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Psychological and Social Factors that Promote Positive Adaptation to Stress and Adversity in the Adult Life Cycle

M. Guadalupe Jiménez Ambriz, María Izal & Ignacio Montorio

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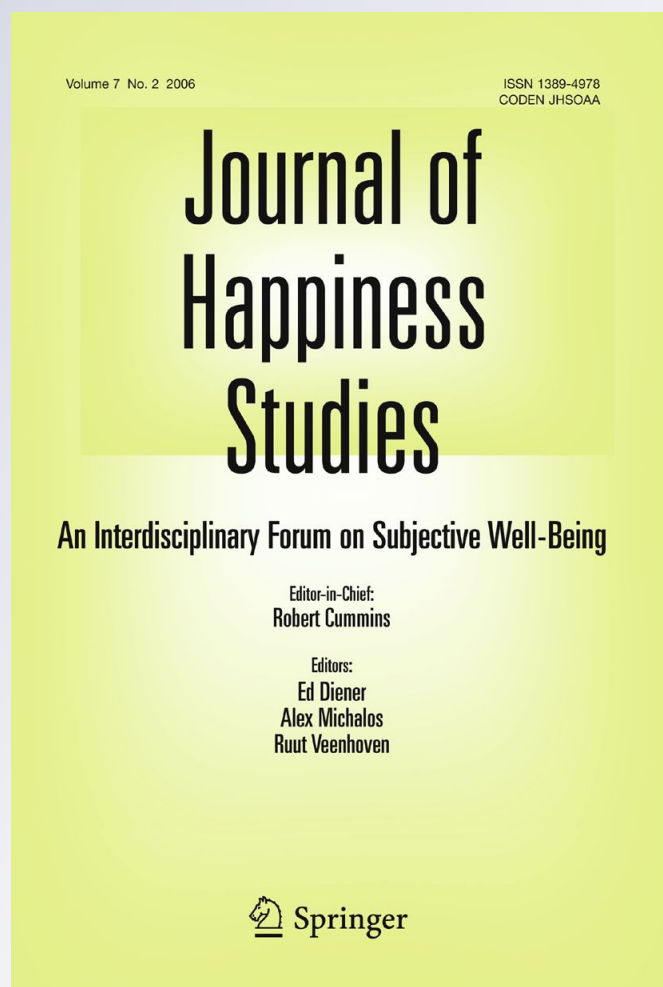# Psychological and Social Factors that Promote Positive Adaptation to Stress and Adversity in the Adult Life Cycle

M. Guadalupe Jiménez Ambriz · María Izal · Ignacio Montorio

Abstract The phenomenon of resilience reflects positive adaptation despite contexts of risk, significant adversity, or trauma (Masten and Powell 2003; Luthar 2006). The purpose of this investigation was to propose a mediation model to explain the relation between stress and some psychological and social resources that enhance positive adaptation throughout the entire adult life cycle, and to explore the moderator role of age and country of origin. The indicator of positive adaptation was life satisfaction (LS). The sample comprised 171 Mexicans and 154 Spaniards ($N = 325$), aged between 18 and 87 years. Mediation was tested by means of various hierarchical regression analyses, which revealed that the positive adaptation process is enhanced by a group of psychological and social resources that mediate the effects of stress on LS. Self-esteem, optimism, internal control, coping aimed at acceptance, and coping aimed at seeking emotional support, as well as social contacts can mediate the negative effects of stress. Finally, it was found that age moderates the internal control but none of the remaining variables whereas the country does not moderate the relation of the variables.

1 Introduction

When faced with severe and extreme circumstances, most people tend to adapt and achieve some balance in their lives; this has been called "resilience" (Bonanno 2004). Despite the

M. G. Jiménez Ambriz (✉) · M. Izal · I. Montorio
Facultad de Psicología Módulo, Universidad Autónoma de Madrid, 2/Despacho 52,
Campus de Cantoblanco, C/Ivan P. Pavlov, 6, 28049 Madrid, Spain
e-mail: guadalupe.jimenez@uam.es

M. Izal
e-mail: maria.izal@uam.es

I. Montorio
e-mail: ignacio.montorio@uam.es

different nuances in the concept of resilience, there is a general consensus to define it as *a phenomenon or process that reflects a relative positive adaptation despite contexts of risk, significant adversity, or trauma* (Luthar 2006). Whereas some experts consider that, after having undergone an adverse experience, especially in old age, maintaining one's physical and cognitive functions are sufficient indicators of resilience (Greve and Staudinger 2006), other investigators believe that, in order to consider a response resilient, there should be "improvement" or "growth" in some area or domain of the individual (Bonanno 2004). In any event, instead of developing psychopathological disorders, adaptation is currently considered the normal response to adverse and extraordinary events, although it involves complex processes that require more attention from investigators (Masten 2007). This viewpoint is reinforced by the positive psychology movement initiated by Seligman and Csikszentmihalyi (2000), which grants special importance to seeking factors to promote the adaptation of people who have experienced negative events.

