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ORIGINAL PAPER

Pathways Among Negative Co-parenting, Parenting Stress, Authoritarian Parenting Style, and Child Adjustment: The Emotional Dysregulation Driven Model

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Abstract

Existing literature has outlined how parental emotional regulation could affect children's adjustment and parenting behaviors. Family studies also showed how the negative mood created by negative co-parenting interactions might spill over into the parent-child relationship, resulting in high levels of parenting stress and coercive and authoritarian parenting behaviors, strictly associated with children's psychological maladjustment. The present study explored families' pathways by which high levels of parental emotional dysregulation could affect children's psychological adjustment by considering the mediating role of co-parenting, parenting stress, and authoritarian style. Mediation analyses were performed using a sample of 143 Italian father-mother dyads. Results showed that parental emotional dysregulation was linked to a negative co-parenting relationship. Moreover, the data indicated that parental emotional dysregulation was linked to children's adjustment through the serial mediation of negative co-parenting and parenting stress. The results are discussed in terms of clinical and research implications.

Keywords Emotional dysregulation · Co-parenting · Parenting stress · Authoritarian parenting · Child adjustment

Highlights

- The exploration of families' pathways by which high levels of parents' emotional dysregulation could affect children's psychological adjustment is an area worthy of further exploration.
- The current study explored how coparenting relationships and parenting behaviors (parenting stress and authoritarian style) could serially mediate the associations between parents' emotional dysregulation and children's adjustment.
- The results showed that both parents' emotional dysregulation was linked to children's adjustment through the serial mediators of negative coparenting and parenting stress.

Existing literature has outlined how effective emotional regulation could affect individual emotional well-being and interpersonal functioning by promoting new relationships and bolstering the quality of the existing relationships (English & Eldesouky, 2020; English & John, 2013). According to Gratz and Roemer (2004), emotion regulation is an adaptive response to emotional distress which is characterized by four dimensions: (a) awareness and understanding of emotions, (b) acceptance of emotions, (c) ability to control impulsive behaviors and behave in accordance with desired goals when experiencing negative emotions, and (d) ability to use situationally appropriate emotion regulation strategies flexibly to modulate emotional responses as desired in order to meet individual goals and situational demands" (pp. 42–43).

Within this framework, deficits in one or more of these dimensions indicate the presence of emotion dysregulation, which has been theorized to play a role in the etiology and/or maintenance of various forms of psychopathology. More specifically, emotion dysregulation reflects deficits in awareness and acceptance of emotions

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and strategies to manage intense negative emotional states (Gross, 2007).

Emotional dysregulation could negatively affect the individual emotional well-being and interpersonal functioning by deteriorating the quality of the existing relationships (English & Eldesouky, 2020; English & John, 2013). Specifically, in family studies, researchers have examined how parental emotion dysregulation could negatively influence parenting behaviors, which further influence their children's emotion regulation and adjustment (Deater-Deckard et al., 2016; Han et al., 2016; Li et al., 2019; Rutherford et al., 2015). Conversely, the exploration of how the emotional dysregulation of each parent could operate at the couple level is an area that needs further exploration (Brandão et al., 2019). This is because only a few studies have investigated the impact of emotion dysregulation on marital quality in terms of conflict and thoughts about divorce (Impett et al., 2012; Velotti et al., 2016), while there are no studies that have explored the effects of emotion dysregulation strategies on the co-parenting relationship. Therefore, the first aim of the current study is to explore the impact of parental emotional dysregulation on the co-parenting relationship.

Co-parenting is a conceptual term that describes how parents coordinate their shared responsibility in childrearing by supporting or undermining one another's parenting efforts (Feinberg, 2003; McHale & Lindahl, 2011). According to the family systems theory perspective (Minuchin, 1985; von Bertalanffy, 1968), the co-parenting relationship represents a unique subsystem that pertains specifically to parenting together. Through this relationship, parents negotiate their respective parental roles, responsibilities, and contributions to their children (Feinberg, 2003; McHale et al., 2000). The broad construct of co-parenting includes supportive or hostile-competitive dimensions (Feinberg, 2003; McHale, 1995). Positive co-parenting is characterized by each parent's supportiveness of the other and may include affirming each other's competency as a parent, acknowledging and respecting each other's contributions, and upholding each other's parenting decisions and authority.

Conversely, negative co-parenting arises when parents are intrusive, undermining, conflictual or actively competitive with the partner (Solmeyer & Feinberg, 2011)". Supportive co-parenting is an identified protective factor for child development from early toddlerhood to late adolescence. Conversely, co-parenting conflict is an essential factor that predicts the psychological maladjustment and poor social competence of children and adolescents (Teubert & Pinquart, 2010). For instance, some studies have shown that co-parenting conflict is associated with children's behavioral problems (Camisasca et al., 2021a, 2021b; Camisasca et al., 2013; Camisasca et al., 2019b; Choi & Becher, 2019; Parkes et al., 2019; Stroud et al., 2015), adolescents' risky behaviors (Baril et al., 2007), children's academic and social school readiness (Jahromi et al., 2018), and parent-adolescent attachment and social competence (Zou et al., 2020).

