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Understanding the effect of the caring dimension of PYD on depression: the role of positive and negative affect regulation strategies in Spanish emerging adults

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Abstract

Background Positive Youth Development (PYD) has been associated with positive results in the transition to adulthood. Within the 5Cs model of PYD, the Caring dimension has been defined as the ability to feel sympathy and empathy towards others. However, the literature has shown some controversial results on the role of Caring in the psychological adjustment of young people. The aim of this study was to analyze the mediating role of strategies for coping with negative affect (i.e., distraction and depressive rumination) and strategies for coping with positive affect (i.e., dampening and positive rumination) in the relationship between Caring and depressive symptoms. We examined gender differences as well.

Methods A cross-sectional self-report study was carried out in 2021, with a sample of 1,040 young people (75.5% females; Age range = 18–28; M_{age} = 20.47, SD = 3.08), enrolled at 11 universities in Spain. Multiple partial mediation analysis was performed to examine the mediation of responses to positive and negative affect in the relationship between Caring and depression, and a path analysis was developed to integrate gender effects.

Results The results indicated that Caring was positively associated with more depressive symptoms through maladaptive affect responses, i.e., more depressive rumination, more inhibition of positive affect, less distraction and less positive rumination. On the contrary, a more adaptive regulation of the affect was associated with less depression. Gender differences were observed, where women scored higher in Caring, depressive rumination and dampening.

Discussion Some practical implications may be derived from these results. The role of Caring as an expression of sympathy and empathy can have a protective effect on psychological adjustment through the use adaptive skills to manage positive and negative affect. Programs integrating Caring dimension of PYD and emotional regulation skills training should be designed in university context, so that psychological adjustment can be maximized among university students and that the students, especially, females can be able to care for others as well as themselves.

Keywords Depression, Caring, Affect regulation, Coping, Youth, Mediation, Gender

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Introduction

Theoretical framework: introducing positive youth development (PYD) theory and the 5Cs model

Research with young people has traditionally followed a deficit perspective, which has influenced the type of design of intervention programs [1]. Literature to date indicates that these interventions have less impact if they are only focused on risks and vulnerabilities and suggests that a strength-based approach is required to promote a healthy development [2–4]. Positive Youth Development (PYD) theory is a strength-based approach of the transition to adulthood in which positive outcomes emerge as a result of the interaction between adequate individual skills and nurturing contextual assets [5–10]. This perspective considers young people as individuals with "resources to be developed" rather than incomplete, risky, or problematic people. This framework is derived from a macro-theory called Relational Developmental Systems Theory (RDST), that postulates that youth development depends on the reciprocal interrelations between biological, individual and contextual factors [10–12].

Lerner et al. [13] proposed a PYD model integrated by five complementary dimensions, called the 5Cs of PYD, which enable young people to transition healthily into adulthood. These dimensions are defined as thriving indicators, because they are expected to be related to positive outcomes in physical health and psychological well-being [14–17]. Specifically, the 5Cs are: (a) Competence, defined as a positive self-efficacy in different life domains; (b) Confidence, which refers to a global positive self-concept and self-esteem; (c) Connection, which means the existence of positive relationships with other people; (d) Character, defined as the adequate internalization of rules of the society and culture; and Caring, which means both a feeling of sympathy and empathy towards others. Some studies have shown that the 5Cs and some thriving outcomes are bidirectionally associated during youth development [18–21]. In a longitudinal study in the US, Lewin-Bizan et al. [5] found some positive developmental cascades among positive parenting, better self-regulation skills, greater PYD and higher social engagement. RDST states that PYD emerges as a result of the adaptive regulations between personal strengths and nurturing developmental contexts. In turn, PYD is associated with more positive and active civic engagement and with less risk/problem behaviors (i.e., depression, delinquency or antisocial behavior) [22]. Thus, the relevance of the developmental contexts and relationships with others should be highlighted jointly with the individual assets [6], in both the antecedents and the consequences of PYD.

Existing literature: summarizing previous studies on caring and its effects on psychological adjustment

Thus, according to the theoretical model, positive outcomes are expected as a result of each C of the PYD model. However, some research works have showed that Caring (as a thriving indicator) may have a detrimental effect on psychological adjustment. Geldhof et al. [23] performed a longitudinal study of PYD and psychological adjustment with a sample of adolescents from the USA and found a small positive correlation between the Caring dimension of the 5Cs of PYD and depressive symptoms. Similarly, Dvorsky et al. [24] found results in a sample of undergraduates enrolled at six universities in the USA. The authors assessed difficulties in emotional regulation. These authors examined the difficulties in one's awareness and understanding of emotions, acceptance of emotions, and the ability to refrain from impulsive behavior when experiencing negative emotions. They found positive interrelations between Caring and depressive symptoms, as well as positive associations of them with difficulties in emotional regulation.

Furthermore, some evidence was also found in European and cross-national research. Holsen et al. [25] showed that higher scores of Caring were associated with more anxiety and depressive symptoms in a sample of Norwegian youth. A recent study by Novak et al. [26] found a protective role of PYD against mental distress in Croatian adolescents while their results indicated a positive association between Caring and symptoms of depression, anxiety and stress. Kozina et al. [27] examined youth samples from Slovenia, Portugal and Spain. They concluded that Connection and Confidence were protectors against anxiety, while Caring had a positive effect. In another cross-national study, Gomez-Baya et al. [28] examined the relationships between the 5Cs of PYD and depression in Croatia and Spain with data collected before COVID-19 pandemic. The results of that work showed that Confidence and Connection had negative effect on depression, but Caring had a positive effect. In another study, with data collected during the pandemic, Manrique-Millones et al. [29] studied samples of undergraduates from Peru and Spain. Their results showed negative associations of Competence, Confidence, Character and Connection with depressive symptoms, while Caring was positively related in both samples.

Thus, as argued by Geldhof et al. [30], an indicator of PYD can sometimes be maladaptive depending on how youth interact with their contexts. Youth who dedicate too much attention to others' thoughts and feelings may not be necessarily well-adapted. Over-investment in others may lead to empathic stress if boundaries between self and other people get blurred. This excessive concern for others should not be included as part of the PYD model. In the PYD model, positive effects are supposed to be

associated with Caring experiences, rather than burnout due to compassion fatigue. Consequently, when assessing the Caring dimension of PYD, the elevated scores may represent emotional hypersensitivity and emotional regulation difficulties, instead of a real motivation to help others and performing prosocial behavior, which could have positive consequences for psychological wellbeing [31].

Gender differences in caring and the role of the regulation of negative and positive affect

Furthermore, some gender differences have been observed in Caring, with women scoring higher than men [32]. Conway et al. [33] also observed higher scores in Caring among females in a sample of Irish adolescents, and Gomez-Baya et al. [34] found the same result in Spanish youth. Other studies have analyzed gender differences in related variables. In a 6-wave longitudinal study, adolescent girls showed an increase in prosocial behavior, predicted by higher empathic concern and perspective taking [35]. Moreover, in a sample of undergraduates in the United States, women were found to present more empathy as well as more emotional reactivity than men [36].

Because of the detrimental effects observed by the PYD dimension of Caring, more research is needed to explain the emotional mechanisms underlying the relationship with psychological adjustment [30]. In line with the argument drawn from Gomez-Baya et al. [28] and Manrique-Millones et al. [29], affect regulation strategies should be examined to understand the relationship between Caring and depressive symptoms. According to the tripartite model of depression [37], depression is characterized by an increase in negative affect and a decrease in positive affect. Consequently, both positive affect and negative affect regulation strategies should be examined to understand the role of Caring in depression [38].

Response Styles Theory argues that the way in which people cope with depressive symptoms influences symptoms' duration and severity [39]. According to this theory, there are two types of responses to negative affect, i.e., depressive rumination and distraction [40]. Depressive rumination is defined as a repetitive thought about negative affect, as well as its causes and consequences. Depressive rumination is expected to increase negative affect by producing pessimistic thoughts, which in turn hinder adaptive coping [41]. Furthermore, distraction is an adaptive response which refers to shift attention away from the negative affect and paying attention to neutral or optimistic thoughts and to perform some behaviors to alleviate the affective state. At this regard, some consistent gender differences have been detected in the literature. A meta-analysis of 57 studies concluded that women showed more depressive rumination than men [42]. In a meta-analysis of studies with youth samples, Rood et al. [43] observed in nine longitudinal studies and 17 cross-sectional studies that depressive rumination was more prevalent in girls, while distraction was higher in boys.

