alpha = 0.90, 0.87$ and 0.90 , respectively) (Francis et al, 2016), as well in the Portuguese version in which values were above 0.80 for each subscale (Trindade et al., 2018). In current study, the total scale has showed good internal consistency ($\alpha = .85$).

2.2.3. Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995; Portuguese version by Pais-Ribeiro, Honrado & Leal, 2004). DASS-21 is a self-report measure composed of 21 items that evaluates three dimensions of psychological symptoms: depression, anxiety and stress. Participants rate how they have experienced these symptoms over the past week on a Likert scale of 4-points, ranging from 0 (“Did not apply to me at all”) to 3 (“True most of the time”). The original version showed good internal consistency ($\alpha = 0.85, 0.74$ and 0.81 for depression, anxiety and stress subscales, respectively) (Lovibond & Lovibond, 1995). Good internal consistency was also found in the Portuguese version ($\alpha = 0.91, 0.84$ and 0.90 , respectively) (Pais-Ribeiro et al, 2004). In the present study, we only used the depression subscale and its Cronbach’s alpha was 0.95 .

2.3. Procedures

The current study is part of a wider research project about the role of emotion regulation processes on one’s quality of life and mental health. All ethical requirements concerning research with humans were fulfilled and the Ethics Committee of the Faculty of Psychology and Education Sciences approved the study. Data were obtained through a secure online survey tool (LimeSurvey). Participants were asked to provide demographic information such as gender, age, and nationality, and to complete a battery of scales (which would take approximately 20 minutes to be completed). Also, participants were properly informed about the nature and objectives of the research, their

voluntary participation and the confidentiality and purpose of their data. Informed consent was obtained from all the participants before completing the research protocol.

Finally, the database was cleaned to exclude participants who were not Portuguese and participants who presented missing data. The final sample comprised 401 participants.

2.3.1. Data analyses

Descriptive and correlational analyses were performed using IBM SPSS (v.21; SPSS Inc., Chicago, IL) to examine the characteristics of the sample and the associations between number of major life events, the negative appraisal of major life events, psychological flexibility, depression symptoms and age.

Using the software AMOS (Analysis of Momentary Structure, v.21, SPSS Inc., Chicago, IL), two path models (a form of Structural Equation Modelling) were conducted to test the moderator effect of psychological flexibility. The first path model tested for the moderator effect of psychological flexibility (CompACT) on the relationship between the cumulative number of major life events (Number of events; independent variable) and depression symptoms (Dep; dependent variable), while controlling for the effect of age. The second path model tested the moderator effect of psychological flexibility (CompACT) on the relationship between the negative appraisal of major life events (Negative appraisal; independent variable) and depression symptoms (Dep; dependent variable), while controlling the effect of age. If the interaction between the independent variable and the moderator variable is significant a moderation effect exists. The Maximum Likelihood method was used to analyse all path coefficients, considering effects with $p < 0.05$ statistically significant. A Bootstrapping resampling method was

used to test the significance of the moderation paths, considering 5000 brootstrap samples and 95% confidence intervals (*CI*) (Kline, 2005).

Lastly, to better understand the relationship between the independent variables (number of major life events and its negative appraisal) and depression symptoms, two graphs were plotted with different levels of the moderator – low, medium and high levels – of psychological flexibility (CompACT). Given that there are no cut points for CompACT, in these two graphical representations, the three curves were plotted considering the following cut-point values of the moderator variable on the x axis: one standard deviation above the mean, the mean, and one standard deviation below the mean, as recommended by Cohen and colleagues (Cohen, Cohen, West, & Aiken, 2003).

3. Results

3.1. Preliminary analysis

Uni and multivariate normality was examined by the values of Skewness and Kurtosis. There was no severe violation of the normal distribution (Kline, 2005).