Literature (Bonds & Gondoli, 2007; Morrill et al., 2010) suggested that the co-parenting relationship represents a point of intersection between two family subsystems i.e., marital and parent-child relationships (Lindsey et al., 2005). Several studies have empirically demonstrated that any direct effect of marital relations on parenting behaviors decreases or disappears after accounting for the mediating effect of co-parenting (Bonds & Gondoli, 2007; Camisasca et al., 2014, 2016a; Choi & Becher, 2019). The effect of the co-parenting relationship on the caregiver-child relationship could be explained by considering the *spillover hypothesis* (Erel & Burman, 1995), which suggests that aspects, e.g., emotions or behaviors, of one relationship in a family can transfer to another. According to this hypothesis, the negative mood (e.g., anger, distress, and frustration) created by negative co-parenting interactions may spill over into the parent-child relationship, resulting in high levels of parenting stress and coercive and authoritarian parenting behaviors (Camisasca et al., 2015; Choi & Becher, 2019; Solmeyer & Feinberg, 2011). Empirical research demonstrated how negative aspects of co-parenting (e.g., conflict or undermining) were found to be associated with lower levels of parental efficacy, feelings of helplessness, and parenting stress (Camisasca & Di Blasio, 2019; Camisasca et al., 2016b, 2019a; Solmeyer & Feinberg, 2011).

Family studies also showed how parenting stress and authoritarian parenting style could be associated with children's psychological maladjustment (Anthony et al., 2005; Miragoli et al., 2018; Pinquart, 2017). Regarding the effects of parenting stress on children's adjustment, some authors (Anthony et al., 2005; Camisasca & Di Blasio, 2014; Camisasca et al., 2016b) suggested that the emotional climate, characterized by uncontrolled and adverse parental emotional reactions, through some contagion of affections (Denham et al., 2000), could affect children's emotional reactions with dysregulating effects. In turn, children's emotional dysregulation could make them particularly vulnerable to the consequent onset of behavioral problems. Additional studies have shown that authoritarian parenting styles (unavailable, unresponsive, rejecting, hostile or punitive) are a significant risk factor for children's internalizing and externalizing problems (Pinquart, 2017; Rose et al., 2018). Specifically, Pinquart (2017) suggested that hostile authoritarian parents' behaviors could lead to emotional dysregulation among children, which, in turn, could lead to anxious, withdrawn, or even defensive and aggressive behaviors.

In summary, literature about parents' emotional dysregulation, although it outlined its adverse effects on children's adjustment and marital quality, did not explore its impact on

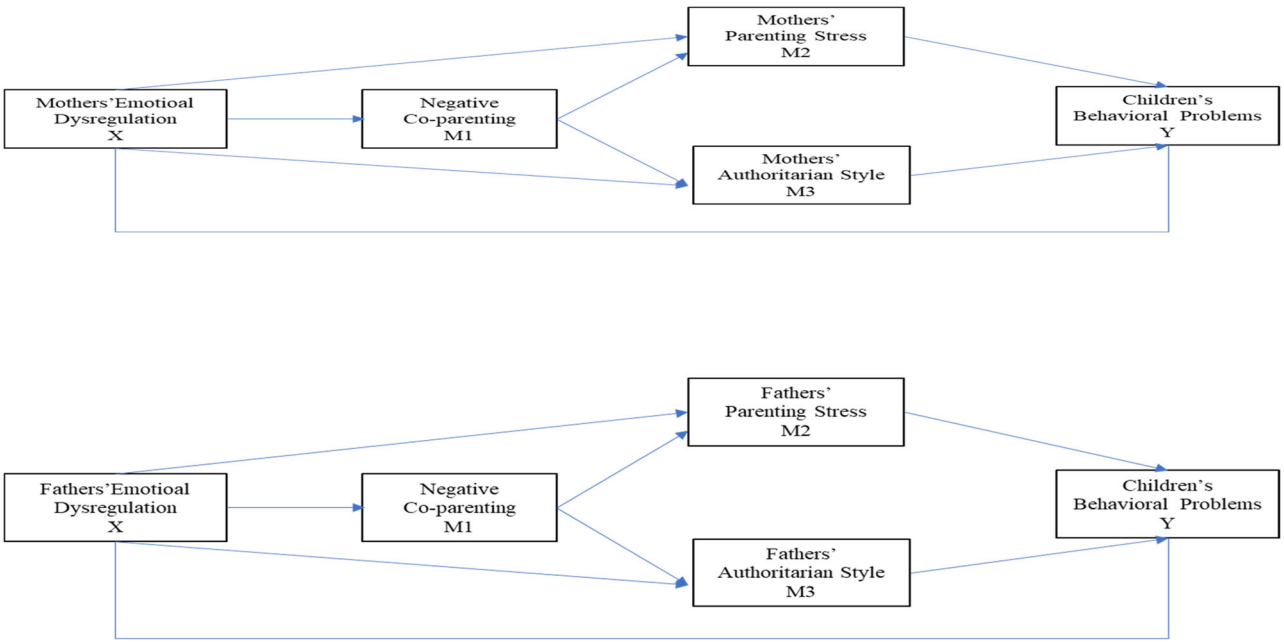

Fig. 1 The Serial Mediation of Negative Co-parenting and Parenting Behaviors

the co-parenting relationship. Moreover, family studies investigated the links between the co-parenting relationship, parenting stress, and children's adjustment, but they did not explore their role as serial mediators in the association between parental emotional dysregulation and children's adjustment. Therefore, the present study is aimed to fill these gaps. Specifically, we were interested in exploring: a) the effects of parental emotional dysregulation on the co-parenting relationship. b) The indirect effects of parental emotional dysregulation on children's adjustment through the serial mediation of negative co-parenting, parenting stress, and parents' authoritarian styles.

