

ORIGINAL ARTICLE

Stressful life events and hopelessness in adults: the mediating role of mentalization and emotional dysregulation

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Objective: Hopelessness is considered a risk factor for several mental and behavioral disorders. Research has shown that a stressful life event can be a significant predictor of hopelessness. The aim of the current research study was to explore the relationship between stressful life events and hopelessness, as well as to analyse the mediation effect of both mentalization and emotional dysregulation on this relationship.

Methods: In a cross-sectional design, 607 participants recruited from the Spanish general population completed a series of measures.

Results: Hopelessness was significantly related to stressful life events ($r = 0.24, p < 0.001$), emotion dysregulation variables ($r = 0.18/0.38$), and most measures of mentalization ($r = 0.02/0.34$). A good-fitting structural equation modeling-based mediation model ($\chi^2/df = 2.04$; root mean squared error of approximation = 0.042 [90%CI 0.033-0.050]; comparative fit index = 0.97; non-normed fit index = 0.97) showed that mentalization significantly mediated the relationship between stressful life events and hopelessness, while emotion dysregulation had no significant mediating effect.

Conclusions: These results could have important clinical implications, such as the development of mentalization-based interventions for people living under a large number of stressors.

Keywords: Stressful life events; mentalization; emotional dysregulation; hopelessness

Introduction

Hopelessness is a cognitive experience and a prolonged negative outlook, due to internal causes, in which the subject expects negative consequences and has a catastrophic perception of the future, along with the feeling that their current situation has a low probability of changing.^{1,2} Some factors have been identified as predisposing to hopelessness, such as unemployment, a lower educational level, or unfavorable health conditions.³ Hopelessness, in turn, has been associated with increased psychological distress, greater subjective discomfort, and stressful life events.⁴ In addition, it has been observed that people with higher indicators of hopelessness tend to be more dissatisfied with life and demonstrate suicidal ideation or behavior.^{5,6}

Hopelessness has been described as a vulnerability factor in the face of stressful life events. Thus, a person suffering from feelings of hopelessness who experiences adverse life situations may show a greater propensity to attributing negative causes and consequences to such situations, acquiring a greater risk of suffering from mood

disorders. In addition, hopelessness is strongly related to various pathologies, such as posttraumatic stress disorder or major depression disorder.⁷

Conversely, stressful life events play a relevant role in hopelessness.⁶ In fact, a strong relationship has been found between life stressors and emotional or behavioral problems.⁸ Life stressors can produce socioemotional imbalances in some individuals, due to difficulty in exercising cognitive and/or emotional control, which, in turn, can produce greater reactivity and lead to negative attributions or inferences about these stressors. This way of interpreting negative events therefore contributes to a state of hopelessness.

A number of stressful life events have been related to hopelessness. A recent study⁹ demonstrated that exposure to violence has a profound psychological impact on future beliefs, increasing feelings of hopelessness. Similarly, having experienced sexual assault,¹⁰ discrimination or bullying,¹¹ or suffering from a disease are all strongly associated with hopelessness.¹²

The relationship between life stress and hopelessness may be indirect and related to mentalization, since there

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would be a limited capacity of awareness and understanding of the mental states involved in the problem.¹³ Mentalization is suggested to be a mechanism that operates on a neurobiological level and affects the way people think of themselves and others.^{14,15} Therefore, mentalization facilitates the perception and interpretation of one's own and others' behavior in terms of mental states such as needs, desires, intentions, beliefs, or feelings.¹⁶ Thus, one could understand mentalization as the ability to see oneself from the outside and others from the inside, which implies a capacity for curiosity and openness.¹⁷ Mentalization has been described by four facets or dimensions. The first, implicit-explicit (sometimes also referred to as automatic-controlled), requires reflection, attention, and intentionality, and is predominantly verbal. The second is constituted by the internal-external polarity, which focuses on aspects such as the thought, feelings, or internal experiences of oneself (internal) or others (external). The third, self-others, describes the degree of focus on the self, which follows the perception of one's own mental functioning, such as monitoring one's own mental states. Finally, there is the cognitive-affective polarity, which focuses on aspects related to cognition and emotion.^{18,19} In essence, mentalization gives individuals the ability to reflect on actions, adopt different perspectives, and respond to the demands of the interpersonal environment without reaching emotional states of dysregulation, thus better dealing with negative thoughts or overwhelming emotional states.¹⁹ Diminished mentalization can lead to a variety of different reactions. For example, a person could experience their thoughts, mental images, or affects in an excessively real way, to the extent that they cease to be mental events. As a consequence, controlled mentalization deteriorates due to emotional overactivation, leading to problems of emotion regulation.¹⁵