3.2. Descriptive analysis

Results revealed that the most frequently reported major life events were changes in financial situation ($n = 145$; 36.2%), hospitalization ($n = 127$; 31.7%), the worsening of a romantic relationship ($n = 122$; 30.4%), a relative's problematic behaviour ($n = 113$; 28.2%), significant academic success ($n = 112$; 27.2%), the death of a close person ($n = 106$; 26.4%), and the end of a friendship ($n = 88$; 21.9%). Concerning the negative impact of major life events, the events most reported as negative were hospitalization ($n = 104$;

25.7%), a relative's problematic behaviour ($n = 87$; 21.7%), the death of a close person ($n = 81$; 20.2%), the worsening of a romantic relationship ($n = 72$; 17.2%), an accident ($n = 62$; 15.4%), moving to a new house ($n = 54$; 13.5%), and the death of or separation from a pet ($n = 44$; 10.9%).

3.3. Correlation analysis

Means, standard deviations and correlations between the study variables are reported in Table 1. Results revealed that the number of major life events was negatively associated with psychological flexibility (CompACT) and age, but a positive and moderate correlation was found with depression symptoms (Dep). Positive appraisal of occurred major life events (positive appraisal) was negatively correlated with psychological flexibility and age, but positively with depression symptoms. The negative appraisal of occurred major life events correlated negatively with psychological flexibility and with age. Additionally, negative appraisal correlated positively and moderately with depression symptoms. A negative and strong association was found between psychological flexibility and depression symptoms, but no significant correlation was found with age. Finally, depression symptoms were negatively associated with age.

Correlations between the number of major life events, positive appraisal and negative appraisal of major life events were not calculated since these variables resulted from an inventory and are unrelated independent variables.

Table 1

Means (M), Standard Deviations (SD) and correlations between the study measures (N = 401)

	<i>M</i>	<i>SD</i>	1.	2.	3.	4.	5.
1. Number of events	3.52	2.67	-				
2. Positive appraisal	4.02	4.03	-	-			
3. Negative appraisal	4.70	4.85	-	-	-		
4. CompACT	79.47	17.76	-0.27***	-0.15*	-0.24***	1	
5. Dep	4.78	4.85	0.31***	0.14*	0.30***	-0.57***	1
6. Age	30.90	11.66	-0.15*	-0.24***	-0.01	0.03	-0.10*

Note. Number of events = number of major life events; Positive appraisal = positive impact of major life events; Negative appraisal = negative impact of major life events; CompACT = psychological flexibility; Dep = depression symptoms (DASS 21);

* $p < 0.050$. ** $p < 0.010$. *** $p < 0.001$.

3.4. Path analyses

To further understand the role of psychological flexibility on the relationship between major life events and depression symptoms, two moderator analyses were conducted. It was explored whether psychological flexibility moderated the relationship between the cumulative number of occurred major life events (during the previous year) and depression symptoms (Moderation I) and the association between negative appraisal of the impact of major life events and depression symptoms (Moderation II), while controlling for the effect of age.

3.4.1. The moderator effect of psychological flexibility on the association between number of major life events and depression symptoms (Moderation I)

A path analysis was conducted to test whether psychological flexibility (CompACT) moderated the impact of the cumulative number of major life events (Number of events), occurred in the previous 12 months on depression symptomatology (Dep), while controlling for the effect of age. When firstly tested, this model was fully saturated (with zero degrees of freedom) and comprised 20 parameters. Results demonstrated that all path coefficients in the model were statistically significant and explained 37 % of depression symptoms' variance (Figure 1).

Results indicated that number of major life events presented a positive and direct effect of 0.58 ($b_{\text{Number of events}} = 1.05$; $SE_b = 0.28$; $Z = 3.70$; $p < 0.001$) on depression symptoms. In turn, psychological flexibility had a direct and negative effect of -0.40 ($b_{\text{CompACT}} = -0.11$; $SE_b = 0.02$; $Z = -6.49$; $p < 0.001$) on depression symptoms. Furthermore, the interaction between the number of major life events and psychological flexibility revealed a significant negative direct effect on depression symptoms ($b_{\text{Number of events} \times \text{Compact}} = -0.01$; $SE_b = 0.00$; $Z = -2.74$; $p < 0.010$; $\beta = -0.41$). All the analyzed effects were significant and seem to reveal the presence of a moderator effect of psychological flexibility on the association between number of major life events and the variance of depression symptoms.