Research to date has paid less attention on the regulation of positive affect [44–48]. Diamond and Aspinwall [49] stated that more integration is needed to understand the emotion regulation skills across the life span and the interaction between positive and negative emotional states. Consequently, it is also important to analyze the strategies used in response to positive affect to better understand youth psychological adjustment [50, 51]. Feldman et al. [52] presented two types of responses to positive affect, i.e., dampening and positive rumination. Dampening is defined as an inhibition of positive affect by thinking that they did not deserve that, by thinking that those positive emotions are temporary or expecting some possible negative events in the future. On the contrary, positive rumination refers to a maintenance and amplification of the positive affect, by savoring these feelings and their physical reactions. Some studies have also underlined some gender differences in positive affect regulation. More dampening was found in adolescent girls [53], which was longitudinally related to more depressive symptoms [54].

Research gaps: clarifying the gaps in the current literature and justifying the need for the present study

Although most PYD and affect regulation research has been conducted in the United States and in countries from Northern Europe, some evidence has already been collected for the validity of these theoretical perspectives in other countries, such as Spain [55]. However, research is still needed about the role of responses to positive and negative affect to understand the positive relationship between Caring and Depression. As well, further research is still required to examine gender differences in Caring and emotion regulation strategies. This study may provide evidence for program design aimed to foster caring experiences with adaptive responses to affect, which in turn may prevent depressive symptoms in youth.

The aims of the present study with Spanish youth were: (a) to analyze the mediational role of strategies to cope with negative affect (i.e., distraction and depressive rumination) and strategies to deal with positive affect (i.e., dampening and positive rumination) in the relationship between Caring and depressive symptoms; and (b) to examine the associations between gender differences in Caring and gender differences in responses to positive and negative affect. Regarding the first aim, we hypothesize that the relationship between Caring and depression will be mediated by maladaptive responses to positive and negative affect. This hypothesis is in line with

Dvorsky et al.'s [24] results, who concluded that the detrimental effect by Caring on depression may be explained based on the presence of some difficulties in emotion regulation. The main contribution of the present study would be the analysis of both responses to positive and negative affect as mechanisms to understand the possible detrimental effect by Caring on depression. Concerning the second aim, we expected higher scores in the PYD dimension of Caring and in the maladaptive responses to negative and positive affect (i.e., depressive rumination and dampening) among women. This hypothesis is consistent with the conclusions provided by previous literature [33, 43, 53], which concluded that women reported more Caring, more depressive rumination and more positive affect dampening. The expected contribution of the present research is to provide a further explanation of the gender differences in responses to positive and negative affect based on the gender differences in Caring.

Methods

Participants and data collection procedure

The present research aimed at examining the mediational role of affect regulation in the relationship between Caring and depression and analysing gender differences in a sample of Spanish youth. A cross-sectional study was conducted between February and June of 2021, by administering an online self-report in a convenient sample of 1040 youth undergraduates (75.5% females; Age range = 18–28; M_{age} = 20.47, SD = 3.08). Since a cross-sectional design with general sample was followed, neither randomization nor variable control were implemented. Participants were selected through convenience sampling, as recruitment was based on accessibility within participating universities. Given the observational nature of the study, blinding procedures were not applicable. Standard population sampling principles was used. These participants were enrolled in 11 universities: University of Huelva, Loyola University (Campus of Seville and Cordoba), Complutense University of Madrid, University of Granada, University of Salamanca, University of La Laguna, University of Zaragoza, University of Santiago, Polytechnic University of Valencia, University of Valencia, and University of Oviedo. These Higher Education institutions were chosen by convenience, including universities from different regions of Spain. In each university, the degrees and academic years were randomly selected. The inclusion criteria were being enrolled in a university degree during academic year 2020/2021 in these universities, in any academic year, aged between 18 and 28 and speaking Spanish. As exclusion criteria, the participants with omissions over 5% were deleted.

With regards to nationality, most of the participants were Spanish (95.2%). Concerning habitat, one third of the sample lived in a big city (> 300,000), other third lived in medium-sized cities (between 50,000 and 300,000), and the other third lived in small towns and rural areas. Most of the participants reported a middle socioeconomic status (83.6%). Concerning the university degrees, 41.6% studied Social Sciences and Law, 24.7% studied Health sciences, 20.3% studied Sciences, Engineering or Architecture, and 13.5% studied Arts and Humanities.

The participants filled in an anonymized online self-report during around 30 min. A numerical code was assigned to each participant. Written consent was collected before participation and no reward was given. The study was performed following the principles of the Declaration of Helsinki and previously received the approval from the University of Huelva Ethic Board on January 10, 2019 (code UHU-1259711). More information about the procedure of this study is available at Gomez-Baya et al. [56].

Instruments

Caring dimension of Positive Youth Development. The PYD Short Form questionnaire developed by Geldhof et al. [23] and adapted to Spanish by Gomez-Baya et al. [34], was used. This is a self-report questionnaire, composed of 34 items, and assesses Competence, Confidence, Character, Connection and Caring. Only the subscale of Caring was used, in line with the focus of the present work. The subscale comprises of 6 items which measures sympathy and empathy for others (e.g., "It bothers me when bad things happen to any person"). The items were assessed using a 5-point Likert-type scale, 1 = not at all like me and 5 = very much like me, and a mean score was calculated. Good internal consistency was found (α = 0.82).

Depressive symptoms. The Patient Health Questionnaire 9 (PHQ-9) [57] was used to examine depressive symptoms. This questionnaire was introduced with "How often have you been bothered by the following over the past 2 weeks?" and described nine items (e.g., "Little interest or pleasure in doing things" and "Feeling down, depressed, or hopeless"). The response categories were on a 4-point Likert-type scale ranging from 0 = Not at all, to 3 = Nearly every day. Internal consistency was very good (α = 0.85).

Responses to positive affect. The reduced Spanish adaptation by Gomez-Baya et al. [48] of the Responses to Positive Affect Questionnaire, developed by Feldman et al. [52], was administered. For the present study, a scale, with 8 items, was used, about what "someone might do when he or she feels cheerful, happy or content". This adaptation is composed of two subscales: positive rumination (e.g., "I think about how happy I feel" and "I notice how I feel full of energy") and dampening (e.g., "I think, 'My streak of luck is going to end soon'" and "I think about things that could go wrong"). Four Likert-type responses were offered to assess how often

the participants engaged in the actions described, ranging from "almost never" (1) to "almost always" (4). Mean scores were calculated for each subscale, ranging from 1 to 4, so that a higher score means higher frequency of the use of that response to positive affect. In the present research, the internal consistency was notable for positive rumination, α = 0.89 and for dampening, α = 0.83.

Response styles. A reduced version of the Spanish adaptation of the Children's Response Styles Scale (CRSS) [58] was used. The CRSS was adapted to Spanish adolescents by Extremera and Fernández-Berrocal [59], and the shortened version was validated by Gómez-Baya et al. [38], reporting good psychometric properties. This scale was composed of 12 items introduced by the following statement: "Indicate how often you do each of the following things when you feel sad or depressed." This questionnaire is composed of two subscales with six items each. The first subscale examined depressive rumination, e.g., "I go away by myself and think about why I feel this way" and "I think, 'Why can't I stop feeling this way?" The other subscale evaluates distraction responses, e.g., "I do something I really like to do" and "I think, 'I'm going to do something to make myself feel better." A four-point Likert-response scale was presented for each statement, ranging from "almost never" (1) to "almost always" (4). Mean scores were calculated for each subscale, ranging from 1 to 4, so that a higher score means a more frequent use of this kind of response to negative affect. Both the rumination scale (α = 0.82) and the distraction scale (α = 0.85) showed notable internal consistency reliability.

Data analysis strategy

All statistical tests were conducted as two-sided with a significance level of $p < .05$. No multiple comparison corrections were applied as the number of statistical tests was limited. Kolmogorov-Smirnov test was conducted to examine if the variables were normally distributed.