Aims and Hypotheses

Until now, exploring the pathways by which high levels of parental emotional dysregulation could affect children's psychological adjustment by considering both the negative co-parenting relationship and parenting behaviors (in terms of parenting stress and authoritarian style) is an area worthy of investigation. Therefore, to fill this gap in the literature, the present study had two aims.

The first was to explore the effects of parental emotional dysregulation on the co-parenting relationship. We chose to study this specific age group because previous studies have mainly investigated the co-parenting relationship in families with preschool children and adolescents. The second aim was to determine the indirect effects of parental emotional dysregulation on school-aged children's adjustment through a mediational chain beginning with co-parenting quality and subsequently influencing children's adjustment through parenting stress and authoritarian parenting style (see Fig. 1a, b).

In addition, the focus on this age group stems from the consideration that elementary school children require specific skills and tasks from their parents. According to the family system perspective, Roberts (1990) stated that the main parenting tasks are establishing rules which govern interactions, maintaining appropriate hierarchy, and allowing the child to establish relationships outside the home. These parenting tasks depend on the closeness/distance among parents (Broderick & Smith, 1979). They are supported by their ability to maintain good co-parenting competencies.

Based on the above-cited literature that outlined how emotional dysregulation affected the couple relationship in terms of conflict and lowered marital satisfaction (English et al., 2012; Shorey et al., 2015), we hypothesized that parental emotional dysregulation could also be associated with negative co-parenting (H1). Moreover, based on studies that showed the effects of emotional dysregulation on parenting and child adjustment (Choi & Becher 2019; Lau & Power, 2019; Quetsch et al., 2018), and the impact of co-parenting, parenting stress, and authoritarian style on children's adjustment (Camisasca et al., 2019b; Choi & Becher, 2019; Pinquart, 2017), we hypothesized (H2) that the effects of parental emotional dysregulation on children's adjustment could be mediated by negative co-parenting, parenting stress and authoritarian parenting style.

Our focus on both mothers and fathers derives from the consideration that, although children develop in a socially complex, ecological context where mothers and fathers exert influence over their growth and well-being (Cabrera

et al., 2014), most studies of parenting neither include fathers nor control for fathers' effects on children's outcomes (Cabrera et al., 2018). It is, therefore, essential to determine the paths from emotional dysregulation to child adjustment (through negative co-parenting and parenting stress) by considering both mothers and fathers.

Method

Participants

Participants were 143 mothers and fathers of Italian children (52.5% boys, 47.5% girls) aged 6–11 years ($M = 7.7$; $SD = 1.9$) recruited from four primary schools located in Milan and the province of Milan. The children were categorized as the only child (32%), the firstborn (30%), the second-born (32.%), or the third born (6%). The couples had been married 12.6 years on average ($SD = 4.5$). The mothers' average age was 40.5 years old ($SD = 2.8$), and the fathers' average age was 42.2 years old ($SD = 2.8$). We assessed participants' families' socioeconomic status (SES) by asking for parents' qualifications and jobs: 32% of participants were lower-middle class, 55% were middle class, and 13% were upper-middle class.

Procedure

Recruitment occurred by holding introductory meetings with school principals. They helped us send letters to the parents of children aged 6–11 years that described the study's goals, methodology, and consent forms. Initially, we approached 242 Italian mother-father dyads, 143 of whom agreed to participate in this study and signed the consent forms that described the project and its goals, the voluntary nature of participation, and the confidentiality of the data collected (acceptance rate: 63%). We have no data about parents who declined to participate. To parents who agreed to participate, we delivered packets consisting of self-report measures, and mothers and fathers were also asked to fill out the forms independently, without sharing their answers, and return all the measures to the schools within two months. These participants returned the measures on time in a sealed envelope to protect the privacy and placed them in a box at the school's entrance. Ethical approval was obtained from the Catholic University of Milan Ethics Committee for the project "Marital Conflict, Co-parenting, and Child Adjustment" in April 2018.