To better understand the association between the cumulative number of major life events (x axis) and depression symptoms (y axis) in the presence of different levels of psychological flexibility (low, medium and high), one graphic was plotted (Figure 2). This graphic allows to observe that for any number of major life events reported by individuals, those who present higher levels of psychological flexibility reveal less depression symptoms, in comparison to those who presented medium or low levels of

psychological flexibility. Indeed, the graphic representation showed that psychological flexibility functions as a buffer of the impact of the number of occurred major life events on depression symptoms.

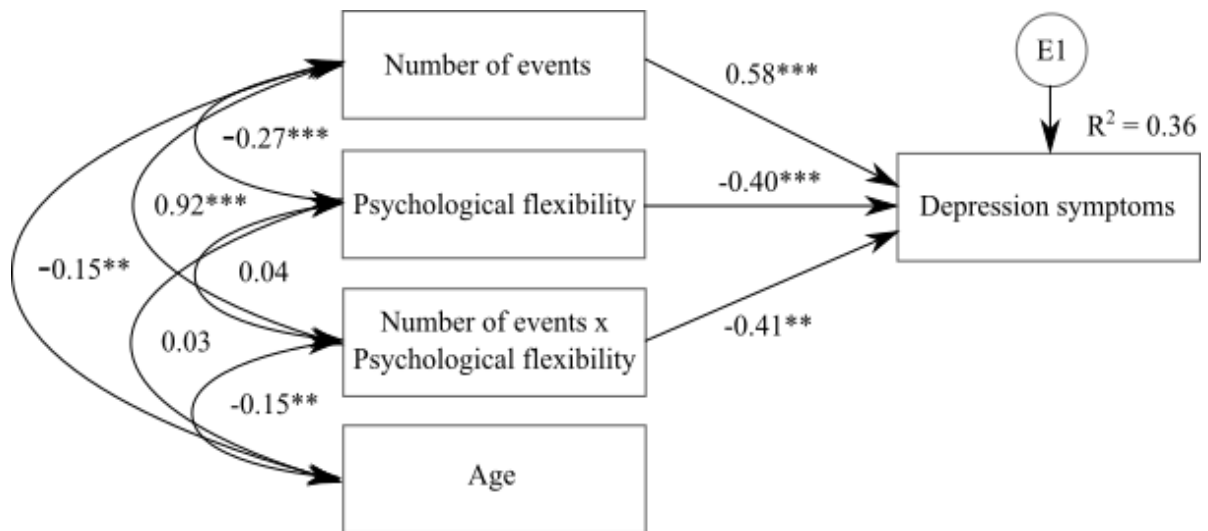


Figure 1. Path model showing the moderator role of psychological flexibility (CompACT) on the association between the number of major life events (Number of events) and depression symptoms (Dep) ($N = 401$).

Note. $** p < 0.010$; $*** p < 0.001$.