Resilience has been studied from diverse perspectives, such as displaying adequate development despite a series of risk factors that pose a threat to such development, functioning well under adverse conditions, or recovering normal functioning after a disaster or adversity (Masten 2007). The theoretical postures and ways of understanding resilience are also different because they consider it either a personality trait or a dynamic process. For the former perspective, resilience is a trait that is fixed and stable over time, and the main research goal is to determine the individual differences that may explain why some individuals perform better than others in adverse contexts (Campbell-Sill et al. 2006). The second perspective considers resilience as a stage resulting from the combination of diverse protection and risk factors, that is, a dynamic process that "protects" the individual from adversity (Rutter 2007). This latter perspective states that resilience may develop at any moment of one's lifetime and can change as a function of one's personal, family, and social resources, as well as of one's context and age.

An integrative alternative of these two proposals is that resilience can be conceptualized, on the one hand, as a series risk factors and, on the other, as the result of development that includes the regulation of losses and gains and which, along with the person's structural characteristics (biological attributes, personal competences) would enhance adaptation in moments of adversity (Leipold and Greve 2009). There are many ways to achieve resilience. Currently, there is sufficient information to identify certain resources consistently associated with the processes of resilience, adaptation, and recovery. For example, in a meta-analysis of 170 British articles on recovery and mental health (Boney and Stickley 2008), it was found that hope and optimism were recurrent and central elements of recovery of mental health and resilience. Other repeatedly observed resources are: positive feelings and emotions (Ong et al. 2006), positive identity (Greve and Staudinger 2006), personal control (Jiménez 2008; Visdómine and Luciano 2006), self-efficacy (Joop and Rott 2006), self-esteem (Ong et al. 2006), optimism (Seligman 2002), spirituality (Vélez et al. 2005), social support, especially when one is willing to accept it (Fredrickson and Branigan 2005), and some specific strategies to regulate stress (Coifman et al. 2007) and to maintain well-being in the context of adversity (Davidson 2000).

Life satisfaction is the cognitive dimension of subjective well-being and also is a construct widely validated in longitudinal investigations as indicator of successful ageing (Baltes and Baltes 1990; Dienner et al. 2003; Gow et al. 2007; Krause 2004; Lachman et al. 2009; Ryff 1982). It constitutes a resource that includes competences such as autonomy, control beliefs, positive emotions, emotional regulation, problem solving, adaptation, and balance throughout the whole life cycle. In this paper, we consider life satisfaction as an indicator of subjective well-being and the ability to achieve positive adaptation.

With regard to the study of resilience in older adults, investigators consider it the ideal population to understand the resilience process and the mechanisms that lead to its achievement (Ryff et al. 1998). The reason for this is that, at advanced ages, people have usually been exposed to more stressful states, such as a decrease in their physical functions and a possible cognitive and social decline, which place them in situations of higher fragility and, despite all this, most of them manage to remain active and to age actively and successfully (Baltes and Freund 2003; Montorio and Izal 1998). In old age, resilience can be considered the bridge between coping and development, in which there is a crucial link with continuity and change, which ensures that individuals achieve tolerable or satisfactory results in the face of challenges and stress (Leipold and Greve 2009). This perspective is especially interesting to understand the stages of old age because, without having to undergo highly traumatic experiences, the normative stress characteristic of this stage of life is a threat to personal balance, which makes coping and self-regulation processes vital to recovering and maintaining well-being. Specialists in the study of life span have suggested that resilience and successful ageing share underlying processes. In particular, Baltes et al. (1998) indicated that the processes of *selection, optimization,* and *compensation* are crucial and necessary elements to compensate the decline and losses of older persons. However, the transition crises of each life stage—for example, from middle age to old age—do not only trigger processes of development; they also involve processes of adaptation and resilience in the face of adversity (Heckhausen 2001).

Luthar et al. (2000) proposed a model of resilience as a process in which diverse psychological and social variables mediate the negative effects of stress throughout the entire adult life cycle. In accordance with their perspective, in this research, we focus on identifying these psychological variables (which may be traits or behaviors learned over time) and social variables that can mediate the negative effect of stress on life satisfaction increasing and allowing the adaptation process that leads to emotional balance throughout the adult life cycle.