First, descriptive statistics (i.e., mean, standard deviation) were examined for study variables (i.e., Caring, depressive symptoms, depressive rumination, distraction, dampening and positive rumination). Gender differences were examined in study variables. Second, bivariate zero-order correlations were analyzed to examine the associations between these variables. Third, a multiple mediation model was tested by including Caring as an independent variable (X), depressive symptoms as a dependent variable (Y) and regulation strategies for negative (depressive rumination and distraction) and positive affect (dampening and positive rumination) as mediators. This mediation model examined the total effect by Caring on depressive symptoms, the direct effect by Caring on depressive symptoms after the inclusion of mediators, and the indirect effects through the regulation strategies. Variables were standardized using Z-scores. The robust Huber-White inference test was used, to provide heteroscedasticity-consistent results. Standardized coefficients were reported for the effects, and 95% Confidence Intervals (CI). R^2 indicated the amount of explained variance of depressive symptoms. The analyses were conducted using Robust Maximum Likelihood estimation with JASP 0.16.1.0. Fourth, a path analysis was tested to integrate gender differences and the previous mediational model. This path model was designed following the instructions by Byrne [60] for Eq. 6.1 and applying Lagrange multipliers and Wald tests. The overall fit of the model was analyzed with robust indexes, such as Satorra-Bentler χ2, Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) and 90% CI of RMSEA.

Results

Descriptive statistics and bivariate correlations

Table 1 describes the means and standard deviations of the study variables, normality tests and bivariate correlations. Internal consistency values are presented in brackets. High mean score was observed in Caring. A moderate to high mean score was observed in depressive symptoms. Concerning responses to negative affect, depressive rumination showed a greater mean score than distraction. In responses to positive affect, positive rumination had a higher mean score than dampening.

The Kolmogorov-Smirnov normality test indicated that the variables were not normally distributed, so nonparametric analyses were performed.

Spearman correlations indicated that Caring showed positive associations with depressive symptoms and

Table 1 Descriptive statistics and spearman bivariate correlations of study variables

	Range	Mean	Standard Deviation	Kolmogorov-Smirnov test	1	2	3	4	5	6
1.Caring	1–5	4.32	0.59	0.13***	(0.82)	.				
2.Depressive symptoms	0–27	8.94	5.55	0.13***	0.11***	(0.85)		-		
3.Depressive rumination	1–4	2.52	0.68	0.07***	0.24***	0.49***	(0.82)			
4.Distraction	1–4	1.49	0.43	0.08***	0.07*	−0.17***	−0.05	(0.85)		
5.Dampening	1–4	2.07	0.83	0.12***	0.13***	0.44***	0.35***	−0.04	(0.83)	
6.Positive rumination	1–4	2.60	0.86	0.10***	0.11***	−0.30***	−0.01	0.30***	−0.16***	(0.89)

Note. *** $p < .001$; ** $p < .01$; * $p < .05$

Table 2 Gender differences in study variables

			U Mann-Whitney test		
	Mean Females	**Mean Males**	**W**	***p***	**Rank-Biserial Correlation**
1.Caring	4.39	4.08	118333.500	< 0.001	0.306
2.Depressive symptoms	9.10	8.44	96080.500	0.060	0.081
3.Depressive rumination	2.58	2.35	102569.000	< 0.001	0.199
4.Distraction	1.50	1.47	88290.000	0.457	0.032
5.Dampening	2.11	1.96	91274.000	0.035	0.091
6.Positive rumination	2.62	2.54	87121.000	0.354	0.040

Table 3 Multiple mediation model of the relationship between caring and depressive symptoms through emotion regulation strategies, *indicating direct, indirect, total effects, and residual covariances*

	Estimate	**Std.Error**	**Z-Value**	***p***	**95% CI**	
					Lower	**Upper**
Direct effect						
Caring->Depressive symptoms	0.005	0.026	0.179	0.858	-0.046	0.056
Indirect effects						
Caring->Depressive rumination ->Depressive symptoms	0.089	0.014	6.241	< 0.001	0.061	0.117
Caring->Distraction ->Depressive symptoms	-0.007	0.003	-2.044	0.041	-0.013	-0.001
Caring->Dampening ->Depressive symptoms	0.037	0.009	4.100	< 0.001	0.019	0.055
Caring->Positive rumination ->Depressive symptoms	-0.029	0.008	-3.512	< 0.001	-0.045	-0.013
Total effect						
Caring->Depressive symptoms	0.095	0.032	2.946	0.003	0.032	0.158
Total indirect						
Caring->Depressive symptoms	0.090	0.021	4.249	< 0.001	0.049	0.132
Residual covariances						
Depressive rumination<->Distraction	-0.048	0.032	-1.510	0.131	-0.110	0.014
Depressive rumination<->Dampening	0.330	0.031	10.543	< 0.001	0.269	0.391
Distraction<->Dampening	-0.055	0.033	-1.662	0.096	-0.120	0.010
Depressive rumination<->Positive rumination	-0.040	0.033	-1.204	0.229	-0.105	0.025
Distraction<->Positive rumination	0.276	0.034	8.197	< 0.001	0.210	0.343
Dampening<->Positive rumination	-0.167	0.032	-5.240	< 0.001	-0.230	-0.105

Note. Delta method standard errors, normal theory Confidence intervals, ML estimator

all the types of affect regulation. The correlations were small, with the biggest correlation observed with depressive rumination, and the lowest with distraction. Furthermore, depressive symptoms were observed to be positively associated with depressive rumination and dampening (with moderate to large effect size), and negatively related to distraction and positive rumination. Moreover, depressive rumination showed a moderate positive correlation with dampening. Distraction had a positive correlation with positive rumination.

Table 2 described the analyses for gender differences in all the study variables. U Mann-Whitney test was conducted to examine gender differences. Results showed some gender differences in Caring, depressive rumination and dampening. Women presented higher mean scores in the three variables. Rank-Biserial Correlation indicated the effect sizes of these differences, with the greatest value observed in Caring.

Multiple mediation model

Table 3 shows the results of the multiple mediation model that integrates the relationship between Caring and depressive symptoms and the mediation of positive and negative affect regulation strategies (i.e., depressive rumination, distraction, dampening and positive rumination). Figure 1 presents the diagram of this multiple mediation analysis, indicating the standardized coefficients of the relationships among the variables. This mediation model illustrates the relationships among Caring, depressive symptoms, and emotion regulation strategies. Solid lines represent significant paths, while dashed lines indicate non-significant relationships. Although the variables were not normally distributed, robust estimation technique (i.e., Robust Maximum Likelihood estimation) was used for parametric modeling. The results indicated that Caring had positive effects on depressive rumination ($\beta = 0.22$, $p < .001$), $F(1, 950) = 48.15$, $p < .001$, $R2 = 0.050$, and dampening ($\beta = 0.14$, $p < .001$), $F(1, 950) = 21.18$, $p < .001$, $R2 = 0.020$, and also positive effects