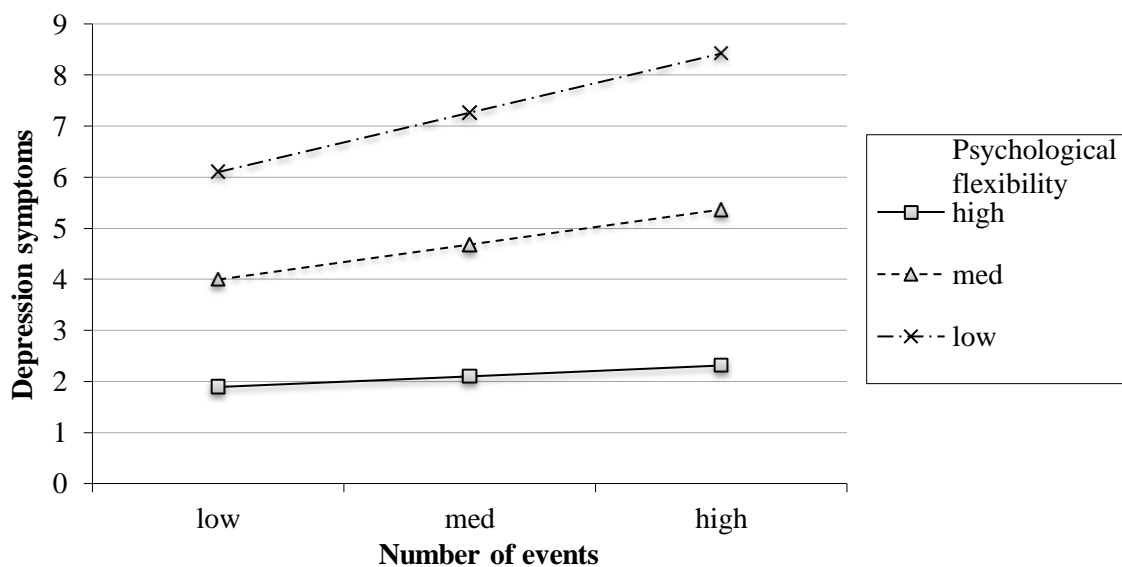


Figure 2. Graphic for the relationship between the number of major life events (Number of events) and depression symptoms (Dep) with different levels of psychological flexibility (CompACT) – low, medium and high.

3.4.2. The moderator effect of psychological flexibility in the association between the negative appraisal of major life events and depression symptoms (Moderation II)

A second path analysis was conducted to test whether psychological flexibility (CompACT) moderated the negative appraisal of the impact of occurred major life events during the previous 12 months (Negative appraisal) depression symptomatology (Dep), while controlling for the effect of age. This model was fully saturated (with zero degree of freedom) and comprised 20 parameters. All path coefficients in the model were statistically significant and explained 38% of the variance of depression symptoms (Figure 3).

Results showed that the negative appraisal of life major events had a direct impact of 0.66 ($b_{\text{Negative appraisal}} = 0.66$; $SE_b = 0.16$; $Z = 4.07$; $p < 0.001$) on depression symptoms. In turn, psychological flexibility presented a direct and negative effect of -0.42 ($b_{\text{CompACT}} = -0.11$; $SE_b = 0.02$; $Z = -7.76$; $p < 0.001$) on the variance of depression symptoms. Also, the interaction between negative appraisal of major life events and psychological flexibility revealed a negative impact on depression symptoms ($b_{\text{Negative appraisal} \times \text{CompACT}} = -0.01$; $SE_b = 0.00$; $Z = -3.06$; $p < 0.010$; $\beta = -0.48$). All these effects were significant, and results seem to demonstrate that psychological flexibility moderates the negative impact of major life events on depression symptoms.

To better understand the association between the negative appraisal of major life events (x axis) and depression symptoms (y axis) considering three levels of psychological flexibility (low, medium and high), one graphic was plotted (Figure 4).

This graphic allows to observe that for any level of negative appraisal of major life events presented by participants, those who present higher levels of psychological flexibility reveal a lower display of depression symptoms, in comparison to those who presented lower levels of psychological flexibility. The graphic representation showed that psychological flexibility functions as a buffer of the negative appraisal of major life events on depression symptoms.