To achieve this goal, we first examined the effect of high levels of stress on life satisfaction and second, we selected the psychosocial dimensions that the literature has shown to have a higher relation with positive adaptation processes and subjective well-being. We expect them to act as a buffer against the negative impact of stress. In addition, we explored the influence of age, under the assumption that, if no influence is found, the model obtained would be valid through the whole adult cycle, even in aged individuals. Finally, we proposed to explore whether living in different countries—although with cultural similarities such as familism or the predominance of a collectivist culture—would affect the model of positive adaptation. Thus, with participants from Mexico and Spain, our hypothesis suggested that the country would have a moderating effect on the variables that conform the model of positive adaptation.

2 Method

The research design was cross-sectional, correlational, multivariate, and cross-cultural.

2.1 Participants

A convenience sample with voluntary participation included 171 Mexicans and 154 Spaniards ($N = 325$), aged from 18 to 87 years. Formal letters were sent requesting the collaboration of two cultural institutions, two community centers for the elderly, and two

educational centers from Madrid and Mexico City, respectively. Once collaboration had been accepted, we invited the users of programs and workshops to participate voluntarily, ensuring the confidentiality of their data, and participants and investigators signed an informed consent form. This study conforms with the ethical standards of the Ethics Committee of the Autonomous University of Madrid.

Inclusion criteria were, firstly, being of Mexican or Spanish nationality; secondly, having an adequate cognitive functioning, which was assessed by the Mini Mental Status Examination (Folstein et al. 1975) in participants over 65 years of age. Four cases with a score below 23 were excluded. Thirdly, to have undergone an adverse event, as assessed by nine items of the Stressful Events Scale—EAE (Fernández Seara and Mielgo Robles 1992), which asked participants whether they had suffered the death of a spouse, parent, sibling, child, or other loved one; whether they or a loved one had a serious disease or a severe physical disability, had undergone surgery, a miscarriage, had suffered an accident, or had lost their home because of a natural disaster or an accident. Twenty-seven cases were excluded.

The sample comprised 65% women and 35% men. As shown in Table 1, the distribution of the Spanish and Mexican samples by age groups, marital status, and educational level was homogenous. To determine participants' economic situation, they were asked whether they were undergoing any economic difficulty at that time. The data indicated significant differences between the countries in the perceived financial difficulties at the time of test administration (Table 1), with the Spaniards perceiving fewer economic difficulties.

3 Variables and Instruments

Satisfaction with Life Scale (SWLS; Pavot et al. 1991). This is made up of 10 Likert-type items, ranging from 1 (*totally agree*) to 4 (*totally disagree*). The internal consistency indexes of this study were, for the Spanish sample $\alpha = .81$, and for the Mexicans, $\alpha = .84$.

Rosenberg's Self-esteem Scale (Rosenberg 1965, Spanish version by Demo 1985), which includes 10 Likert-type items, ranging from 1 (*completely disagree*) to 4 (*completely agree*). The internal consistency index both for the Spanish and the Mexican sample was $\alpha = .80$.

Perceived Personal Control Questionnaire An ad-hoc instrument was created based on Levenson's (1975, 1981) Internal, Powerful Others, and Chance Scale and the cross-sectional model of perceived control of Kunzmann et al. (2002). Seven items were excluded because they do not fit in the entire adult cycle. The final instrument had 23 Likert-type items with responses ranging from 1 (*completely agree*) to 4 (*completely disagree*). The internal consistency index for the Spaniards was $\alpha = .71$, and for Mexicans, $\alpha = .72$. Some examples of the items are, "When I make plans, I'm pretty sure to carry them out," "To a large extent, I can determine what will happen in my life."

Life Orientation Test-revised (LOT-R; Scheier et al. 1994) This includes 10 Likert-type items, ranging from 1 (*very much agree*) to 4 (*very much disagree*), which assess dispositional optimism. The reliability index of the Spanish sample was $\alpha = .59$, and of the Mexican sample, $\alpha = .63$.

The Agreeableness Subscale of the Big Five Questionnaire (Caprara et al. 1998; Costa and McCrae 1992) is made up of 12 Likert-type with five response options, ranging from 1 (*completely true for me*) to 5 (*completely false for me*). It assesses cooperation and empathy through items such as "I easily notice if someone needs my help," "If necessary, I have no