Along these lines, emotional dysregulation operates as a difficulty in activating effective strategies in the face of negative affective states. Therefore, emotional dysregulation manifests itself in three possible ways: dysregulation by effectiveness deficit; dysregulation by use of dysfunctional strategies; and finally, dysregulation by activation deficit, in which the individual does not activate the necessary strategies despite experiencing states of dysphoria.²⁰ Dysregulation by activation deficit is especially relevant, as hopelessness could be understood as a difficulty with emotional regulation, since it includes trouble trying to regulate the state of hopelessness with positive memories – a strategy used frequently by people who do not suffer from hopelessness.²¹ In addition, people with a history of depressive moods have been identified as having greater trouble regulating their emotions, less clarity, and less emotional acceptance. The present study seeks to contribute to existing evidence of the relationship between stressful life events and hopelessness, in order to contemplate possible future intervention strategies in groups affected by adverse events and reduce possible states of hopelessness.

This study has two objectives. The first is to analyze the relationship between life stress, mentalization, emotional dysregulation and hopelessness. The second is to explore the mediating role of mentalization and emotional

dysregulation in the relationship between life stress and hopelessness.

Method

Participants

The study sample was made up of 607 participants incidentally taken from the Spanish general population via Internet (see Procedure section). Age ranged from 18 to 89 years (mean = 33.99, standard deviation = 12.95). The other sociodemographic variables (gender, marital status, educational level, socioeconomic level, and psychiatric diagnosis) are detailed in Table 1.

The only requirement for taking part in the study was age (18 years or older).

Instruments

The internal consistency values reported below refer to the sample from the current study.

Responses to Stress Questionnaire (RSQ)

The Spanish version of the RSQ was used.²² RSQ measures coping and involuntary stress responses. It begins with a checklist of stressors that pertain to a specific stressful situation or stress domain (e.g., parental depression, childhood cancer, family conflict, economic

Table 1 Descriptive statistics of sociodemographic parameters

	n	%
Gender		
Male	193	31.8
Female	410	67.5
Non-binary	4	0.7
Marital status		
Unmarried	232	38.2
Married or living with partner	325	53.5
Divorced	45	7.4
Widowed	5	0.8
Educational level		
Some primary education	5	0.8
Primary education completed	30	4.9
Secondary education	63	10.4
Vocational education	56	9.2
Professional education	72	11.9
University degree	380	62.6
Income (€ / year)		
< 5,000	74	12.2
5,000 to 10,000	77	12.7
11,000 to 15,000	103	17.0
16,000 to 20,000	92	15.2
21,000 to 30,000	113	18.6
31,000 to 40,000	69	11.4
41,000 to 50,000	36	5.9
> 50,000	43	7.1
Psychiatric diagnosis		
Yes	56	9.2
No	551	90.8

hardship, chronic pain, academic stressors), which the participant rates in terms of how often each stressor has occurred in the recent past. The internal consistency was high ($\alpha = 0.88$).

Difficulties in Emotion Regulation Scale (DERS)

The Spanish version of the DERS was used.²³ It is a 28-item self-report instrument that measures difficulties in emotion regulation through five main elements: emotional lack of control ($\alpha = 0.85$), emotional rejection ($\alpha = 0.92$), daily interference ($\alpha = 0.87$), emotional lack of attention ($\alpha = 0.90$), and emotional confusion ($\alpha = 0.91$). These factors can be summed to yield a global score ($\alpha = 0.94$). Items are scored on a 5-point Likert scale.

Beck Hopelessness Scale (BHS)

The Spanish version of the BHS was used.²⁴ The BHS assesses the negative expectations that a person has about their future and their well-being (i.e., the extent to which a person is pessimistic about themselves as an individual), as well as their ability to overcome difficulties and achieve success in their lives. It is a scale consisting of 20 dichotomous statements (true or false). Items that indicate hopelessness are scored 1 point, and those that do not, 0 points; the maximum score being 20 points. The internal consistency was high ($\alpha = 0.80$).

