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Bereaved parents' grief and dyadic adjustment: The indirect effect through dyadic coping

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## **Abstract**

**Background and Objectives:** This study aimed to examine forms of dyadic coping (DC) as mediators of the association between parents' grief response and dyadic adjustment and to determine whether these indirect effects were moderated by the child's type of death, timing of death and age.

**Design:** The study design was cross-sectional.

**Method:** The sample consisted of 197 bereaved parents. Participants completed the Prolonged Grief Disorder Scale, Revised Dyadic Adjustment Scale, and Dyadic Coping Inventory.

**Results:** Significant indirect effects of parents' grief response on dyadic adjustment were found through stress communication by oneself and by the partner, positive and negative DC by the partner and joint DC. The timing of death moderated the association between grief response and dyadic adjustment and between joint DC and dyadic adjustment. Grief response was negatively associated with dyadic adjustment only when the death occurred after birth. Grief response was negatively associated with joint DC, which, in turn, was positively associated with dyadic adjustment, when the death occurred both before and after birth. However, the association was stronger in the latter.

**Conclusions:** Specific forms of DC might be mechanisms through which grief response is associated with dyadic adjustment and should be promoted in clinical practice.

**Keywords:** death of a child; dyadic adjustment; dyadic coping; grief response; death circumstances.

## **Introduction**

The death of a child is the most serious source of bereavement that a parent can experience (Sanders, 1979-80). Bereaved parents have been identified as a group that is highly vulnerable to physical health problems, lower quality of life (Song, Floyd, Seltzer, Greenberg, & Hong, 2010), depression (Li, Laursen, Precht, Olsen, & Mortensen, 2005), emotional distress (Wijngaards-deMeij et al., 2005), and even mortality (Li, Precht, Mortensen, & Olsen, 2003). In a recent systematic review, Albuquerque, Pereira, and Narciso (2016) reported that the death of a child is an event that causes substantial stress on the parents' marital relationship and, thus, constitutes a serious risk factor for marital dissolution.

The grief response has been emphasized as an important variable to consider when examining the impact of the death of a child. Parental grief responses are particularly severe, overwhelming, enduring, and complicated, with symptoms that fluctuate over time (Rando, 2000). The grief response has also been found to be negatively associated with relationship satisfaction (Lang & Gottlieb, 1993; Vance, Boyle, Najman, & Thearle, 2002) and couples' togetherness (Malkinson & Bar-tur, 2004-2005). Because parents face their bereavement simultaneously, they can be deprived of their individual resources and, consequently, might be too distressed to support each other or handle their partner's intense grief (Rosenblatt, 2000). When coping with grief, there is also evidence that parents can have different coping styles, which might add to their distress and lead to marital difficulties (Buyukcan-Tetik, Finkenauer, Schut, Stroebe, & Stroebe, 2016; Reilly-Smorawski, Armstrong, & Catlin, 2002; Rosenblatt, 2000). Accordingly, the distress that is caused by bereavement might hinder parents' mutual support and influence their perception of their partner's support, thereby influencing their dyadic adjustment. In this study, we hypothesized that dyadic coping (DC) could mediate the association between grief response and dyadic adjustment.

There is sound evidence confirming the importance of marital support to both the individual and the relational adjustment of bereaved parents (Lang, Gottlieb, & Ansel, 1996; Song et al., 2010). However, it has been reported that DC takes marital support a step further. According to the systemic-transactional model (STM; Bodenmann, 1997, 2005), DC is a dynamic form of interpersonal coping that involves both members of a couple. It consists of (1) stress communication, which includes the ability to communicate the stress experience and to request support; (2) positive DC, which includes supportive behaviors (expressing understanding or providing advice to the other) and delegated behaviors (taking over certain tasks of the partner); (3) negative DC that refers to hostility toward the partner; and (4) joint DC, which refers to mutual attempts by both partners to cope with a shared stressor together and involves joint problem solving and information seeking, shared feelings, mutual commitment, or joint relaxation (Bodenmann, 2005). This dyadic phenomenon might be especially important for bereaved parents because they are concurrently experiencing a highly stressful and traumatic experience; therefore, they must not only manage their own individual adjustment but also attend to their partner's support needs (Rando, 2000). As a result, it might be fruitful to extend the concept of DC to bereaved parents on whom the current knowledge is incipient.

### ***Association between DC and relational outcomes***

The association between DC and relational outcomes has been confirmed by several studies that have shown how the extent and quality of couples' positive DC are associated with greater relationship quality and satisfaction (e.g., Landis, Peter-Wight, Martin, & Bodenmann, 2013; Martin, Peter-Wight, Braun, Hornung, & Scholz, 2009). The few studies that have focused on the specific forms of DC have reported a similar pattern. Higher levels of supportive DC (enacted by the partner or by oneself), joint DC, and stress communication and lower levels of negative DC (enacted by the partner) have been emphasized as important

for relationship satisfaction and marital quality (Bodenmann, Pihet, & Kayser, 2006; Regan et al., 2014). To the best of our knowledge, only one study explored the DC of parents after the death of a child (Bergstraesser, Inglin, Hornung, & Landolt, 2014). This study found that supportive DC from the partner and particularly joint DC (demonstrated by sharing emotions and maintaining continuing bonds with the child such as joint grave attendance) helped parents to work through their grief not only as a couple but also as individuals. Notably, this finding related to specific forms of DC emerged from qualitative analysis. In the quantitative analysis, the authors used the total DC score, thereby reinforcing the generalized absence in the DC literature of the specific role of the different forms of DC.