Table 1 Sample composition and differences between countries

Variables		Mean (SD)	gl	F
Age of adults	N			
Spanish				
Young	62	25 (6,4)	1, 3	1.71 ns
Middle	45	44.4 (7,3)		
Older	50	70 (5.2)		
Mexican				
Young	43	27.9 (4.3)		
Middle	48	48.8 (9.4)		
Older	50	74.2 (6.1)		
Life satisfaction				
Young	104	15.6 (3.2)	2, 292	2.2 ns
Middle	92	14. 9 (2.5)		
Older	99	15.6 (2.5)		
		%		
Marital status				
Single		34.7	1, 295	0.93 ns
Married		49.2		
Separated		5.1		
Widowed		11.1		
Educational level				
No studies		.7	1,294	0.15 ns
Elemental studies		16.1		
High school level		7.4		
Technical career		40.8		
First years of university		10.1		
Professional career finished		11.5		
Postgraduate studies		13.2		
Economical situation				
Very difficult situation		4.3	1, 293	8.22*
Difficult situation		15.1		
Its situation was normal		46.5		
Do not have economic difficult		32.8		

Young adults 18–35 years, *Middle* 36–64 years, *Older* over 65 years

* $p < .05$

problem in helping a stranger." The reliability obtained with the Spanish participants was $\alpha = .52$, and with the Mexicans, $\alpha = .51$.

Stressful Events Scale—EAE (Fernández Seara and Mielgo Robles 1992). This dichotomous scale measures psychosocial stress based on major life events, which are defined as important events relating to one's family, personal economy, employment, or health, involving some kind of change from the usual setting such as moving, divorce, death of spouse or child, dismissal from work, etc. These major life events may cause

diverse psychological reactions. There are different versions of the EAE scale: The EAE-G is for adults under 65, and the EAE-A is for adults of 65 years and older. The mean level of stress in the sample under 65 years old (EAE-G) was 38.1 (SD = 21.1) and for 65 years and older, it was 32.0 (SD = 19.8). Both means were higher than the average stress reported by the authors with the normative groups: G version mean = 22.53 (SD = 8.9) and A version mean = 25.07 (SD = 916). The reliability of the scale was examined by its authors with the test–retest procedure and with the split-half correlation, with subsequent correction of the Spearman-Brown index. Following the same procedure, for the Spanish sample, our data produced a test–retest reliability coefficient for the A version of .87 and for the G version of .83. Likewise, the correlation coefficients of the split-half items for the Mexican sample were .74, for the A version and .85 for the G version.

Brief COPE (Carver et al. 1989). This scale is made up of 28 Likert-type items, with four response options, ranging from 0 (*never*) to 3 (*always*). This scale assesses situational and retrospective coping. Factor structure exploration of the scale, with principal components and varimax rotation, yielded seven coping styles with internal consistency indexes (Cronbach's alpha) ranging from .51 to .79: Coping by Seeking Emotional Support, Positive Reappraisal, Coping through Acceptance, Active Coping, Avoidance, Emotional Expression, and Self-Blame. Second-order factor analysis identified four factors: Active Coping, Coping through Acceptance, Seeking Emotional Support Coping, and Positive Reappraisal Coping (Jiménez et al. in press). These factors were used in the analyses.

The Socio-demographic Questionnaire was created ad hoc. It contained questions about personal information such as age, marital status, educational level, economic situation, occupation, leisure activities, volunteerism, etc. (Table 1)

3.1 Procedure

The data were collected individually at the institution the participants attended. For the adults between 18 and 64 years, the paper-and-pencil form was distributed to be self-applied. Participants were invited to ask for clarification if necessary from a trained psychologist while completing the protocol. The time needed for the administration was between 40 and 55 min. For the adults over 65 years, the procedure was, first, to verify their cognitive functioning through the MMSE by a trained psychologist; subsequently, the protocol and the socio-demographic questionnaire, in the form of an interview, were applied to those who exceeded the cut-off point. The time needed for older participants was about 60–75 min.

3.2 Statistical Analyses

We tested the mediating role of the psychological and social variables that have been shown to have a relation with positive adaptation, which was defined through life satisfaction, the cognitive aspect of the dimension of subjective well-being. As a prerequisite of the mediation analysis, we explored the relation between the variables using product-moment correlation analysis. To determine the psychological and social variables that best predict life satisfaction (indicator of positive adaptation), we performed two hierarchical stepwise regressions, using the backward method, with life satisfaction as the dependent variable. We chose this method because it allows calculating the contribution of each variable in the *t* test of significance, gradually removing from the model the variables that do not contribute to the prediction of the dependent variable. Each time a predictor is

eliminated, the model is newly estimated with the remaining predictors until only the predictor variables that have a significant effect on the dependent variable remain. With the variables that best predicted life satisfaction, we conducted communality analysis, with Pedhazur's (1982) method, estimating the unique and common variance of the psychological and social dimensions. This method consists of two multiple hierarchical regressions to estimate the differential weight of the psychological resources compared to the social resources, and the common variance in the prediction of life satisfaction.