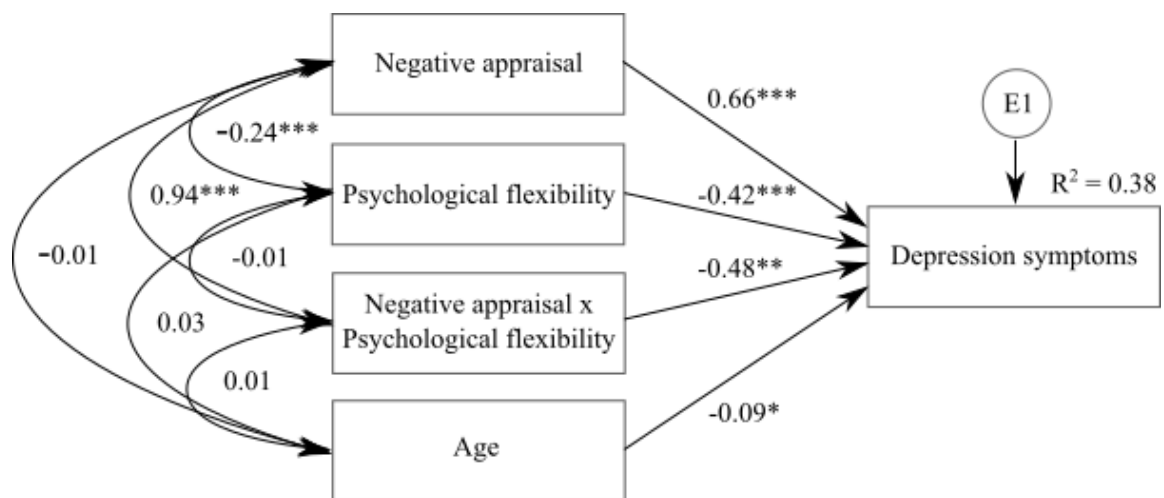


Figure 3. Path model showing the moderator role of psychological flexibility (CompACT) on the association between negative appraisal of major life events (Negative appraisal) and depression symptoms (Dep) ($N = 401$).

Note. * $p < 0.050$; ** $p < 0.010$; *** $p < 0.001$.

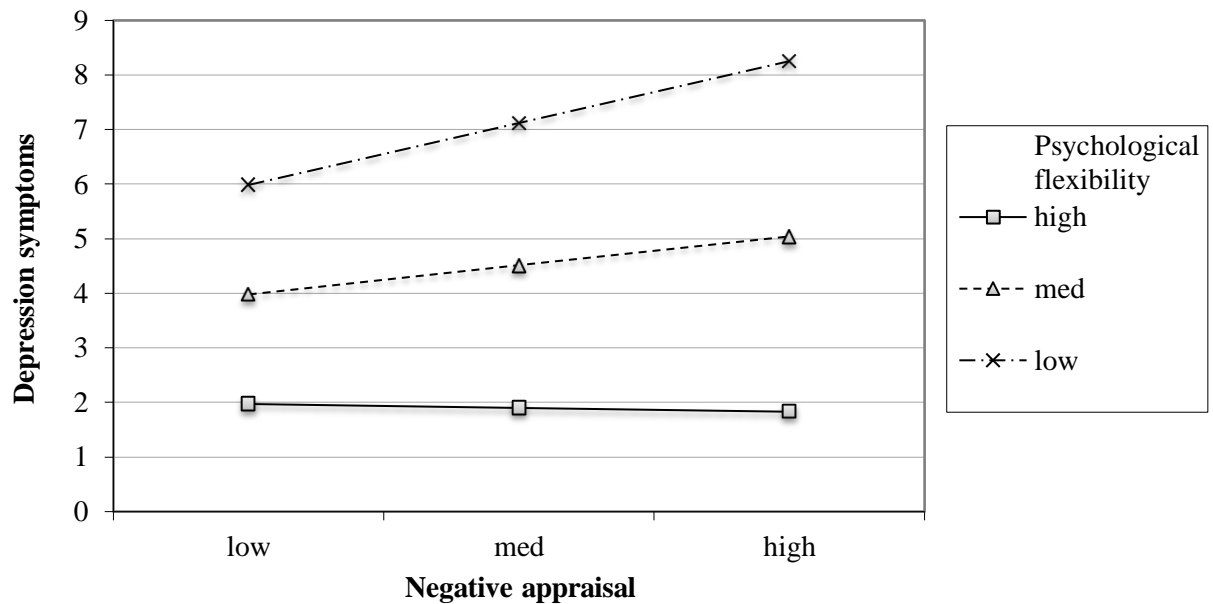


Figure 4. Graphic for the relationship between negative appraisal of major life events (Negative appraisal) and depression symptoms (Dep) with different levels of psychological flexibility (CompACT) – low, medium and high.