Toronto Alexithymia Scale (TAS-20)

This questionnaire consists of three subscales: difficulty identifying emotions and differentiating between bodily and physiological sensations ($\alpha = 0.90$); difficulties with the verbal expression of emotions ($\alpha = 0.85$); and style of thought oriented to external details ($\alpha = 0.66$). The tool consists of 20 questions, which are answered by means of a 5-point Likert scale. The Spanish version of the TAS-20²⁵ has been shown to have very similar psychometric properties to the original version.

Reading the Mind in the Eyes Test (RMET)

The RMET is an instrument for assessing Theory of Mind (ToM). It consists of 19 photos of people in greyscale, in which only the area surrounding their eyes can be seen. Each picture is surrounded by four mental status terms and the participant is invited to choose the word that, in their opinion, best describes what the person in the picture is feeling or thinking. Only one of the four answers is taken as correct. The internal consistency of the instrument, measured through McDonald's ω as the responses are dichotomous (correct/incorrect), was low ($\omega = 0.47$), but similar to that of the Spanish adaptation study.²⁶

Mindful Attention Awareness Scale (MAAS)²⁷

The MAAS consists of 15 items, with a 6-point Likert response format. It is a self-report instrument that measures the capacity of the person to be attentive and aware of the experience of the present moment. The Spanish version of this scale has shown good psychometric properties, good stability over time, and replicates the original

unifactorial structure.²⁷ The internal consistency in the current sample was high ($\alpha = 0.87$).

Interpersonal Reactivity Index (IRI)

The IRI is a self-report instrument made up of 28 items distributed into four subscales that measure four dimensions of the global concept of empathy: Perspective-Taking ($\alpha = 0.74$), Fantasy ($\alpha = 0.78$), Empathic Concern ($\alpha = 0.69$), and Personal Distress ($\alpha = 0.73$). The Spanish version of the IRI was applied.²⁸ Each dimension consists of seven items, which are scored on a 5-point Likert scale.

Procedure

Data collection was carried out via Google Forms, using the snowball technique with the general population over the age of 18. This procedure is based on research suggesting the validity of data gathered via the internet,²⁹ the technical advantages of which allow researchers to design sophisticated experiments and tasks to collect data in many areas of psychology. This methodology has demonstrated a series of advantages, mainly: access to large samples, which ensures external validity and the possibility of easy generalization of the results obtained; low experimental cost; the possibility of providing tools for the development of the task without a time limit; total voluntariness of participation, which generally improves the motivation of the subjects; elimination of the data coding phase, as the program itself can take on this task, thus eliminating the risk of data entry errors; the great versatility in task design; and the possibility of reducing the influence of demand characteristics, observer biases, and response biases.³⁰ In addition, according to the Spanish National Institute of Statistics, 90.7% of the Spanish population aged 16 to 75 years had access to the internet in 2019,³¹ which facilitates the use of this method.

A link to the survey was sent out via different internet-based applications and social networks, such as email, Facebook, and WhatsApp. The survey started with an explanatory letter addressing ethic issues, which had to be agreed upon by clicking the appropriate option on the screen. In order to complete the questionnaires, all questions had to be answered before the survey could be sent, thus avoiding incomplete questionnaires and loss of data.

Data analysis strategy

The data analysis strategy comprised four steps. First, several descriptive statistics of the measures used in the current study were calculated (mean, standard deviation, minimum and maximum values of the distribution of the sample). Both skewness and kurtosis were also calculated, in order to analyze the closeness of each of the measures to a normal distribution.

Second, the effect of possible covariables (age, gender, marital status, educational level, family income, and having or not having a psychiatric diagnosis) on hopelessness was tested. Depending on the nature of each of these covariables, calculation of Pearson's r (for age), t test

(for gender and having vs. not having a psychiatric diagnosis), or analysis of variance (ANOVA) (for marital status, educational level, and family income) were conducted. Third, bivariate correlation coefficients (Pearson's r) among all variables were calculated. Finally, based on the preceding correlational analysis, the serial mediation effect of mentalization and emotion dysregulation on the relationship between stress and hopelessness was analyzed through structural equation modelling (SEM). The results were interpreted through the global fit of the model, considering four fit indices: the quotient between χ^2 and the degrees of freedom of the model, which should be lower than 3 to be considered good³²; the root mean squared error of approximation (RMSEA), which should be close to 0.06^{33,34}; and the non-normed fit index (NNFI) and comparative fit index (CFI), whose values should be above 0.95.³³ The analysis was conducted in EQS 6.1 software,³⁵ following the robust maximum likelihood method of estimation of parameters. Once a good-fitting structural model was obtained, the specific mediation effects of both mentalization and emotion dysregulation on the relationship between stressful events and hopelessness were analyzed through the indirect effects. A significant mediation effect was assumed when an indirect effect was significant.