In the first regression analysis, we used stress as the predictor, and in the second one, psychological and social resources and stress, introduced, respectively, in three steps, with stress as the final predictor in the last equation. The mediator effect will be met if, in the first analysis, stress significantly predicts the dependent variable and, in the second regression analysis, this effect is decreased or suppressed by the variables that precede stress.

Lastly, to explore whether living in different countries (despite sharing similar cultural aspects) and age have specific weight in the variables that mediate the effect of stress on life satisfaction, we conducted two final regression analyses, which constituted the study of moderation. In the first step, the aforementioned psychological and social variables, and country (Mexico $= 1$, Spain $= 0$) were entered in one of the analyses, and age in the other. In the second step of each regression, we entered the products of the variables that interacted with country or age, respectively, and in the last step, stress. Additionally, differences in life satisfaction by age (young, middle-aged, and older adults) and by country (Spain and México) were tested (Table 1). The results showed that life satisfaction did not differ by age but, it did so by country. The main goal of these analyses was to determine that life satisfaction does not vary with age, as could be thought because of older people's normal physical and health decline (Resnick and Inguito 2011).

4 Results

If the presence of the psychosocial dimensions included in the model decreases the effects of stress on life satisfaction, as the indicator of positive adaptation, this suggests the existence of a process that enables people to overcome adversity and threats.

Firstly, we estimated the central tendency measures and the product-moment correlations of the psychological and social variables under study (Tables 2, 3).

The next two multiple regressions allowed us to determine the psychological and social variables that could predict life satisfaction. The results of the first one, with regression coefficients of $R^2 = .53$ and $F(8, 199) = 27.24$, $p < .001$, showed that five psychological variables successfully predicted life satisfaction: internal control ($\beta = .28$, $p < .000$), self esteem ($\beta = .27$, $p < .000$), optimism ($\beta = .32$, $p < .000$), acceptance coping ($\beta = .10$, $p < .05$), and coping through seeking emotional support ($\beta = .11$, $p < .05$). The second analysis ($R^2 = .042$ and $F(6, 277) = 2.19$, $p < .05$) showed that the social variables that predict life satisfaction were social contact ($\beta = .13$, $p < .05$) and perceived economic difficulty ($\beta = .12$, $p < .05$). The following variables did not provide meaningful information about the prediction of the dependent variable and were therefore excluded from the next analyses: positive reappraisal coping, empathy, and cooperation—within the psychological dimensions—and leisure activities, educational level, marital status, occupation and volunteering—within the social dimensions.

Next, in order to differentiate the unique and common variance of the psychological and social variables, we conducted communality analysis by means of two hierarchical

Table 2 Means, standard deviations, and product-moment correlations between the psychological variables and stress

	M (SD)	Life satisfaction	Self esteem	Internal control	External control	Optimism	Active coping	Acceptance coping	Seeking emotional support coping	Positive reappraisal coping
1. Life satisfaction	15.4 (2.8)	1								
2. Self esteem	32.8 (4.6)	.507**	1							
3. Internal control	24.2 (3.4)	.527**	.395***	1						
4. External control	32.9 (5.6)	−.225**	−.334**	−.146*	1					
5. Optimism	18.4 (2.6)	.561**	.557***	.458***	−.382***	1				
6. Active coping	−.03 (1.1)	.07	.04	.122	.006	.190**	1			
7. Acceptance coping	.03 (1.1)	.177**	−.03	.130*	.315**	.111	.00	1		
8. Coping through seeking emotional support	−.00 (1.0)	.078	−.133**	.062	.013	−.005	.02	.02	1	
9. Positive reappraisal coping	−.02 (1.1)	−.01	−.103	.049	.234***	−.031	.009	.00	−.01	1
10. Stress	36,1 (20.8)	−.271**	−.148**	−.030	.102	−.102	.204*	.009	.099	.209*

Coping were compute from second factor analyses score

* The correlation is significant at the level .05

** The correlation is significant at the .01 level

Table 3 Means, standard deviations, and product-moment correlations between the sociodemographic variables and life satisfaction