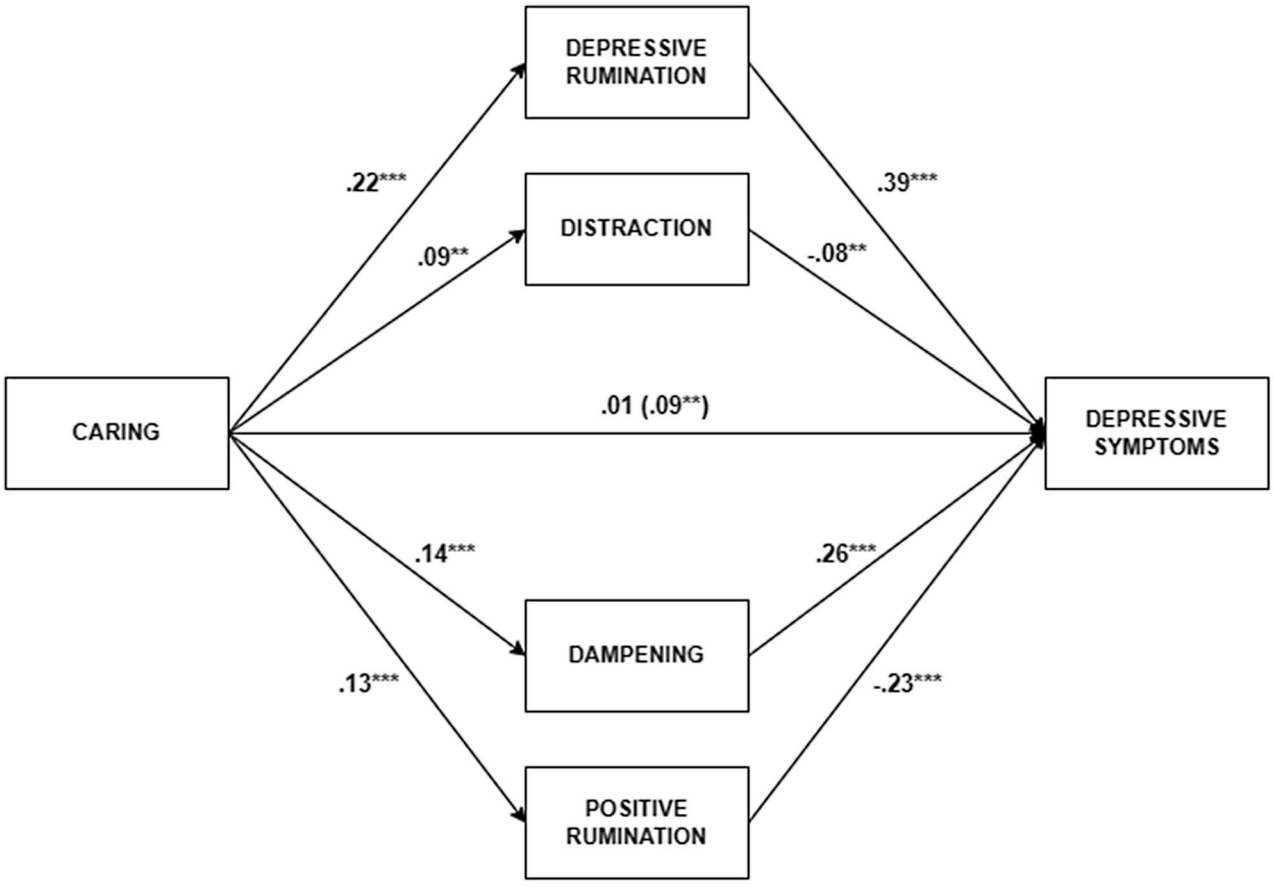

Fig. 1 Diagram of the multiple mediation of the responses to negative (i.e., depressive rumination and distraction) and positive (dampening and positive rumination) affect in the relationship between Caring and depressive symptoms

on distraction (β = 0.08, p = .008), F(1, 950) = 6.99, p = .008, R2 = 0.007, and positive rumination β = 0.13, p < .001), F(1, 950) = 15.32, p < .001, R2 = 0.016. Caring had a positive total effect on depressive symptoms (β = 0.09, p = .003), F(1, 950) = 8.04, p = .003, R2 = 0.009, before the inclusion of mediators. After including the four mediators in the model, the direct effect by Caring on depressive symptoms was not significant (β = 0.01, p = .858). Thus, the mediators fully mediated the relationship between Caring and depressive symptoms. Depressive rumination (β = 0.39, p < .001) and dampening (β = 0.26, p < .001) had positive effects on depressive symptoms, while distraction (β = − 0.08, p = .002) and positive rumination (β = − 0.23, p < .001) had negative effects. The model reached an explained variance of 39% of depressive symptoms, F(5. 946) = 101.00, p < .001.

Concerning indirect effects by Caring through mediators, positive effects were observed through depressive rumination and dampening on depressive symptoms. Negative indirect effects were found through distraction and positive rumination. The biggest indirect effect was observed through depressive rumination, while the smallest was observed through distraction. Finally, residual covariances (i.e., bidirectional associations between the residual errors of the mediators) among the mediators revealed that depressive rumination was positively associated with dampening, and positive rumination had a negative association with dampening and a positive one with distraction.

The model showed that the relationship between Caring and depressive symptoms was fully explained by the role of affect regulation strategies. Higher scores in depressive rumination and dampening were associated with more depression. Contrarily, more distraction and positive rumination were related to less depression.

Path analysis

Figure 2 shows the path analysis model. This model illustrates the relationships between gender, caring, depressive symptoms and emotion regulation strategies. It integrates gender differences in caring, depressive rumination and dampening, and the effects of these emotional responses on depressive symptoms. Standardised coefficients are shown above the arrows in the model, including asterisks representing significance. The red arrows

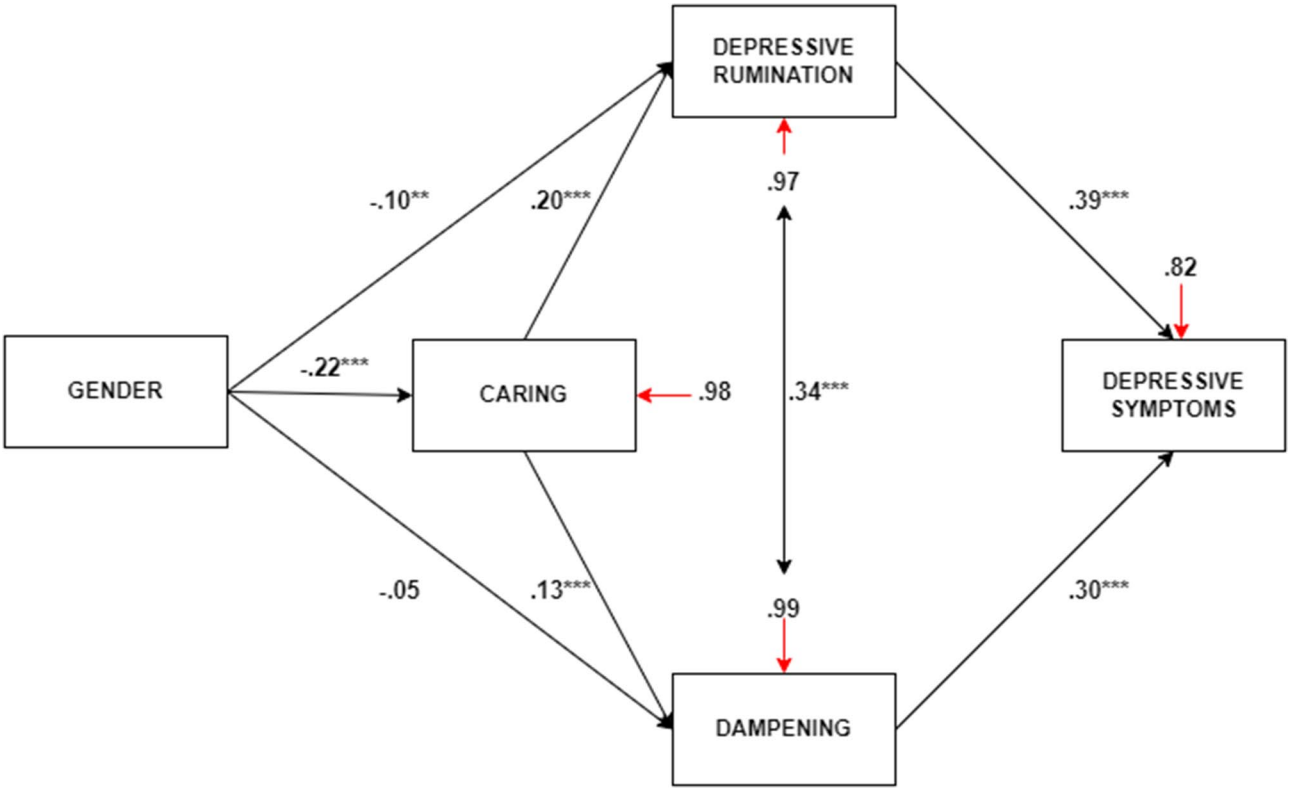

Fig. 2 Diagram of the path analysis to integrate the relationships between gender, caring, depressive rumination, dampening and depressive symptoms. Note. Standardized coefficients are described in the model. The residual errors are described in red arrows. *** $p < .001$; ** $p < .01$; * $p < .05$

represent the measurement errors in the explanation of the respective variables.

The model reached good data fit, using robust fit indexes, Satorra-Bentler $\chi 2(2) = 2.65$, $p = .265$, CFI = 0.999, Bentler-Bonett Non-normed fit Index = 0.994, RMSEA = 0.019, 90% CI RMSEA = 0.001, 0.070. Results indicated that: (a) gender effect on depressive rumination was partially mediated by gender effect on Caring; so that women showed more depressive rumination than men partly due to their higher scores in Caring; (b) gender effect on dampening was totally mediated by gender effect on Caring, so that women showed more dampening that men totally due to their higher scores in Caring; (c) both depressive rumination and dampening totally mediated the link between Caring and depressive symptoms; and (d) dampening and depressive rumination were positively associated. The model reached a 32.3% of explained variance of depressive symptoms, 6% of depressive rumination, 4.9% of Caring and 2.2% of dampening.