Ethics statement

The explanatory letter presented at the start of the survey contained the following information: the organization supporting the study; content and general goals of the study; duration and elements to be measured; informed consent; willingness to do the study; and confidentiality and anonymity of the obtained data. The participants agreed to participate in the study by clicking the option "I agree to the conditions of taking part in the study." No identifying data were collected, and there was no financial incentive to participate in the study. The study was approved by the ethics committee of the European University of the Atlantic.

Results

First, descriptive statistics of the measures were calculated. The results are shown in Table 2. As can be observed, all of the measures showed a normal distribution, as all of the skewness values were between -1.5 and 1.5, and all of the kurtosis values were between -2 and 2.

Second, the effect of possible covariables (age, gender, marital status, educational level, family income, and having or not a psychiatric diagnosis) on hopelessness was tested. The results showed that the effect of family income was significant ($F_{7,606} = 2.28$, $p = 0.027$), although Hochberg's GT2 post-hoc test showed no significant differences in any of these pairs. Likewise, having or not a psychiatric diagnosis also showed a significant effect ($t_{605} = 5.31$, $p < 0.001$), with those participants with a psychiatric diagnosis reporting higher levels of hopelessness than those with no diagnosis. The other variables were not related to hopelessness: age, $r = 0.01$, $p = 0.953$; gender, $t_{601} = 0.45$, $p = 0.654$; marital status, $F_{3,606} = 2.21$, $p = 0.086$; and educational level, $F_{6,606} = 0.58$, $p = 0.749$.

Third, bivariate relationships among the variables were analyzed through Pearson's r . The results are detailed in Table 3. As can be observed, hopelessness was significantly related to most of the other variables in the expected direction. Likewise, in general, the rest of the variables were significantly related each other, with the exception of ToM, which was uncorrelated with several variables (including both stress and hopelessness).

Finally, the serial mediation effect of mentalization and emotion dysregulation on the relationship between stress and hopelessness was analyzed through SEM. The initial model included both family incomes and having or not a psychiatric diagnosis as covariables, stress as the independent variable, mentalization as the first mediator, emotion dysregulation as the second mediator, and hopelessness as the dependent variable. Mentalization was set as a latent variable, which was integrated by the four mentalization variables that were assessed:

Table 2 Descriptive statistics of study measures

	M	SD	Min	Max	Sk	K
Stress	27.34	15.11	0	76	0.45	-0.26
Hopelessness	4.23	3.25	0	18	1.37	1.86
RMET	13.58	2.49	4	19	-0.42	0.10
Perspective taking	25.18	4.93	10	35	-0.10	-0.51
Fantasy	22.58	5.95	7	35	0.02	-0.53
Empathic concern	26.84	4.56	10	35	-0.35	-0.03
Personal distress	16.75	5.06	7	35	0.47	0.05
Difficulty describing emotions	12.14	8.43	0	35	0.57	-0.45
Difficulties identifying feelings	10.76	6.49	0	25	0.25	-0.88
Externally oriented thinking	12.20	5.79	0	27	0.07	-0.65
MAAS	4.23	0.86	1	6	-0.59	0.19
Inattention	9.48	3.83	4	20	0.45	-0.53
Rejection	15.23	7.21	7	35	0.95	0.09
Confusion	7.89	3.50	4	20	1.02	0.60
Interference	10.07	4.18	4	20	0.71	-0.32
Non-control	17.10	7.70	9	44	1.19	0.75

M = mean; MAAS = Mindful Attention Awareness Scale; Max = maximum value of the distribution in the sample; Min = minimum value of the distribution in the sample; RMET = Reading the Mind in the Eyes Test; SD = standard deviation; Sk = skewness; K = kurtosis.