Measures

Emotional Dysregulation

The Difficulties in Emotion Regulation Scale (DERS) (Gratz & Roemer, 2004; Italian adaptation, Sighinolfi et al., 2010) is a 36-item self-report questionnaire that assesses clinically relevant difficulties in ER (with a particular emphasis on negative emotions). Items are scored on six scales: Lack of Emotional Awareness (6 items), Lack of Emotional Clarity (5 items), Difficulties Controlling Impulsive Behaviors When Distressed (6 items), Difficulties Engaging in Goal-Directed Behavior When Distressed (5 items), Nonacceptance of Negative Emotional Responses (6 items), and Limited Access to Effective ER Strategies (8 items). Items are scored on a 5-point scale ranging from 1 (almost never) to 5 (almost always). Subscale scores are obtained by summing the corresponding items. Higher DERS total and subscale scores represent greater emotional regulation difficulties on that scale. The Italian adaptation of the measure (Sighinolfi et al., 2010) has been shown to have good reliability for the total scale ($\alpha = 0.90$) and the six subscales (α from 0.74 to 0.88). For the purposes of the present study, we used the DERS Total Scale. In the present study, the internal consistency value was $\alpha = 0.86$.

Co-parenting Relationship

Mothers and fathers completed the Co-parenting Relationship Scale (CRS; Feinberg et al., 2012; Italian version Camisasca et al., 2016a) to assess the co-parenting relationship quality. The scale consists of 35 items on a 7-point scale ranging from 0 (= *not true of us*) to 6 (= *very true of us*), except for items in the "exposure to the conflict" dimension, for which items are assessed on a 7-point scale ranging from 0 (= *never*) to 6 (= *very often – several times a day*).

In this paper, the subscales used were exposure to conflict (e.g., "How often in a typical week, when all 3 of you are together, do you yell at each other within earshot of the child?") and undermining (e.g., "My partner does not trust my abilities as a parent"). In this study, alphas for the scales ranged from 0.70 to 0.89 for mothers and from 0.71 to 0.90 for fathers. For the present study, in accordance with Fosco and Grych (2008), we transformed each parent's reports of undermining and conflict behaviors into z-scores. We then computed the mean score to create a single couple composite of negative co-parenting. This composite score allows us to gain a comprehensive perspective of the points of view of both partners, which could allow a vision that is as realistic and less subjective as possible of the quality of the co-parenting relationship. Nevertheless, in the analyses, we also considered each parent's point of view of the co-parenting relationship, and the mediational results did not significantly differ (see results section).

Parenting Stress

Mothers and fathers completed the Parenting Stress Index Short Form (PSI-SF; Abidin, 1995; Italian validation by

Guarino et al., 2008) to gain information about their levels of parenting stress.

It consists of four subscales: Parental Distress (PD, 12 items), Difficult Child (DC, 12 items), and Parent–Child Dysfunctional Interaction (P-CDI, 12 items) as well as a defensive responding subscale that consists of 7 items drawn from the Parental Distress subscale. The PD subscale focuses on the sense of competence/incompetence in rearing the child, conflict with the partner, lack of social support, and stress associated with the restrictions deriving from the role of the parent. The internal consistency of the Italian validation of the PSI-SF (Guarino et al., 2008) has been reported to be $\alpha = 0.91$ for the Total Stress scale, $\alpha = 0.91$. In the present study, the internal consistency of the PSI-SF was $\alpha = 0.90$ for mothers and $\alpha = 0.91$ for fathers. The DC subscale focuses on the parent's perception of the child in terms of temperament, requesting and provoking behaviors, and non-collaborative and demanding behaviors. Finally, the P-CDI subscale measures parents' perceptions of the emotional quality of their relationship with their children. The sum of the scores of the three subscales (PD; P-CDI? DC) enables us to obtain the value of Total Stress, which gives an indication of the overall level of the specific parental stress, not deriving from other roles or other events. The 36 items of the questionnaire are rated on a 5-point scale, ranging from "strongly agree" to "strongly disagree." The sum of the scores of the items enables us to obtain the value of *Total Stress*, which indicates the overall level of the specific parental stress not derived from other roles or other events.

Parent's Authoritarian Style

Mothers and fathers responded to the Italian adaptation (Confaloneri et al., 2009) of the Parenting Styles and Dimensions Questionnaire (PSDQ; Robinson et al., 1995), investigating how parents rated how often they perceived themselves exhibiting parenting behaviors reflected on each item. The self-report measure consists of 31 items measured on a 5-point Likert scale (1 = never; 5 = always). The instrument assesses authoritative, authoritarian, and permissive styles, but we considered only the authoritarian style in the present study. In the present study, we used the Authoritarian parenting style scale [which had a good internal consistency value, $\alpha = 0.76$. The Authoritarian parenting style scale (16 items) reflects four dimensions: verbal hostility (e.g., Explodes in anger toward child); corporal punishment (e.g., Grab our child when he/she is disobedient); nonreasoning/punitive strategies (e.g., Uses threats as punishment with little or no justification); and directiveness (e.g., Tells child what to do).