Discussion

Main contributions of the study

The first aim of this study was to examine how the relationship between Caring and depressive symptoms is mediated by positive and negative affect regulation strategies. The results from descriptive analysis showed high scores in Caring and depression in the sample of Spanish undergraduates. Caring correlated positively with the two strategies of negative affect regulation (i.e., depressive rumination and distraction) and the two strategies of positive affect regulation (i.e., dampening and positive rumination). Furthermore, depressive rumination and dampening were positively related to depression, while distraction and positive rumination were negatively correlated with depression. More importantly, the multiple mediation model indicated that the positive effect by Caring on depression was totally mediated by the affect regulation strategies. Caring was linked to more depression through higher depressive rumination and dampening, or lower distraction and positive rumination. Thus, more adaptive affect regulation was linked to less depression. The relationship between Caring and depression was not significant when affect regulation strategies were included as mediators, so that these strategies may be the explanatory mechanisms. These results are consistent with our hypothesis and with previous findings by Manrique-Millones et al. [29] and Dvorsky et al. [24], about the positive association between Caring and depression, and provide the contribution of examining affect responses as mechanisms implicated in this relationship. Furthermore, the second aim of the manuscript was to examine gender differences in Caring and

affect regulation strategies. The results indicated that women reported more Caring, as well as more depressive rumination and more dampening, which is consistent with results by Conway et al. [33], Gentzler et al. [53] and Rood et al. [43] about gender differences. As well, Caring was found to mediate the gender effects on both maladaptive responses. Thus, gender differences in these maladaptive affect responses can be explained based on gender differences in Caring. This result is a contribution of the present work to the previous literature about gender differences in Caring and affect regulation.

Explanation of the results

Included in the 5Cs model of PYD, Caring has been defined as a tendency to feel empathy and sympathy towards others. As the other four dimensions of PYD, Caring is expected to be associated with positive outcomes across youth development [13]. More empathic concern prospectively predicted more prosocial behavior, generating upward spirals across adolescence [35]. Two aspects of empathy have been differentiated, affective (i.e., ability to feel and share others' emotions) and cognitive (i.e., ability to recognize, understand and react appropriately to others' emotional states) [61]. Despite the expected positive outcomes, a recent meta-analysis has examined the dark side of empathy [62], concluding that more affective empathy, rather than cognitive, is associated with more risk of depression, specifically in youth samples, and not in older adults. This greater risk for depression may be due to the role of coping strategies, in line with our conclusions. Powell [63] observed in UK students that reappraisal is a good emotional regulation strategy to avoid distressing outcomes in people with high affective empathy, while suppression is a bad strategy that can influence wellbeing in people with high cognitive empathy. Some research works have addressed the emotion regulation mechanisms in empathic response, which are consistent with our results about Caring and depression. In a study conducted with a sample of college students from Eastern China, Liu et al. [64] found that the link between empathy and depression was explained by the role of rumination and attentional shift. These authors argued that more difficulty in shifting attention away from negative stimuli and more repetitive thought with negative emotions may explain the positive association between empathy and depression. Furthermore, the role of emotion strategies in the relationship between empathy and internalizing symptoms has been addressed by MacDonald and Price [65] in a large sample of undergraduates in the USA. These authors found that difficulties in emotion regulation mediated the association between affective empathy and internalizing symptoms (i.e., depression, anxiety and stress) after controlling for age and gender. In other work with undergraduates from the USA, Tully et al. [66] showed that too high empathy and low emotional regulation skills were related to more depression, while moderate empathy and adaptive emotion regulation were protective against depression.

These results about the importance of emotional regulation skills in the relationship between empathy and depression are consistent with our results about Caring and depression. Our results underline the need to be cautious in interpreting the PYD model and the importance of integrating coping and regulation skills. Caring is expected to have a protective role in psychological adjustment, while over-investment and hypersensitivity may produce negative mental health consequences. In our study, responses to positive and negative affect were found to mediate the detrimental effect by Caring on depression. Caring is connected with more depression through depressive rumination (which increases negative affect) and dampening (which is expected to decrease positive affect). In contrast, Caring could be protective against depression through distraction (which is expected to decrease negative affect) and positive rumination (which enhances positive emotions). More adaptive affect responses were characterized by increasing positive affect and reduce negative affect. These results are in line with Response Styles Theory [39] about negative affect regulation, and with the positive outcomes derived from positive affect, as described Broaden-and-Build theory. Following Broaden-and-build theory by Fredrickson [67], positive emotions broaden an individual's momentary thought–action repertoire and build personal resources for resilience, such as creative actions and thoughts and development of social bonds.

Concerning gender differences, gendered socialization may explain the gender differences in Caring. According to gender stereotypes, women are expected to be more expressive and sensitive on others' emotional levels, and to display more agreeability, care towards personal relationships and empathy [68]. Women might be additionally burdened by both societal expectation and their own capacity for empathy. Moreover, some research has examined the role of gender socialization in the development of a higher tendency to ruminate about interpersonal events in women [69]. Feminine gender role was a predictor of rumination in interpersonal events and not in achievement stressors. Some gender differences have been documented in interpersonal relationships. Co-rumination is defined as a passive and repetitive dialogue about problems with a close other. Higher presence of co-rumination was found to be related to more emotional distress in women [70]. Schwartz-Mette and Smith [71] underscored that co-rumination facilitated depression contagion, especially in older adolescent girls in conditions of suffering high personal distress and friends' excessive reassurance seeking. Thus, an increased Caring

for others jointly with maladaptive coping styles, may produce an increased vulnerability for emotional distress in women.

Limitations of the study

Despite the contributions of our study, some limitations are worth mentioning. Because a cross-sectional design was followed, the conclusions can only be based on associations between variables, and no directionality can be inferred nor any causality. Prospective studies are recommended to establish the relationship between Caring as an antecedent and depression as consequent [72]. For example, future research may assess caring and emotional problems, jointly with coping strategies during the university degree, by conducting a 4-year follow-up study. Furthermore, causal inference requires an experimental design. In this line, an intervention program may be conducted in the university context, following a randomized controlled design.

Other limitations may be related to confounding variables that were not considered. Future research could control for the influence of other variables, such as personality traits or emotional intelligence skills. Moreover, concerning the examination of gender differences in our study variables, other variables such as gender stereotypes and gender identity could be controlled. Future research may also address qualitative data to reach a deeper understanding of the experiences of Caring and emotional responses, for example, by conducting focus groups to understand their experiences of caring others, reflecting about their positive and negative consequences [73, 74]. Finally, because a convenient sample of Spanish youth has been used, the results cannot be generalized to Spanish youth population, and representative studies may be encouraged. As well, cross-cultural studies are recommended to analyze the differences in caring and gender roles in different cultures, and their differential effects on mental health [75, 76]. Previous research in Europe have underlined some differences between Northern and Southern countries concerning the effect of caring experiences in the quality of life, as well as greater burden in women [77, 78].

Implications for practice

As for practical implications of our results, Caring as an expression of compassion and empathy for others could have a protective effect on psychological adjustment if youth have adaptive responses to positive and negative affect. Thus, by using resilient responses, Caring like the other components of PYD, may have a positive effect on contribution, rather than a detrimental effect on depression. The present work emphasizes the need to design programs to promote resilience [79] among young people in university contexts, by developing adaptive responses to distress in both male and females. Since depression is characterized by an increase in negative affect and a decrease in positive affect, adaptive responses may help to reduce negative affect (i.e., distraction instead of rumination) and increase positive states (i.e., positive rumination rather than dampening). These adaptive responses to stress may also help to provide better assistance to others, by buffering negative emotions and enhancing the savoring of positive emotions. Thus, PYD and social contribution programs may be improved with the inclusion of resilience education strategies and gender-based initiatives to enrich the experience of Caring others [80]. To cope with negative affect, distraction strategies may be fostered, rather than depressive rumination. In positive affect states, responses of positive rumination may help to savor these experiences, while dampening tendencies should be prevented. Youth could take more advantage of Caring intervention within PYD promotion programs [81, 82], if resilient responses to positive and negative affect are jointly developed, especially due to the detrimental role of Caring and the gender differences observed.

The present research underlines the need to integrate the Caring dimension of PYD and resilience perspective to design programs to promote psychological adjustment and social contribution in university contexts [83]. In this line, service-learning programs, aimed at participating in an organized service activity that meets identified community needs and enhancing sense of personal values and civic responsibility [84–86], could be a promising way to promote Caring dimension of PYD jointly with social and emotional skills (such as self-awareness, social awareness, responsible decision making, self-management and relationship management) from an educational setting [87]. A recent meta-analysis has well-documented the follow-up effects to promote PYD through social and emotional learning interventions [88], regardless of students' race, socioeconomic status, and location. Multicomponent interventions, by integrating PYD and social and emotional skills for resilience, from a universal and youth-participatory approach connected with the community needs and characteristics, should be specially recommended [89, 90].