	M (SD)	Life satisfaction	Age	Gender	Marital status	Hobbies	Social contacts	Studies
1. Life satisfaction	15.4 (2.8)	1						
2. Age	47.8 (20.2)	−.04	1					
3. Gender		.05	.10	1				
4. Marital status		−.06	**.56****	−.07	1			
6. Hobbies		−.04	**.28****	**.15****	.08	1		
7. Social contacts	7.1 (4.03)	.08	−.04	−.11	−.01	.06	1	
8. Studies		.07	**−.61****	−.04	**−.36****	**−.13***	.06	1
9. Perceived economic difficulty	3.1 (.81)	**.12***	.10	.07	−.005	.06	−.05	**.12***

regression analyses. In the first step, we entered the block of psychological variables (self-esteem, internal control, optimism, acceptance coping, and seeking emotional support coping) in the first regression equation, obtaining coefficients of $R = .73$ ($p < .001$) and $\Delta R = .527$. In the second equation, we entered the block of social variables (number of social contacts and perceived economic difficulties), obtaining $R = .74$ ($p < .001$) and $\Delta R = .024$. In the next regression analysis, we entered each block of variables in inverse order, that is, the first equation included the block of social variables, obtaining the coefficients $R = .21$ ($p < .01$) and $\Delta R = .044$ and, in the next equation, the block of psychological variables, which yielded the coefficients $R = .74$ ($p = .000$) and $\Delta R = .508$. The common variance was calculated by the difference between the ΔR from the first model of the first regression analysis and ΔR from the second model of the second regression ($\Delta R = .527 - \Delta R = .508$) $= .019$, which represents the variance shared by the psychological and the social variables. Note that the same result would be obtained if the difference of the inverse models were calculated. The unique variance corresponds to the ΔR of the second block of each analysis, thus, the unique variance of the social variables was $\Delta R = .024$, and that of the psychological variables was $\Delta R = .508$.

Summing up, the psychological variables (self-esteem, internal control, optimism, acceptance coping, and seeking emotional support coping) explained 50.8% of life satisfaction, and 2.4% was explained by variables from the social domain (perceived economic difficulties and number of social contacts). The psychological and social domains shared 1.9% of the variance, and 44.9% of the variance was explained by variables that were not included in this investigation.

To complete the mediation study, we carried out two further hierarchical regression analyses. The first one with life satisfaction as the dependent variable and stress as the independent variable confirmed that stress explained part of the variance of life satisfaction ($\beta = -.24$, $p < .05$). The regression coefficients were $R^2 = .05$ and $F(1, 293) = 14.48$, $p < .000$. The second hierarchical regression analysis revealed that the variables that make up the model—internal control, self-esteem, optimism, coping by seeking emotional support, and coping through acceptance, as well as the number of social contacts—mediate the negative effects of stress obtained in the previous analysis, and the former level of significance was canceled out in this analysis, $\beta = -.06$, $p > .05$ (Table 4).

Table 4 Mediation analysis with multiple regressions

Variables	Mediation of psychological and social resources in the relation of stress and life satisfaction											
	Step 1				Step 2				Step 3			
	B	ES β	β	FIV	B	ES β	β	FIV	B	ES β	β	FIV
Constant	6.218	2.23			4.74	2.30			5.24	2.35		
Internal control	−.06	.02	.17***	1.53	.22	−.06	−.16*	1.61	−.06	.02	−.16*	1.61
Self-esteem	.17	.04	.27***	1.67	.16	.04	.27***	1.70	.16	.04	.26***	1.73
Optimism	.35	.08	.35***	1.97	.34	.08	.33***	2.0	.34	.08	.33***	2.89
Coping through seeking emotional support	.36	.15	.13*	1.03	.43	.15	.16**	1.06	.44	.15	.33***	1.07
Acceptance coping	.26	.19	−.98**	1.12	.46	.14	.18**	1.16	.46	.14	.18*	1.16
Perceived economic difficulty					.40	.19	.12*	1.13	.37	.19	.11 ns	1.53
Social contacts					.07	.04	.10 ns	1.05	.08	.04	.11*	1.07
Stress									−.007	.008	−.06 ns	1.12

$R^2 = .480$*** (Step 1)
$\Delta R^2 = -.48$***
$F_{(5,\ 184)} = 33.97\ p < .000$

$R^2 = .500$*** (Step 2)
$\Delta R^2 = -.020$*
$F_{(7,\ 182)} = 26.00\ p < .000$

$R^2 = .503$*** (Step 3)
$\Delta R^2 = -.003$ ns
$F_{(8,\ 181)} = 22.87\ p < .001$

Life satisfaction as the dependent variable and psychological and social variables as mediator of stress