Children's Adjustment

Both parents completed the Child Behavior Checklist (CBCL/4-18; Achenbach & Rescorla, 2001; Italian version by Frigerio, 2001), which is one of the most commonly used measures of children's internalizing and externalizing behaviors. Items on this scale are rated on a 3-point scale for the target child: 0 (not true), 1 (sometimes or somewhat true), and 2 (very or often true). Child problem behaviors are clustered into the two broader categories of externalizing and internalizing problems. The *first category of internalizing behaviors* is characterized by social withdrawal or shyness (e.g., "Complains of loneliness") and symptoms of depression or anxiety (e.g., "Cries all the time" or "I feel worthless or inferior"). The second *category of externalizing behaviors* is characterized by aggressive behaviors ("Gets in many fights") and defiance ("Disobedient at school"). In our study, we found adequate reliability for internalizing (for mothers $\alpha = 0.88$ and for fathers $\alpha = 0.84$) and externalizing problems (for mothers $\alpha = 0.85$ and for fathers $\alpha = 0.86$). In the present study, by summing the internalizing and externalizing scores, we considered the variable *Total Behavioral Problems* (internalizing and externalizing) of both mothers and fathers ($r = 0.73$). Then, we converted mothers' and fathers' reports into z-scores and computed the mean score to create a single parental index of children's psychological adjustment (internalizing and externalizing). According to Fosco and Grych (2008), this index balanced the two parents' perspectives about children's adjustment, which was considered the outcome variable. Nevertheless, we also considered the primary caregivers' CBCL reports (mothers) in the analyses, and the mediational results did not significantly differ (see results section).

Data Analyses

Descriptive statistics were computed for all the variables. Pearson's *r* correlations were used to investigate the associations between the variables. We performed two mediation models to explore the dynamic pathways linking parental emotional dysregulation to children's psychological adjustment (one for mothers and one for fathers). In these models, negative co-parenting (undermining and conflict behaviors), parents' parenting stress, and authoritarian style were added as mediators, operating either in serial or in parallel (Hayes, 2018, p. 215).

In the first set of mediation models, mothers' emotional dysregulation was added as the predictor (X), children's psychological adjustment was the outcome (Y), and the negative co-parenting relationship was used as the first mediator (M1). In contrast, maternal parenting stress (M2) was the second mediator, and maternal authoritarian style (M3) was the third mediator (see Fig. 1a). The second set of

Table 1 Descriptive and correlational results

	1	2	3	4	5	6	7	8	*M (SD)*
1. Emotional Dysregulation (Mothers)	1								9.7 (3.7)
2. Emotional Dysregulation (Fathers)	0.356**	1							9.1 (3.1)
3. Negative Co-parenting	0.251**	0.297**	1						1.5 (1.2)
4. Parenting Stress (Mothers)	0.235**	0.152	0.222**	1					70 (16.5)
5. Parenting Stress (Fathers)	0.154	0.172*	0.320**	0.657**	1				67.6 (18.9)
6. Authoritarian Style (Mothers)	0.325**	0.183*	0.288**	0.327**	0.192*	1			37.3 (7.2)
7. Authoritarian Style (Fathers)	0.462**	0.228**	0.436**	0.141	0.208*	0.493**	1		37.1 (7.01)
8. Children's Adjustment	0.224**	0.217*	0.296**	0.366**	0.398**	0.252**	0.227**	1	10.4 (8.07)

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

Table 2 Mediation analyses for mothers

	Coefficient	*SE*	*Model R^2*	*(p)*
DV: Negative Co-parenting (CRS)			0.05	<0.01
Emotional Dysregulation (DERS Mothers)	0.08*	0.02		<0.01
DV: Maternal Stress (PSI)			0.07	<0.01
Emotional Dysregulation (DERS Mothers)	0.70	0.36		>0.05
Negative Co-parenting (CRS)	2.2*	1.0		<0.01
DV: Mothers' Authoritarian Style (PPQ)			0.15	<0.001
Emotional Dysregulation (DERS Mothers)	0.51*	0.15		<0.01
Negative Co-parenting (CRS)	1.2*	0.43		<0.01
DV: Child Adjustment (CBCL			0.19	
Total Effect	0.44			<0.05
Direct Effect	0.17			0.33
Indirect Effect via Mediator	*Coeff*		*ULCI*	*ULCI*
Ind1 DERS vs CRS vs CBCL	0.10		−0.00	0.25
Ind2 DERS vs PSI vs CBCL	0.09		−0.01	0.25
Ind3 DERS vs PPQ vs CBCL	0.04		−0.07	0.17
Ind4 DERS vs CRS vs PSI vs CBCL	0.02*		0.09	0.09
Ind5 DERS vs CRS vs PPQ vs CBCL	0.00		−0.01	0.04

* $p < .05$

mediation models used fathers' variables (see Fig. 1b). In these mediation models, X is modeled as affecting Y through four pathways. The first pathway runs from X to Y through M1 only. The second one runs through M2 only, and the third pathway passes through both M1 and M2 in serial, with M1 affecting M2. The fourth pathway passes through M3, with M1 affecting M3 (Hayes, 2018).