Table 3 Bivariate correlation coefficients (Pearson's r) among the variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Stress	-														
2. Hopelessness	0.24*	-													
3. RMET	0.05	-0.02	-												
4. Perspective taking	0.11†	-0.05	0.13*	-											
5. Fantasy	0.27*	0.09†	0.16*	0.29*	-										
6. Empathic concern	0.28*	0.09†	0.17*	0.45*	0.47*	-									
7. Personal distress	0.23*	0.34*	0.01	-0.12†	0.19*	0.19*	-								
8. Difficulty describing emotions	0.31*	0.31*	-0.05	-0.18†	0.10†	0.09†	0.43*	-							
9. Difficulties identifying feelings	0.14*	0.26*	-0.10†	-0.21*	-0.12†	0.32*	0.32*	0.62*	-						
10. Externally oriented thinking	-0.07	0.12†	-0.20*	-0.49*	-0.33*	-0.33*	0.18*	0.29*	0.41*	-					
11. MAAS	-0.33*	-0.28*	0.00	0.09	-0.15*	-0.04	-0.30*	-0.54*	-0.44*	-0.20*	-				
12. Inattention	0.01	0.18*	-0.16*	-0.36*	-0.26*	-0.26*	-0.18*	0.38*	0.50*	0.55*	-0.42*	-			
13. Rejection	0.33*	0.31*	-0.03	-0.02	0.20*	0.18*	0.41*	0.57*	0.39*	0.09†	0.14*	0.14*	-		
14. Confusion	0.23*	0.25*	-0.07	-0.22*	0.01	-0.08†	0.32*	0.73*	0.64*	0.31*	-0.54*	0.49*	0.49*	-	
15. Interference	0.37*	0.34*	0.04	0.04	0.25*	0.16*	0.40*	0.43*	0.29*	-0.04	-0.43*	0.06	0.51*	0.42*	-
16. Non-control	0.39*	0.38*	0.01	-0.11†	0.24*	0.14*	0.49*	0.56*	0.31*	0.06	-0.49*	0.13*	0.60*	0.53*	0.75*

MAAS = Mindful Attention Awareness Scale; RMET = Reading the Mind in the Eyes Test.

*p < 0.001; †p < 0.01; ‡p < 0.05.

alexithymia, whose three observational variables were integrated into a latent variable; empathy, whose three observational variables were integrated into a latent variable; ToM; and the capacity of the person to be attentive and aware of the experience of the present. Likewise, emotion regulation was set as a latent variable, integrated by the five factors of the DERS questionnaire. The results of this initial model showed a poor fit to the data, according to all of the indices: $\chi^2/\text{degrees of freedom (df)} = 10.26$; RMSEA = 0.124 (90% confidence interval [90%CI] 0.117-0.131); CFI = 0.73; NNFI = 0.67. Subsequently, the non-significantly related variables (RMET, family incomes, and having or not a psychiatric diagnosis) were removed, and the model was run again. This new model attained a good fit to the data: $\chi^2/\text{df} = 2.04$; RMSEA = 0.042 (90%CI 0.033-0.050); CFI = 0.97; NNFI = 0.97. The path analysis is detailed in Figure 1. As can be observed, all of the coefficients were significant, and their direction was as expected according to the direction of the measures. The model explained 21% of the variance of emotion regulation.

Once a model was obtained, the specific mediation effects were analyzed through the indirect effects. Non-standardized beta coefficients (B), standard errors (SE), and their associated *t*-tests are reported. The results suggested that mentalization significantly mediated the relationship between stress and dysregulation (B = -22.05, SE = 4.52, *t* = -4.88, *p* < 0.001). In the case of dysregulation, it did not mediate the relationship between mentalization and hopelessness, as a non-significant indirect effect was obtained (B = 0.06, SE = 0.05, *t* = 1.17, *p* = 0.242). Finally, both mentalization and dysregulation significantly mediated the relationship between stress and hopelessness, as a significant indirect effect was obtained (B = 0.04, SE = 0.01, *t* = 6.94, *p* < 0.001). In conclusion, mentalization had a significant mediation effect in the relationship between stress and hopelessness, but emotion dysregulation was not a mediator.