*** $p < .000$. ** $p < .001$

Two regression analyses tested the moderating effect of country and age on the variables that make up the model of resilience. The regression coefficients for country as moderator were $R^2 = .532$, $F(13, 197) = 17.22$, $p < .000$; the standardized coefficients indicated that country does not moderate any of the variables: internal control, self-esteem, optimism, coping through acceptance, coping by seeking emotional support and number of social contacts and, lastly, stress ($p > .05$ in all cases). On the other hand, when regression analysis used age as the moderator, the coefficients were $R^2 = .560$ and $F(13, 197) = 19.26$, $p < .000$. The standardized coefficients indicated that age could moderate the variable internal control ($\beta = -.19$, $p = .001$) but none of the remaining variables ($p > .05$ in all cases). An explanation for this last result may be that one's sense of control tends to change throughout the life span because it depends on diverse aspects, such as health, the influence of a nonnormative stressor, and threats to well-being (Heckhausen 2001; Wolinsky et al. 2009). Furthermore, the transition from middle age to old age, when people tend to weigh their personal achievements against their goals, can represent a period of crisis. The way to recover emotional balance would be to apply strategies to exert control, such as redefining goals and managing the dissonance between one's expectations and reality (Brandtstädter and Renner 1990). Also, personal control is known to vary with age (Wolinsky et al. 2009),and the general patterns of research findings suggest that, as people age and face increasing losses, their sense of control declines (Lachman et al. 2011). These are some explanations of how internal control moderates the variables that conform the meditational model.

5 Discussion

The central goal of this study was to identify the psychological and social variables that can mediate the negative effect of stress on life satisfaction throughout adulthood. The age of the participants ranged from 18 to almost 90 years, so the entire adult life cycle was addressed. Moreover, they had encountered high levels of adversity, as confirmed through the Stressful Events Scale (Fernández Seara and Mielgo Robles 1992).

The resources in mediation model may form a sort of armor that protects people when they face adversities (Greve and Staudinger 2006) and lead to successful adaptation to stress and risks. We expected the psychosocial dimensions that lead to positive adaptation to be relevant for young adults, middle-aged adults, or old people. In this sense we confirm the sample of this study face a high level of adversity so this is confirmed in both the stressful scale measured through a major life events and the average stress which is approximately a Typical Deviation higher than the normative group stress reported in the EAE manual scale (Fernández Seara and Mielgo Robles 1992). In our view, the mediation model supports the theoretical assumption of resilience, incorporating characteristics considered either individual traits or behaviors learned over time (Resnick and Inguito 2011), which protect (Greve and Staudinger 2006) and enable people to adapt in the face of tragedy, trauma, adversity, hardship, and ongoing significant life stressors (Newman 2005). Specifically, psychological resources: internal control, self-esteem, optimism, and coping strategies of acceptance and seeking emotional support, on the one hand, and social contacts on the other, conjointly moderate the negative effect of stress on life satisfaction.

Empirical evidence supports the importance of each of the variables that conform the proposed model. It is well known that perception of internal control triggers cognitive strategies that are useful in difficult situations and it intervenes in a balanced appraisal of problems (Joop and Rott 2006).The result of the regression analysis with age as moderator,

highlights that internal control is the only variable significantly affected by age, which we believe could be explained because perceived control can vary over the life span and, in advanced stages, older people may experience a reduction of control in comparison to young and middle-aged adults (Márquez et al. 2008; Lachman et al. 2011). Self-esteem emerges as a protector element of the negative effects of adversity. Self-esteem moderates coping with threats and stress (Aspinwall 2001) and at the same time, it is a precondition to mobilize and accept social support. Nevertheless, self-esteem can also decrease due to the presence of adversity (Greve and Staudinger 2006) although when it interacts with other resources, such as a sense of control, optimism, or positive coping, it is less likely to decrease. Optimism also mediates the effects of stress, especially when it is accompanied by adequate self-esteem (Jackson et al. 2005) or perceived control (Joop and Rott 2006), particularly in older people.

In stressful situations, positive coping facilitates problem solving, promotes emotional regulation, and provides cognitive meaning to events (Folkman and Moskowitz 2000). Specifically, the strategies that contribute to the model of resilience in this work were coping aimed at seeking emotional support and coping through acceptance. McCrae (1982) reported that, in threatening situations, seeking help favors satisfactory adaptation, active coping through acceptance indicates that adults of any age make cognitive adjustments that allow them to adapt to stress, probably because they reduce dissonance and emotional maladjustments, especially when facing events that cannot be changed. It has also been reported that other ways of coping that are contrary to acceptance, such as avoidance (Uribe et al. 2007) or distraction (Márquez et al. 2006), can lead to unhealthy emotional maladjustment. Summing up, among the diverse coping strategies, seeking emotional support and acceptance are useful throughout the entire life cycle although, in general, active problem-focused coping is especially relevant among young adults.