Results

Descriptive Results and Correlational Analyses

Means, standard deviations, and correlations of all variables used in the present study are presented in Table 1. Regarding the variables investigated, the mean scores for mothers, fathers, and children were similar to those obtained in other Italian and international studies with normative samples (Camisasca & Di Blasio, 2014; Camisasca et al., 2016a; 2016c; Confaloneri et al., 2009; Feinberg et al., 2012; Frigerio, 2001; Sighinolfi et al., 2010) and were placed within normal limits. The correlation analyses showed that emotional dysregulation of both parents was positively correlated with negative co-parenting ($r = 0.25$ and $r = 0.29$), parenting stress ($r = 0.17$ and $r = 0.23$), authoritarian style ($r = 0.22$ and $r = 0.32$) and children's psychological adjustment ($r = 0.21$ and $r = 0.22$). Negative co-parenting was also correlated with parents' parenting stress ($r = 0.22$ and $r = 0.32$), parents' authoritarian style ($r = 0.28$ and $r = 0.43$), and children's adjustment ($r = 0.29$). Both parents' parenting stress and authoritarian style were also correlated with children's adjustment (r from 0.22 to 0.39).

Table 3 Mediation analyses for fathers

	Coefficient	*SE*	*Model R^2*	*(p)*
DV: Negative Co-parenting (CRS)			0.09	<0.01
Emotional Dysregulation (DERS Fathers)	0.09*	0.03		<0.01
DV: Paternal Stress (PSI)			0.12	<0.01
Emotional Dysregulation (DERS Fathers)	0.46	0.52		>0.05
Negative Co-parenting (CRS)	4.4*	1.2		<0.01
DV: Fathers' Authoritarian Style (PPQ)			0.20	<0.001
Emotional Dysregulation (DERS Fathers)	0.25	0.18		<0.01
Negative Co-parenting (CRS)	2.1*	0.43		<0.01
DV: Child Adjustment (CBCL			0.19	
Total Effect	0.57		<0.01	<0.01
Direct Effect	0.30		>0.05	0.15
Indirect Effect via Mediator	Coeff		LLCI	ULCI
Ind1 DERS vs CRS vs CBCL	0.06		−0.10	0.29
Ind2 DERS vs PSI vs CBCL	0.09		−0.05	0.26
Ind3 DERS vs PPQ vs CBCL	0.04		−0.03	0.11
Ind4 DERS vs CRS vs PSI vs CBCL	0.02*		0.01	0.19
Ind5 DERS vs CRS vs PPQ vs CBCL	0.00		−0.03	0.10

* p <. 05

Indirect Effect of Mothers' Emotional Dysregulation on Children's Adjustment through Negative Co-parenting, Parenting Stress, and Authoritarian Style

We performed a mediation model (using the Process Macro for SPSS Hayes 2018, and applying Model 81 with 5000 bias-corrected bootstrap samples; see Table 2) to explore the dynamic pathways linking mothers' emotional dysregulation to children's adjustment. In this model, mothers' emotional dysregulation was the predictor; the composite score of co-parenting was the first mediator (M1); mothers' parenting stress (M2) and mothers' authoritarian style (M3) were the second and third mediators; children's adjustment (composite score) was the outcome (Y). The results showed that the total effect of mothers' emotional dysregulation on children's adjustment was significant ($R^2 = 0.04$; $F = 6.4$; $p < 0.05$; $\beta = 0.44$). The effect of emotional dysregulation on negative co-parenting (composite score) was significant ($\beta = 0.08$; $p < 0.001$). Moreover, the effects of emotional dysregulation and negative co-parenting on both maternal parenting stress (emotional dysregulation: $\beta = 0.85$; $p < 0.05$; negative co-parenting; $\beta = 2.1$; $p < 0.05$) and authoritarian style were also significant (emotional dysregulation: $\beta = 0.52$; $p < 0.01$; negative co-parenting; $\beta = 1.1$; $p < 0.01$). When the effects of the mediators (negative co-parenting, parenting stress, and authoritarian style) were controlled, the direct effect of mothers' emotional dysregulation on children's adjustment was not significant ($\beta = 0.17$, $p = 0.33$). Additionally, the results indicated indirect effects for the fourth pathway ($R^2 = 0.19$; $F = 9.4$; $p < 0.001$). The indirect pathway passed from X to Y through serial mediators (M1 and M2) of negative co-parenting and parenting stress ($\beta = 0.02$; LLCI-ULCI: 0.00;0.91).

Data indicated indirect effects for the fourth pathway (mothers: $R^2 = 0.11$; $F = 7.3$; $p < 0.01$; fathers: $R^2 = 0.10$; $F = 6.5$; $p < 0.01$). The indirect pathway passed from X to Y through the serial mediators (M1 and M2) negative co-parenting and parenting stress (Mothers: $\beta = 0.05$; LLCI-ULCI: 0.01;0.12; Fathers: $\beta = 0.09$; LLCI-ULCI: 0.02;0.17).

We also considered the mothers' perceptions of co-parenting in the analyses. The mediational results did not significantly differ. Indeed, data indicated indirect effects for the fourth pathway ($R^2 = 0.11$; $F = 7.3$; $p < 0.01$). The indirect pathway passed from X to Y through the serial mediators (M1 and M2) negative co-parenting and parenting stress ($\beta = 0.05$; LLCI-ULCI: 0.01;0.12).

Moreover, in the analyses, we also considered the primary caregivers' CBCL reports (mothers).