Discussion

The present study aimed to analyze the relationship between life stress, mentalization, emotional dysregulation, and hopelessness, as well as to explore the mediating role of mentalization and emotional dysregulation in relation to life stress and hopelessness.

After analyzing the relationship between life stress and hopelessness, we observed that people who have experienced stressful life events have higher indicators of hopelessness. Similar data were reported in a previous study,³⁶ in which a relationship between negative life stressors and hopelessness was observed. Another study examined the relationship between negative life events, hopelessness, and suicidal behavior, and established a strong link between them.³⁷

According to the findings of this study, people who have experienced negative life events show greater indicators of emotional dysregulation and hopelessness. Specifically, they show a greater tendency to experiencing secondary emotions as a response to a primary emotion, greater difficulty in recognizing and understanding

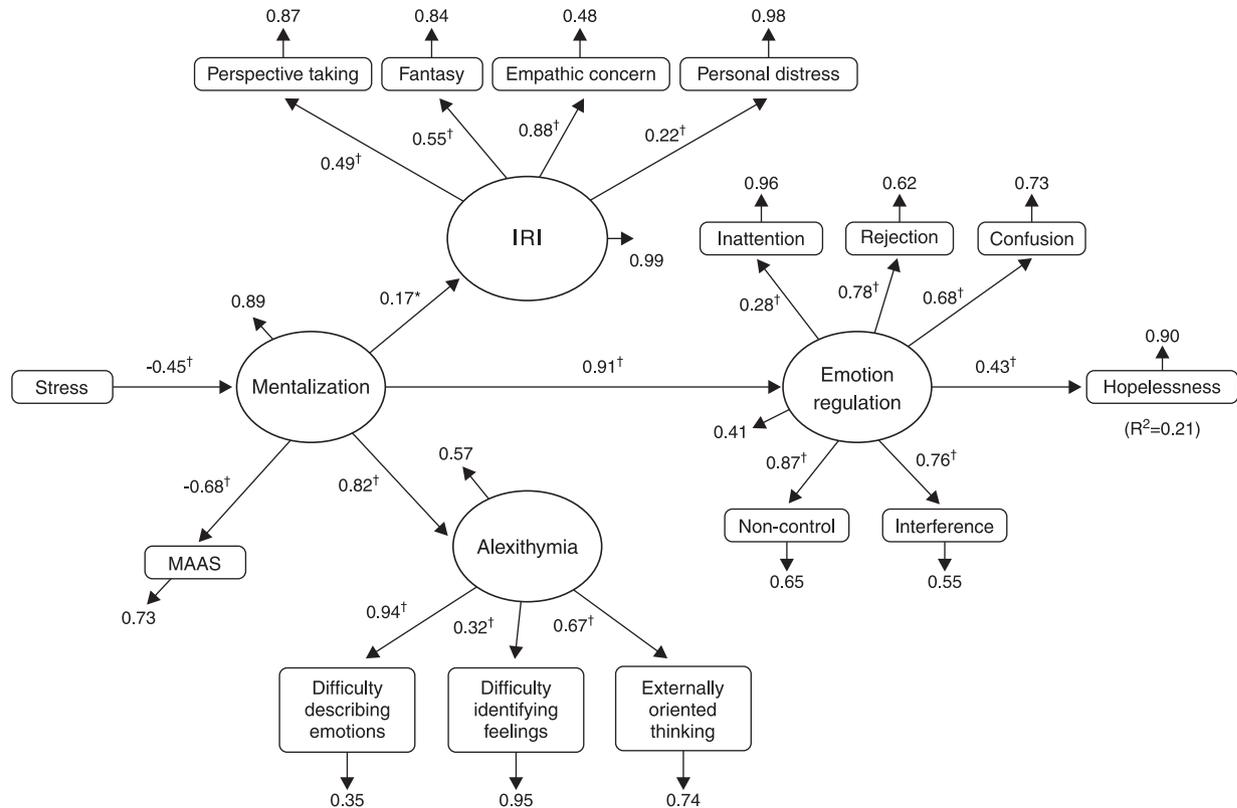


Figure 1 Path analysis of the mediation effect of mentalization and dysregulation in the relationship between stress and hopelessness. IRI = Interpersonal Reactivity Index; MAAS = Mindful Attention Awareness Scale. * $p < 0.01$; † $p < 0.001$.

emotions, more problems concentrating or performing tasks when experiencing a negative emotion, and a greater belief in the difficulty of modifying a dysfunctional emotional state. In this regard, one study³⁸ identified that the presence of emotional dysregulation predicted hopelessness. Other authors³⁹ suggest that exposure to negative life events increases the propensity for emotional dysregulation, leading to hypothetical prediction of a negative future life.