4. Discussion

Major life events and higher appraisals of their negative impact have been related to depression symptoms (Espejo et al, 2012; Kendler, & Gardner, 2016). Although psychological flexibility has been associated with adaptive coping skills and inversely linked with depression symptoms (Biglan et al, 2008; Kashdan, & Rottenberg, 2010), it was yet to be explored the effect of psychological flexibility on the association between major life events and depression symptoms. The main purpose of the present study was thus to test the moderator role of psychological flexibility on the relationship of the cumulative number of major life events during the previous year and their negative appraisal with depressive symptomatology in a sample of Portuguese adults from the general population.

Results from correlation analyses demonstrated that the accumulation of adverse life events in the last 12 months and the negative appraisal of life events is associated with depression symptoms. These findings are in line with prior research (Charbonneau et al, 2009; Espejo et al, 2012; Hassanzadeh et al, 2017; Mitchell et al, 2015). Moreover, the present study also corroborated previous research on the negative link between psychological flexibility and depression symptoms (Kashdan, & Rottenberg, 2010; Masuda, & Tully, 2012).

Further, the potential protective role of psychological flexibility in the relationship between the number of major life events and depression symptoms and also between the negative appraisal of major life events and depression symptoms was explored through two moderation models. Results revealed that these models accounted for 36% and 38% of depressive symptomatology's variance, respectively, and corroborated our hypothesis. It was showed that the number of major life events and its negative appraisal presented direct and positive effects on depression symptoms. Nevertheless, psychological flexibility was revealed a significant moderator of these relationships. These findings seem to suggest that when participants present higher levels of psychological flexibility, the impact of cumulative number of major life events and their negative appraisal on depression symptoms is attenuated. The graphic visualization of these results show that, for the same number of major life events during the previous year, participants who presented higher levels of psychological flexibility, revealed lower levels of depression symptoms, in comparison with those who presented lower psychological flexibility. The same results were found for negative appraisal of major life events. These findings suggest a buffer effect of psychological flexibility at any level of number of major life events and negative appraisal of major life events. It is possible that psychological flexibility may act as a protective psychological process against the development of

depressive symptomatology. This process possibly helps individuals to deal adaptively with major life events by promoting a more effective adaptation to the demands and changes these events provoke. Relating to major events with an open, accepting, and defused attitude may decrease suffering associated with related changes. Major life events may fuel a dominance of past and future conceptualizations (e.g., getting married may activate painful memories of previous relationships and/or an idealization of what marriage should be like), and thus being able to contact with the present moment with a defused and accepting attitude, may prevent the development of psychological distress during the adaptation to major events. Also, persisting in engaging in behaviour committed with chosen values even in the face of major and possibly stressful events, allows individuals to deal flexibly with demanding new contexts and to successfully lead a valued, fulfilled life (e.g., a job demotion may lead to a tendency to demotivate and to a divestment in work which can be attenuated by persisting in action committed with a value related to work performance).

These results should nonetheless be interpreted considering some methodological limitations. The first limitation is the cross-sectional design of the study, which does not allow inferences about causality. Future studies should use longitudinal designs to test the moderation effect of psychological flexibility over time. Second, given that this study's sample is non-clinical, future studies should test the conducted models in clinical samples of depressed patients. Also, the exclusive use of self-report measures may compromise the accuracy of the data and thus future studies should replicate the study using other assessment measures (e.g. structured interviews). Finally, possibly because the sample collected through online advertisement, it presented a high educational level, which limits the generalization of results to the general population.

This is the first investigation examining the moderator role of psychological flexibility in the association between the number of major life events, their negative appraisal, and depression symptoms. This study provides empirical support for the relevant role of psychological flexibility by revealing its buffer effect on the association of accumulation of major life events and their negative appraisal with depression symptoms. Our findings appear to offer important implications in clinical and research areas, supporting the protective role of psychological flexibility against the impact of major life events on depression symptoms. These findings give support to the ACT model and suggest that being able to contact with the present moment with an accepting and non-judging attitude towards internal experiences and to engage in valued-based action, may promote a healthy adaptation to major life events and emotional well-being.

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APPENDICES

APPENDIX A

Submission information of Paper I

- Guide for authors of *Clinical Psychologist*

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