The mediational results did not significantly differ. The data indicated indirect effects for the fourth pathway (mothers: $R^2 = 0.11$; $F = 7.3$; $p < 0.01$). The indirect pathway passed from X to Y through the serial mediators (M1 and M2) negative co-parenting and parenting stress (Mothers: $\beta = 0.05$; LLCI-ULCI: 0.01;0.12).

Indirect Effect of Fathers' Emotional Dysregulation on Children's Adjustment through Negative Co-parenting, Parenting Stress, and Authoritarian Style

We performed a second mediation model (using the Process Macro for SPSS Hayes 2018, and applying Model 81 with 5000 bias-corrected bootstrap samples; see Table 2) to

explore the dynamic pathways linking fathers' emotional dysregulation to children's adjustment (see Table 3). In this model, fathers' emotional dysregulation was the predictor; the composite score of co-parenting was the first mediator (M1); fathers' parenting stress (M2) and fathers' authoritarian styles (M3) were the second, and third mediator; children's adjustment (composite score) was the outcome (Y)

The results (see Table 3) showed that the total effect of paternal emotional dysregulation on children's adjustment was significant ($R^2 = 0.05$; $F = 7.0$; $p < 0.05$; $\beta = 0.57$). The effect of emotional dysregulation on negative co-parenting was significant ($\beta = 0.13$; $p < 0.001$). Moreover, the effect of negative co-parenting on both paternal parenting stress (negative co-parenting; $\beta = 4.4$; $p < 0.05$) and authoritarian style was significant (negative co-parenting $\beta = 2.1$; $p < 0.01$). When the effects of the mediators (negative co-parenting, parenting stress and authoritarian style) were controlled, the direct effect of emotional dysregulation on children's adjustment was not significant ($\beta = 0.30$, $p = 0.15$).

The results indicated indirect effects for the fourth pathway ($R^2 = 0.05$; $F = 7.0$; $p < 0.01$). The indirect pathway passed from X to Y through serial mediators (M1 and M2) of negative co-parenting and parenting stress ($\beta = 0.08$; LLCI-ULCI: 0.01;0.19).

Then, we also considered the fathers' perceptions of co-parenting in the analyses. The mediational results did not significantly differ. Indeed, data indicated indirect effects for the fourth pathway ($R^2 = 0.10$; $F = 6.5$; $p < 0.01$). The indirect pathway passed from X to Y through the serial mediators (M1 and M2) negative co-parenting and parenting stress ($\beta = 0.09$; LLCI-ULCI: 0.02;0.17).

Discussion

The purpose of the present study was to advance knowledge regarding the linking mechanisms between parental emotional dysregulation and children's adjustment by investigating negative co-parenting, parenting stress, and authoritarian style as possible mediators.

Our data showed how emotional dysregulation of both mothers and fathers was associated with undermining and conflictual co-parenting. The results confirmed hypothesis (H1) by showing that variance in both mothers' and fathers' emotional dysregulation was linked to the level of negative co-parenting quality. Therefore, the results supported the literature about the impact of emotional dysregulation on interpersonal functioning at a couple level (English & Eldesouky, 2020). Specifically, it is consistent with the literature that showed how the difficulty in controlling impulsive behaviors (a component of emotional dysregulation) could be a significant antecedent of both verbal and physical aggression (Cheche Hoover & Jackson, 2019; McNulty & Hellmuth, 2008; Shorey et al., 2015).

Our findings support the assertion of Kim et al. (2009) that individuals with poor emotion regulation are less likely to modulate their negative emotions and related behaviors, showing impulsivity and inappropriate and conflictual strategies when interacting with romantic partners.

Our results also partially confirmed the second hypothesis (H2) about the indirect effects of emotional dysregulation on children's adjustment. Specifically, for both parents, the data showed indirect links between parental emotional dysregulation and children's adjustment through the negative co-parenting and parenting stress as serial mediators. Indeed, the negative co-parenting relationship was associated with children's adjustment through higher parenting stress levels but not through which is not necessarily predictive of children's adjustment in the presence of a negative co-parenting relationship. This result is unexpected if we consider how research (Shaw & Starr, 2019) has demonstrated links between authoritarian parenting (i.e., high levels of hostility, coercion, and psychological control) and children's poor psychological adjustment. Therefore, further studies could better verify the role of parents' authoritarian styles when jointly considering the co-parenting relationship. The effects of negative co-parenting on children's adjustment are consistent with the literature. Indeed, studies showed how inter-parental conflictual interactions denoted by hostility and instability could significantly undermine children's psychological adjustment (Camisasca et al., 2016b, 2019b; Choi & Becher, 2019; Parkes et al., 2019; Stroud et al., 2015; Teubert & Pinquart, 2010). When children are directly exposed to inter-parental conflict, they could develop high levels of perceived threat and self-blame (Grych et al., 1992) and/or emotional insecurity (Davies & Cummings, 1994), which directly promote insurgence of behavioral problems.