Other findings of the present study suggest that being exposed to stressful life events and experiencing hopelessness is related to a lower capacity for mentalization, since we observed several deficits in the multiple aspects of mentalization. People who have experienced stressful life events showed greater difficulty in discriminating emotional signals, difficulty with the verbal expression of emotions, greater difficulty in being attentive and aware of the experience of the present moment in daily life, problems in adopting the perspective or point of view of others, and greater tendency to identify with fictional characters. On the other hand, they showed greater compassion and concern for others, as well as greater discomfort and anxiety when witnessing negative experiences in others. In relation to the latter, the authors of a previous study⁴⁰ point out that sometimes adverse experiences can increase growth after the stressful life event, improving compassion and prosocial behavior. Similarly, another study⁴¹ found that people who had been exposed to serious traumatic experiences in childhood showed a

greater capacity for cognitive and affective empathy. However, other studies have reported opposing data on stressful life events, suggesting that they could have an impact on empathic capacity in adult life or even lead to negative outcomes such as depressive states.⁴²

Finally, we analyzed the mediation effect of both mentalization and emotion dysregulation on the relationship between stress and hopelessness. The mediation model suggested that mentalization mediates the relationship between life stress and dysregulation of emotions. In turn, emotional dysregulation did not mediate the relationship between mentalization and hopelessness. Finally, mentalization and emotional dysregulation mediated the relationship between stressful events and hopelessness. This could be because the emotional distress a person experiences can lead to the development of maladjusted behaviors in which they are unable to mentalize and, therefore, to effectively regulate their emotional state.⁴³ This suggests that having knowledge of emotional experience, being able to regulate one's own emotions, and recognizing mental states in other people could facilitate the regulation of emotions, activating effective strategies to cope with hopelessness.¹³

As for the practical implications of this study, it should be highlighted that mentalization and emotion regulation could be understood as protective factors in the face of various stressful life events. Therefore, they could be relevant elements when working therapeutically to cushion the effects of life stressors and help patients build the

ability to regulate emotions effectively, thus decreasing the propensity for hopeless or depressive states. Along these lines, some studies have suggested that mentalization could act positively in traumatic situations.⁴⁴ The capacity of understanding one's own and others' states of mind, as well as the appropriate use of such representations, allow one to face suffering and resolve psychological and interpersonal conflicts.⁴⁵ In one study,⁴⁶ people who showed negative anticipation and were unable to question the veracity of these attributes tended to have greater difficulty regulating negative emotions. These relative findings regarding mentalization indicate that the greater the capacity for mentalization, the greater the reduction of symptoms associated with alexithymia or depressive states. Thus, taking into account mentalization and the regulation of emotions in the therapeutic context becomes a truly important challenge.⁴⁷

The present study has some relevant limitations that should be pointed out. First, the use of self-reports could lead to measurement bias. We therefore suggest that future studies consider other forms of measurement. Second, internet-based research also has inherent limitations, one of the most important being the fact that the psychometric properties of the paper-and-pencil and internet versions of a questionnaire may not be comparable. Therefore, measuring instruments should be retested in this medium, as the construct validity may be altered. In this case, the instruments applied had not been previously validated for application via the internet. Third, no social desirability or other biases were measured, which may affect the validity of the data. However, in one of the advantages of internet-based research, the anonymity of the respondents may actually have increased the validity of the responses. Fourth, as the sampling method was not random, but incidental, the sample is not completely representative of the Spanish population – people over the age of 75 and some specific groups with limited internet access, such as the homeless, will have been particularly underrepresented. Nevertheless, the relatively large sample size could help improve the statistical validity of the analyses. Fifth, the use of multiple self-reports to measure the various dimensions of mentalization makes it difficult to adequately measure each one. In the future, it would be relevant to study the influence of mentalization and emotional dysregulation on other groups of a clinical nature. Finally, it is important to contemplate studies of a longitudinal nature and to incorporate other ethnic groups, since the sample consisted mainly of white respondents.

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