Conclusion

As conclusion, the present study has provided two main results. First, a mediational role of positive and negative affect regulation strategies was observed in the relationship between Caring and depressive symptoms. Specifically, the greater use of depressive rumination and dampening associated to Caring experience was related to more depressive symptoms. Second, gender differences were observed in Caring and in maladaptive response to negative and positive affect, where women showed more

Caring, and more depressive rumination and dampening. This work underlines the need to develop adaptive affect regulation strategies to cope with stressful interpersonal situations, to provide better help to others, and to protect own psychological wellbeing. Moreover, our findings have important implications for public policies in the area of mental health regarding the paradoxical effect of Caring, in that policies can ensure that strategies are put in place to enhance psychological adjustment among university students and that they (especially females) can be able to care for others and simultaneously being able to self-care (i.e., self-regulate emotions and experience positive affect).

Abbreviations

PYD	Positive youth development
PHQ-9	Patient health questionnaire 9
CRSS	Children's response styles scale
p	Probability
CI	Confidence interval
CFI	Comparative fit index
RMSEA	Root mean square error of approximation

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Author contributions
DGB, MGM and NW contributed to the conceptualization. DGB, MGM and NW contributed to the methodology. DGB was responsible for the validation and carried out data analysis. DGB wrote the original draft preparation. MGM and NW reviewed and edited the manuscript. All authors have read and agreed to the published version of the manuscript.

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Data availability
The datasets generated and analyzed during the current study are available in the Arias Montano repository: https://rabida.uhu.es/dspace/handle/10272/24981.

Declarations

Ethics approval and consent to participate
The studies involving human participants were reviewed and approved by the bioethics committee of the University of Huelva, in accordance with the Declaration of Helsinki, on 10 January 2019. The participants provided their written informed consent to participate in this study.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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References

1. Geldhof GJ, Bowers EP, Boyd MJ, Mueller MK, Napolitano CM, Schmid K, et al. Creation of short and very short measures of the five Cs of positive youth development. J Res Adolescence. 2014;24(1):163–76. https://doi.org/10.1111/jora.12039
2. Benson PL, Scales PC, Hamilton SF, Sesma A. Positive youth development: theory, research, and applications. Lerner RM. Theoretical models of human development. Volume 1 of handbook of child psychology. Hoboken, NJ: Wiley; 2006;894–941.
3. Kia-Keating M, Dowdy E, Morgan ML, Noam GG. Protecting and promoting: an integrative conceptual model for healthy development of adolescents. J Adolesc Health. 2011;48(3):220–8. https://doi.org/10.1016/j.jadohealth.2010.08.006
4. Shek DT, Dou D, Zhu X, Chai W. Positive youth development: current perspectives. Adol Health Med Ther. 2019;18(10):131–41. https://doi.org/10.2147/AHMT.S179946
5. Lewin-Bizan S, Bowers EP, Lerner RM. One good thing leads to another: cascades of positive youth development among American adolescents. Dev Psychopathol. 2010;22(4):759–70. https://doi.org/10.1017/S0954579410000441
6. Gomez-Baya D, Santos T, Gaspar de Matos M. Developmental assets and positive youth development: an examination of gender differences in Spain. Appl Dev Sci. 2022;26(3):516–31. https://doi.org/10.1080/10888691.2021.1906676
7. Dimitrova R, Wiium N. Handbook of positive youth development: advancing the next generation of research, policy and practice in global contexts. Springer; 2021. https://doi.org/10.1007/978-3-030-70262-5_1
8. Lerner RM. Promoting positive youth development: theoretical and empirical bases. White paper prepared for the workshop on the science of adolescent health and development. Washington, DC: National Academies of Science.: National Research Council/ Institute of Medicine; 2005.
9. Fernandes D, Pivec T, Dost-Gözkan A, Uka F, Gaspar de Matos M, Wiium N. Global overview of youth development: comparison of the 5 Cs and developmental assets across six countries. Front Psychol. 2021;12:685316. https://doi.org/10.3389/fpsyg.2021.685316
10. Lerner RM, Lerner JV, Murry VM, Smith EP, Bowers EP, Geldhof GJ, Buckingham MH. Positive youth development in 2020: theory, research, programs, and the promotion of social justice. J Res Adolescence. 2021;31(4):1114–34. https://doi.org/10.1111/jora.12609
11. Lerner RM, Commentary. Studying and testing the positive youth development model: A Tale of two approaches. Child Dev. 2017;88(4):1183–5. https://doi.org/10.1111/cdev.12875
12. Lerner RM, Tirrell JM, Dowling EM, Geldhof GJ, Gestsdóttir S, Lerner JV, et al. The end of the beginning: evidence and absences studying positive youth development in a global context. In: Lerner RM, editor. Individuals as producers of their own development. New York, NY: Routledge; 2021. pp. 226–51.
13. Lerner RM, Lerner JV, Almerigi J, Theokas C, Phelps E, Gestsdottir S, et al. Positive youth development, participation in community youth development programs, and community contributions of fifth grade adolescents: findings from the first wave of the 4-H study of positive youth development. J Early Adolescence. doi: 2005;25(1):17–71. https://doi.org/10.1177/0272431604272461
14. Bowers EP, Li Y, Kiely MK, Brittian A, Lerner JV, Lerner RM. The five Cs model of positive youth development: A longitudinal analysis of confirmatory factor structure and measurement invariance. J Youth Adolescence. 2010;39(7):720–35. https://doi.org/10.1007/s10964-010-9530-9
15. Dominguez AC, Wiium N, Jackman D, Ferrer-Wreder L. Healthy lifestyle behaviors and the 5Cs of positive youth development in Mexico. In: Dimitrova R, Wiium N, editors. Handbook of positive youth development. Cham, Switzerland: Springer; 2021. pp. 109–21.
16. Gomez-Baya D, Gaspar de Matos M, Wiium N. Positive youth development and subjective happiness: examining the mediating role of gratitude and optimism in Spanish emerging adults. In: Dimitrova R, Wiium N, editors. Handbook of positive youth development. Cham, Switzerland: Springer; 2021. pp. 187–202.
17. Milot Travers AS, Mahalik JR. Positive youth development as a protective factor for adolescents at risk for depression and alcohol use. Appl Dev Sci. 2021;25(4):322–31. https://doi.org/10.1080/10888691.2019.1634569
18. Marín-Gutiérrez M, Caqueo-Urízar A, Castillo-Francino J, Escobar-Soler C. The 5Cs of positive youth development: their impact on symptoms of depression, anxiety, stress, and emotional distress in Chilean adolescents. BMC Psychol. 2024;12:372. https://doi.org/10.1186/s40359-024-01863-x