Contrary to parents' authoritarian style, parenting stress was directly associated with children's maladjustment. This result is supported by the literature, which underlines how parenting stress may directly impact children's adjustment (Anthony et al., 2005; Denham et al., 2000). This is because high levels of stress experienced by parents could create a pervasive hostile emotional environment for children. This emotional climate, characterized by uncontrolled and adverse parental emotional reactions through the contagion of emotions (Denham et al., 2000), could affect children's emotional development with dysregulating effects. In turn, emotional dysregulation could make these children particularly vulnerable to the consequent onset of behavioral problems.

Although further research is needed, these results highlight how high levels of anger, frustration, and impotence (due to parenting stress) could foster children's negative self-perceptions, low self-esteem, and feelings of loneliness, strictly associated with their behavioral problems.

In conclusion, the results showed the importance of parental emotional dysregulation for family dynamics and children's adjustment. Indeed, data indicated a pathway from parental emotional dysregulation to children's adjustment through dysfunctional co-parenting interaction and parenting behaviors. Specifically, the parental difficulties in controlling impulsive behaviors and inappropriate emotion regulation strategies seem to foster co-parenting conflictual and undermining interactions between parents. In turn, the hostile and antagonistic co-parenting relationship, by promoting a lack of support and parents' feelings of incompetence and disvalue, can cause higher levels of parenting stress. As above indicated, this pervasive hostile emotional climate, characterized by uncontrolled and adverse parental emotional reactions through the contagion of emotions, could negatively affect children's emotional development with a consequent onset of behavioral problems.

In other words, the results showed pathways between parental emotional dysregulation and children's adjustment via negative co-parenting and parenting stress as possible serial mediators. More precisely, they underscore the essential role that both the co-parenting relationship and parents' parenting stress could play in the children's adjustment.

Our findings provide implications for health care providers by sustaining the importance of specific interventions focused on the co-parental relationship and parenting stress. Regarding the co-parenting relationship, a helpful intervention is the Family Foundation Preventive Program (FF; Feinberg: https://famfound.net/). This program focuses on helping couples become aware of areas of co-parental disagreement and on managing disagreements through productive communication, problem-solving, and conflict management techniques. The program is delivered in eight sessions of two hours, each by two facilitators. Through various group exercises, role-play, and group discussion, parents also learn strategies for increasing co-parental support, decreasing co-parental undermining, and sensitively responding to their child. Empirical evidence indicated that the FF program improved the co-parenting alliance, parents' emotional regulation (e.g., lower depression, anxiety), children's adjustment, and reduced parenting stress (Feinberg & Jones, 2018; Solmeyer et al., 2014)".

When we consider the harmful effects of parental stress on children's psychological adjustment, the promotion of interventions aimed at reducing this condition in parents becomes essential. In this regard, we could surely refer to structured, evidence-based group programs called mindfulness-based stress reduction (MBSR), which focus on empowerment, nonjudgmental interpretation of events, and acceptance of the present situation using mindful meditation practices and gentle stretching (Kabat-Zinn et al., 1992). MBSR programs generally include formal mindful meditation instruction, discussion, and practices and teach the integration of mindfulness into everyday life as a strategy for increased coping and decreased reactivity to physical and emotional difficulties. A recent review and meta-analysis (Burgdorf et al., 2019) indicated that mindfulness interventions for parents are associated with reduced parenting stress in parents of both children and adolescents and improved youth psychological functioning across internalizing, externalizing, cognitive, and social domains.

Limitations and Future Research

This study has a series of limitations. First, the causal direction of relations among variables examined in this study cannot be empirically evaluated because the research design of this study is cross-sectional. Therefore, we can also suppose that children's behavioral problems could increase parenting stress which, in turn, could cause high levels of co-parenting undermining and conflict. In this regard, Kang et al. (2020) demonstrated that parenting stress could significantly affect the co-parenting relationship. More precisely, they outlined how emotionally unstable children increase parents' parenting stress, which might increase conflict in co-parenting relationships. This is because parents of these children could experience challenges and difficulties in childrearing, which increases the opportunity for parents to criticize each other.

Another limitation of the study is the use of only self-reported data that can be subject to social desirability and inflate some of the associations among variables. Future research should use a multi-informant and multimethod approach, including observational methods, teacher reports, and interviews, which could foster a more accurate evaluation of the investigated variables. Specifically, in evaluating children's psychological adjustment, multi-informant data collection could help gain a more objective view of children's internalizing and externalizing behaviors. Additionally, our sample was composed of Italian parents who were predominantly well educated and middle class; replicating our findings with a more heterogeneous sample would foster a generalization of findings to a broader population.

Despite these limitations, our findings help to advance the understanding of the pathways from parental emotional dysregulation to children's adjustment. The findings highlight the need to examine further the pathways through which parental emotional dysregulation impacts children's adjustment. For example, it would be interesting to explore

how these pathways could lead to children's adjustment by considering the effects of authoritarian parenting on children's emotional dysregulation.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Ethical Approval In the treatment of the subjects, we have complied with APA and AIP (Associazione Italiana di Psicologia), ethical standards and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Ethical approval was obtained from the Ethics Committee of the Catholic University of Milan in April 2013.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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