It might be argued that self-esteem, optimism, and sense of control, which conform part of the positive adaptation model, are personal traits of people considered resilient (Connor and Davidson 2003; Waugh et al. 2008), as well as being attributes that may correlate with, or result from, resilience. As pointed out by Kinard (1998), distinguishing between factors that define resilience and those that promote or reduce resilience may be difficult. Whether resilience is best conceptualized as a personality trait (e.g., Connor and Davidson 2003; Wagnild and Young 1990) or a dynamic developmental process (e.g., Luthar et al. 2000; Rutter 2007) is an issue that researchers have yet to resolve. Richardson (2002) pointed out that these opposing conceptualizations are a progression in the field chronological waves in the study of resilience, and each one contributes to understanding the mechanisms by which individuals successfully adapt to adversity, either through resilient traits or because the process reveals the negotiation between psychosocial resources and adversity to reach positive adaptation (Werner 1995; Gucciardi et al. 2011).

In this study, the psychosocial resources that mediate the negative effect on life satisfaction and lead to positive adaptation also support the theoretical assumption of resilience (Newman 2005). Although resilience can be operationalized in many different forms, the fact that individuals are enriched and empowered by these variables highlights the importance of stimulating and promoting them from an early age to very advanced old age, as this would strengthen personality and protect people from adversity.

The social variable that fit the model is the number of social contacts, which, along with the psychological dimensions, is a key element to favor positive adaptation and resilience (Kessler and Staudinger 2007). The protector role of social relations in the face of adversity and chronic stress at any point in one's lifetime, as well as the mediator role of processes related to well-being and happiness, are again revealed. Social relations play a

special role when other resources decrease, becoming a personal reserve in the face of stress. It has also been reported that social relations mediate adults' perceived self-efficacy and feelings of happiness (Masten 2007). Because relationships are a source of acknowledgement and of sharing experiences, they strengthen feelings of self-efficacy and self-worth, they reinforce competences and encourage people to carry out plans, which, in turn, increases their sense of well-being, happiness, and their positive view of life, especially significant in older people (Joop and Rott 2006).

Lastly, responding to the investigation of the moderating effect of age and country, the result of the analyses indicated that, for participants of this study, age affected their sense of control, which may reinforce or undermine the positive adaptation model. This result is consistent with the assumption that one's sense of control changes throughout one's lifetime, because it depends on diverse internal or external variables and on the stressors that used to predominate in old age and cause a weakening sense of control and a loss of confidence (Wolinsky et al. 2009; Lachman et al. 2011). And, on the other hand, the analysis of moderation by country shows that being Mexican or Spanish had no specific weight on the variables that make up the model of positive adaptation. This may be because both countries are similar in cultural aspects such as familism or collectivism, which, in turn, are both a result of and influenced by social and cultural norms. The moderation analysis shows that, despite the fact that each country has its own history and specific socioeconomic conditions, the mere fact of belonging to one or the other did not affect the variables that mediate the relationship of stress and life satisfaction.

This study presents some limitations, and there are some suggestions for future research. Firstly, on the one hand, a cross-sectional study makes it difficult to determine the effect of each variable at each adulthood stage and how they might buffer subjective well-being from stress. A longitudinal study would be an optimal method, which of course, would require a large amount of resources. On the other hand, the nonrandomness and size of the sample, as well as the fact that it had slightly more women than men (which might skew the results toward a trend of women's responses), limit the generalization of the results. We recommend replicating the model with a larger number of representative participants from the entire spectrum of adulthood, preferably with random sampling to test the variables identified herein as protectors from stress, and their relative weights. A second weakness of the study is the low Cronbach alpha of the Life Orientation Test (for the Spaniards) and of the Agreeableness subscale of the Big Five Questionnaire. The first case could be explained because of the few items that form the scale. These results should be interpreted with precaution.

Thirdly, although the results show a series of variables that favor balance and emotional health throughout entire adulthood, there are other variables strongly related to positive adaptation and resilience that did not were included in this study, such as emotional regulation, positive emotions, self efficacy, genetic and neuro-endocrine function, intelligence, etc. Future research should take these variables into consideration and explore how each one, isolatedly and conjointly, interact in the process of positive adaptation. In order to explain the lack of differences between Spaniards and Mexicans, it would be interesting to analyze the specific cultural variables, such as belief systems, attitudes, familism, life conditions, or specific economic conditions, and even—from a transactional and ecological perspective—the proximal and/or distal variables and their interactions that threaten adults' adaptation in each country (Feldman and Masalha 2007). Finally, it would be interesting to establish programs and intervention actions based on the evidence of this study to promote the processes of resilience throughout adulthood and that, as frequently noted, should be well grounded on diverse levels of study, including the social,

psychological and biological level, which are now attracting more attention from the scientific community (Luthar and Brown 2007; Masten 2007).

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