19. Abdul Kadir NBY, Mohd RH. The 5Cs of positive youth development, purpose in life, hope, and well-being among emerging adults in Malaysia. Front Psychol. 2021;12:641876. https://doi.org/10.3389/fpsyg.2021.641876
20. Kozina A, Wiium N. The development of the 5Cs of positive youth development in a school year: A 3-wave longitudinal study of Slovenian youth during the COVID-19 pandemic. Front Psychol. 2023;14:982856. https://doi.org/10.3389/fpsyg.2023.982856
21. Tomé G, Gaspar de Matos M, Reis M, Gomez-Baya D, Coelhoso F, Wiium N. Positive youth development and wellbeing: gender differences. Front Psychol. 2021;12:641647. https://doi.org/10.3389/fpsyg.2021.641647
22. Geldhof GJ, Bowers EP, Lerner RM. Special section introduction: thriving in context: findings from the 4-H study of positive youth development. J Youth Adolescence. 2013;42(1):1–5. https://doi.org/10.1007/s10964-012-9855-7
23. Geldhof GJ, Bowers EP, Mueller MK, Napolitano CM, Callina KS, Lerner RM. Longitudinal analysis of a very short measure of positive youth development. J Youth Adolescence. 2014;43(6):933–49. https://doi.org/10.1007/s10964-014-0093-z
24. Dvorsky MR, Kofler MJ, Burns GL, Luebbe AM, Garner AA, Jarrett MJ, et al. Factor structure and criterion validity of the five Cs model of positive youth development in a multi-university sample of college students. J Youth Adolescence. 2019;48:537–53. https://doi.org/10.1007/s10964-018-0938-y
25. Holsen I, Geldhof J, Larsen T, Aardal E. The five Cs of positive youth development in norway: assessment and associations with positive and negative outcomes. Int J Behav Dev. 2017;41(5):559–69. https://doi.org/10.1177/0165025416645668
26. Novak M, Šutić L, Gačal H, Roviš D, Mihić J, Maglica T. Structural model of 5Cs of positive youth development in croatia: relations with mental distress and mental well-being. Int J Adolescence Youth. 2023;28(1):2227253. https://doi.org/10.1080/02673843.2023.2227253
27. Kozina A, Gomez-Baya D, Gaspar de Matos M, Tome G, Wiium N. The association between the 5Cs and anxiety—insights from three countries: portugal, slovenia, and Spain. Front Psychol. 2021;12:668049. https://doi.org/10.3389/fpsyg.2021.668049
28. Gomez-Baya D, Babić Čikeš A, Hirnstein M, Kurtović A, Vrdoljak G, Wiium N. Positive youth development and depression: an examination of gender differences in Croatia and Spain. Front Psychol. 2022;12:689354. https://doi.org/10.3389/fpsyg.2021.689354
29. Manrique-Millones D, Gómez-Baya D, Wiium N. The importance of the 5Cs of positive youth development to depressive symptoms: A Cross-Sectional study with university students from Peru and Spain. Behav Sci. 2023;13(3):280. https://doi.org/10.3390/bs13030280
30. Geldhof GJ, Larsen T, Urke H, Holsen I, Lewis H, Tyler CP. Indicators of positive youth development can be maladaptive: the example case of caring. J Adolescence. 2019;71:1–9. https://doi.org/10.1016/j.adolescence.2018.11.008
31. Memmott-Elison MK, Holmgren HG, Padilla-Walker LM, Hawkins AJ. Associations between prosocial behavior, externalizing behaviors, and internalizing symptoms during adolescence: A meta-analysis. J Adolescence. 2020;80:98–114. https://doi.org/10.1016/j.adolescence.2020.01.012
32. Wiium N, Ferrer-Wreder L, Chen BB, Dimitrova R. Gender and positive youth development. Z Psychol. 2019;227(2):134–8. https://doi.org/10.1027/2151-2604/a000365
33. Conway RJ, Heary C, Hogan MJ. An evaluation of the measurement properties of the five Cs model of positive youth development. Front Psychol. 2015;6:1941. https://doi.org/10.3389/fpsyg.2015.01941
34. Gomez-Baya D, Reis M, Gaspar de Matos M. Positive youth development, thriving and social engagement: an analysis of gender differences in Spanish youth. Scand J Psychol. 2019;60(6):559–68. https://doi.org/10.1111/sjop.12577
35. Van der Graaff J, Carlo G, Crocetti E, Koot HM, Branje S. Prosocial behavior in adolescence: gender differences in development and links with empathy. J Youth Adolescence. 2018;47(5):1086–99. https://doi.org/10.1007/s10964-017-0786-1
36. Rueckert L, Branch B, Doan T. Are gender differences in empathy due to differences in emotional reactivity? Psychol. 2011;2(6):574–8. https://doi.org/10.4236/psych.2011.26088
37. Watson D, Weber K, Assenheimer JS, Clark LA, Strauss ME, McCormick RA. Testing a tripartite model: I. Evaluating the convergent and discriminant validity of anxiety and depression symptom scales. J Abnorm Psychol. 1995;104(1):3–14. https://doi.org/10.1037/0021-843x.104.1.3
38. Gomez-Baya D, Mendoza R. Trait emotional intelligence as a predictor of adaptive responses to positive and negative affect during adolescence. Front Psychol. 2018;9:02525. https://doi.org/10.3389/fpsyg.2018.02525
39. Nolen-Hoeksema S, Wisco BE, Lyubomirsky S. Rethinking rumination. Perspect Psychol Sci. 32008; https://doi.org/10.1111/j.1745-6924.2008.00088.x
40. Treynor W, Gonzalez R, Nolen-Hoeksema S. Rumination reconsidered: a psychometric analysis. Cogn Ther Res. 2003;3(5):400–24. https://doi.org/10.1023/A:1023910315561
41. Nolen-Hoeksema S. Responses to depression and their effects on the duration of depressive episodes. J Abnorm Psychol. 1991;100(4):569–82. https://doi.org/10.1037/0021-843X.100.4.569
42. Johnson DP, Whisman MA. Gender differences in rumination: A meta-analysis. Pers Indiv Differ. 2013;55(4):367–74. https://doi.org/10.1016/j.paid.2013.03.019
43. Rood L, Roelofs J, Bögels SM, Nolen-Hoeksema S, Schouten E. The influence of emotion-focused rumination and distraction on depressive symptoms in non-clinical youth: A meta-analytic review. Clin Psychol Rev. 2009;29(7):607–16. https://doi.org/10.1016/j.cpr.2009.07.001
44. Carl JR, Soskin DP, Kerns C, Barlow DH. Positive emotion regulation in emotional disorders: a theoretical review. Clin Psychol Rev. 2013;33(3):343–60. https://doi.org/10.1016/j.cpr.2013.01.003
45. Gilbert KE, Nolen-Hoeksema S, Gruber J. Positive emotion dysregulation across mood disorders: how amplifying versus dampening predicts emotional reactivity and illness course. Behav Res Ther. 2013;51(11):736–41. https://doi.org/10.1016/j.brat.2013.08.004
46. Davis M, Suveg C. Focusing on the positive: a review of the role of child positive affect in developmental psychopathology. Clin Child Fam Psychol Rev. 2014;17(2):97–124. https://doi.org/10.1007/s10567-013-0162-y
47. Nelis S, Luyckx K, Feldman G, Bastin M, Raes F, Bijttebier P. Assessing response styles to positive affect: one or two dimensions of positive rumination in the responses to positive affect questionnaire? Pers Indiv Differ. 2016;89:40–6. https://doi.org/10.1016/j.paid.2015.09.031
48. Gomez-Baya D, Mendoza R, Gaspar T, Gomes P. Responses to positive affect, life satisfaction and self-esteem: a cross-lagged panel analysis during middle adolescence. Scand J Psychol. 2018;59(4):462–72. https://doi.org/10.1111/sjop.12450
49. Diamond LM, Aspinwall LG. Emotion regulation across the life span: an integrative perspective emphasizing self-regulation, positive affect, and dyadic processes. Motiv Emot. 2003;27(2):125–56. https://doi.org/10.1023/A:1024521920068
50. Fredrickson BL. The role of positive emotions in positive psychology: the broaden-and-build theory of positive emotions. Am Psychol. 2001;56(3):218–26. https://doi.org/10.1037/0003-066X.56.3.218
51. Bryant FB, Chadwick ED, Kluwe K. Understanding the processes that regulate positive emotional experience: unsolved problems and future directions for theory and research on savoring. Int J Wellbeing. 2011;1(1):107–26. https://doi.org/10.5502/ijw.v1i1.18
52. Feldman GC, Joormann J, Johnson SL. Responses to positive affect: a self-report measure of rumination and dampening. Cogn Ther Res. 2008;32(4):507–25. https://doi.org/10.1007/s10608-006-9083-0
53. Gentzler AL, Ramsey MA, Yi CY, Palmer CA, Morey JN. Young adolescents' emotional and regulatory responses to positive life events: investigating temperament, attachment, and event characteristics. J Posit Psychol. 2014;9(2):108–21. https://doi.org/10.1080/17439760.2013.848374
54. Gomez-Baya D, Mendoza R, Paino S, Gillham JE. A two-year longitudinal study of gender differences in responses to positive affect and depressive symptoms during middle adolescence. J Adolescence. 2017;56:11–23. https://doi.org/10.1016/j.adolescence.2017.01.005
55. Spanish Youth Institute. Resumen ejecutivo del Informe de la Juventud en España 2020 [Executive summary of the Youth in Spain Report 2020]. 2021. https://www.injuve.es/sites/default/files/adjuntos/2021/03/informe-juventud-en-espana-2020-resumen-ejecutivo.pdf. Accessed on 14th May 2024.
56. Gomez-Baya D, Mendoza R, Morales E, Paíno S, Salinas JA, Martín C, et al. Protocolo de investigación Del proyecto desarrollo positivo juvenil En estudiantes universitarios españoles. Anal modif Cond. 2022. 2022;48(178):15–26. https://doi.org/10.33776/amc.v48i178.7346
57. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2011;16(9):606–13. https://doi.org/10.1046/j.1525-1497.2001.016009606.x
58. Ziegert DI, Kistner JA. Response styles theory: downward extension to children. J Clin Child Adolescence Psychol. 2002;31(3):325–34. https://doi.org/10.1207/S15374424JCCP3103_04
59. Extremera N, Fernández-Berrocal P. Validity and reliability of Spanish versions of the ruminative Scale-short form and the distraction response Scale-short

form in a sample of Spanish high school and college students. Psychol Rep. 2006;98(1):141–50. https://doi.org/10.2466/PR0.98.1.141-150
60. Byrne BM. Structural equation modeling with EQS: Basic concepts, applications, and programming. 2nd Edition. New York, NY: Routledge; 2013.
61. Reniers RL, Corcoran R, Drake R, Shryane NM, Vollm BA. The QCAE: A questionnaire of cognitive and affective empathy. J Pers Assess. 2011;93(1):84–95. https://doi.org/10.1080/00223891.2010.528484
62. Yan Z, Zeng X, Su J, Zhang X. The dark side of empathy: Meta-analysis evidence of the relationship between empathy and depression. PsyCh J. 2021;10(5):794–804. https://doi.org/10.1002/pchj.482
63. Powell PA. Individual differences in emotion regulation moderate the associations between empathy and affective distress. Motiv Emot. 2018;42(4):602–13. https://doi.org/10.1007/s11031-018-9684-4
64. Liu Q, Zhao X, Liu W, Liu Q. Empathy and depression among a Chinese sample: the moderating role of rumination and attentional shift. Front Psychol. 2022;13:1027298. https://doi.org/10.3389/fpsyg.2022.1027298
65. MacDonald HZ, Price JL. The role of emotion regulation in the relationship between empathy and internalizing symptoms in college students. Ment Health Prev. 2019;13:43–9. https://doi.org/10.1016/j.mhp.2018.11.004
66. Tully EC, Ames AM, Garcia SE, Donohue MR. Quadratic associations between empathy and depression as moderated by emotion dysregulation. J Psychol. 2016;150(1):15–35. https://doi.org/10.1080/00223980.2014.992382
67. Fredrickson BL. The broaden–and–build theory of positive emotions. Philos T Roy Soc B. 2004;359(1449):1367–78. https://doi.org/10.1098/rstb.2004.1512
68. Silke C, Brady B, Boylan C, Dolan P. Factors influencing the development of empathy and pro-social behaviour among adolescents: A systematic review. Child Youth Serv Rev. 2018;94:421–36. https://doi.org/10.1016/j.childyouth.2018.07.027
69. Simonson J, Mezulis A, Davis K. Socialized to ruminate? Gender role mediates the sex difference in rumination for interpersonal events. J Soc Clin Psychol. 2011;30(9):937–59. https://doi.org/10.1521/jscp.2011.30.9.937
70. Calmes CA, Roberts JE. Rumination in interpersonal relationships: does co-rumination explain gender differences in emotional distress and relationship satisfaction among college students? Cogn Ther Res. 2008;32(4):577–90. https://doi.org/10.1007/s10608-008-9200-3
71. Schwartz-Mette RA, Smith RL. When does co-rumination facilitate depression contagion in adolescent friendships? Investigating intrapersonal and interpersonal factors. J Clin Child Adol Psychol. 2018;47(6):912–24. https://doi.org/10.1080/15374416.2016.1197837
72. Yu D, Geldhof GJ, Buckingham M, Goncalves C, Yang PJ, Michaelson LE, et al. Today, I cared about how a classmate felt: fluctuations in empathy are linked to daily mood in adolescence. J Appl Dev Psychol. 2022;79:101386. https://doi.org/10.1016/j.appdev.2021.101386
73. Gonzalez M, Kokozos M, McKee K, Byrd C. Storytelling through a critical positive youth development framework: A mixed methods approach. J Youth Dev. 2024;19(1):2. https://doi.org/10.34068/JYD.19.01.02
74. Gomez-Baya D, Martin-Barrado AD, Grasmeijer AJ, Martin-Gomez C, Palacios-Galvez MS, Morales-Marente E. The Developmental Assets Model for Positive Youth Development and Social Contribution: A Qualitative Study of Spanish Undergraduates. New Dir Child Adoles. 2025; 2025(1): 8882255. https://doi.org/10.1155/cad/8882255
75. Hollan D. Emerging issues in the cross-cultural study of empathy. Emot Rev. 2012;4(1):70–8. https://doi.org/10.1177/1754073911421376
76. Lerner RM, Chase PA. Enhancing theory and methodology in the international study of positive youth development: A commentary. Child Youth Care for. 2019;48:269–77. https://doi.org/10.1007/s10566-018-9485-7
77. Di Novi C, Jacobs R, Migheli M. The quality of life of female informal caregivers: from Scandinavia to the mediterranean sea. Eur J Popul. 2015;31:309–33. https://doi.org/10.1007/s10680-014-9336-7
78. Muñoz LG, Modroño PR, Domínguez-Serrano M. Too much family and too much gender inequality: women's and men's total work in mediterranean countries. In: Addis E, de Villota P, Degrave F, Eriksen J, editors. Gender and Well-Being. New York, NY: Routledge; 2016. pp. 77–104.
79. Gillham JE, Abenavoli RM, Brunwasser SM, Linkins M, Reivich KJ, Seligman MEP. Resilience education. In: David SA, Boniwell I, Ayers AC, editors. The Oxford handbook of happiness. Oxford, UK: Oxford University Press; 2014. pp. 609–30.
80. Gaspar de Matos M, Santos T, Reis M, Gómez-Baya D, Marques A. Positive youth development in portugal: a tool towards gender equity? ARC J Ped. 2018;4(1):25–35. https://doi.org/10.20431/2455-5711.0401004
81. Bowers EP, Geldhof GJ, Johnson SK, Hilliard LJ, Hershberg RM, Lerner JV, Lerner RM. Promoting positive youth development: lessons from the 4-H study. Cham, Switzerland: Springer; 2015.
82. Catalano RF, Berglund ML, Ryan JA, Lonczak HS, Hawkins JD. Positive youth development in the united states: research findings on evaluations of positive youth development programs. Ann Am Acad Polit SS. 2004;591(1):98–124. https://doi.org/10.1177/0002716203260102
83. Lerner RM, Chase PA, Dowling EM, Tirrell JM, Buckingham MH, Yu D, et al. Resilience and positive youth development: a dynamic, relational developmental systems-based perspective. In: Goldstein S, Brooks RB, editors. Handbook of resilience in children. Cham, Switzerland: Springer International Publishing; 2023. pp. 337–49.
84. Wiium N, Kristensen SM, Årdal E, Bøe T, Gaspar de Matos M, Karhina K, et al. Civic engagement and mental health trajectories in Norwegian youth. Front Pub Health. 2023;11:1214141. https://doi.org/10.3389/fpubh.2023.1214141
85. Hay S, Tirrell JM, Lerner J, Dowling E, Sim AT, King PE, et al. We are protected: examining youth perceptions of safety within a faith-based positive youth development program in El Salvador. J Youth Dev. 2024;9(1):3. https://doi.org/10.34068/JYD.19.01.03
86. Shek DT, Ngai G. Building high school teachers' capacity to use service-learning to nurture meaningful social engagement in young people in Hong Kong. Int J Child Health Hum Dev. 2023;16(1):3–13.
87. Chung S, McBride AM. Social and emotional learning in middle school curricula: A service learning model based on positive youth development. Child Youth Serv Rev. 2015;53:192–200. https://doi.org/10.1016/j.childyouth.2015.04.008
88. Taylor RD, Oberle E, Durlak JA, Weissberg RP. Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. Child Dev. 2017;88(4):1156–71. https://doi.org/10.1111/cdev.12864
89. Branquinho C, Tomé G, Grothausen T, Gaspar de Matos M. Community-based youth participatory action research studies with a focus on youth health and well-being: A systematic review. J Community Psychol. 2020;48(5):1301–15. https://doi.org/10.1002/jcop.22320
90. Sancassiani F, Pintus E, Holte A, Paulus P, Moro MF, Cossu G, et al. Enhancing the emotional and social skills of the youth to promote their wellbeing and positive development: a systematic review of universal school-based randomized controlled trials. Clin Pract Epidemiol Ment Health. 2015;11(2):21–40. https://doi.org/10.2174/1745017901511010021

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