Recently, a meta-analysis that compared the specific contributions of the different forms of DC to relationship satisfaction (Falconier, Jackson, Hilpert, & Bodenmann, 2015) indicated that DC enacted by one's partner and DC enacted by the partners together (joint DC) were stronger predictors of relationship satisfaction than DC enacted by oneself. These authors also suggested that although both overall positive DC and overall negative DC are relevant to relationship satisfaction, this variable might depend more on the partners' joint and individual efforts to engage in successful, positive DC strategies, rather than the reduction of negative DC responses. Taken together, prior research has shown not only that DC has potential benefits for the well-being of the relationship but also that the roles of the different forms of DC are empirically distinct (Falconier et al., 2015). Therefore, it is essential to move beyond the prevalent use of DC as a total score and to distinguish between its different forms to provide more precise intervention targets in the context of the marital relationship. This approach is particularly important because there is a lack of focus on the forms of DC related to stress communication in the current literature on DC, despite its acknowledgement in the STM as an essential component of DC (Bodenmann, 1997).

### ***The role of the circumstances of the death***

Still not examined in the current research is how DC works beyond the simple indirect role. Additionally, it is unknown whether the importance of DC for the marital relationship of bereaved parents can be dependent of other variables. In a recent review, Albuquerque et al. (2016) identified the cause of death as an important factor that influences the parents' marital relationship. In a study of parents whose children died from violent deaths, there was a significant decrease in their marital satisfaction over time (Murphy, Johnson, Wu, Fan, & Lohan, 2003). Studies have also shown that deaths occurring in the gestational period involve different processes and difficulties for parents compared to those occurring after birth. Specifically, few memories of the child to use as a way of mourning, a sense of biological failure, and the difficulty of society to recognize the full extent of such a loss have been identified (Wallerstedt, Lilley, & Baldwin, 2003). Another variable that might be important to consider when examining DC in the context of parental bereavement is the child's age. It has been suggested that additional strains on the marital relationship exist when an adult child dies. Specifically, it has been found that bereaved parents of an adult child (aged 25 years or older) were more likely to be divorced than non-bereaved parents (Rogers, 2005). Furthermore, it was suggested that deaths involving older children could be more stressful on marital relationships than infant deaths because attachment bonds were expected to be stronger (Rogers, Floyd, Seltzer, Greenberg, & Hong, 2008).

### ***The present study***

Traditionally, in the bereavement literature, parents' adjustment to the death of a child has been examined from an individual perspective of stress and coping (e.g., Murphy, Johnson, Chung, & Beaton, 2003; Riley, LaMontagne, Hepworth, & Murphy, 2007; Videka-Sherman's, 1982). The interpersonal context in which parental grieving occurs, however, has been scarcely considered (Stroebe, Schut, & Finkenauer, 2013). This study, although based on cross-sectional data, which precludes causality, expands our understanding of the role of

DC in relational adjustment to the death of a child via two objectives. First, we examined whether the association between grief response and dyadic adjustment was mediated by the specific forms of DC. Second, we examined whether the association between grief response and dyadic adjustment through DC was moderated by factors related to the circumstances of the child's death such as the type of death (e.g., natural vs. violent), timing of the child's death (before vs. after birth), and age of the child (younger or older than 18 years of age).

We hypothesized that the forms of DC would mediate the association between parents' grief response and dyadic adjustment. Specifically, we expected that the grief response would be negatively associated with stress communication both by oneself and by the partner, positive DC both by oneself and by the partner and joint DC, which, in turn, would be positively associated with dyadic adjustment. In contrast, we hypothesized that the grief response would be positively associated with negative DC both by oneself and by the partner, which, in turn, would be positively associated with dyadic adjustment. We also hypothesized that the indirect effect of DC enacted by the partner (negative or positive) and joint DC would be stronger compared to the other forms of DC. Moreover, we expected that these indirect effects would be moderated by the type of death, timing of death and child's age. In particular, we hypothesized that the protective role of DC would be diminished in parents whose children died violent deaths (vs. natural deaths) and in parents of older children (vs. younger children). Regarding the timing of death, no conditional direct or indirect effects were hypothesized given that, despite literature claims that deaths occurring before and after birth involve different complexities, no specific comparisons were made.

## **Methods**

### ***Participants***

Data were collected in a convenience sample of bereaved parents. The following inclusion criteria were applied: (1) having lost a child (of any age); (2) being married or

cohabiting; (3) being at least 18 years of age; and (4) having the language and cognitive ability to complete the set of questionnaires. In the paper version, participants were asked to complete the set of questionnaires and to return them anonymously in a sealed envelope either to the health professionals or directly to the researcher (first author).

The final sample consisted of 197 married (86.3%) or cohabiting (13.7%) parents. Most of the parents were female (89.8%), with a mean age of 39.44 years ( $SD = 11.32$ ; range: 18-79). The mean duration of the marital relationship was 16.70 years ( $SD = 11.95$ ; range: 0-56). The duration of education ranged from 3 to 19 years ( $M = 13.41$ ;  $SD = 3.89$ ). Most of the parents were employed (59.9%) and had other children (71.1%).

The mean age of the deceased child was 8.96 years ( $SD = 12.35$ ; range: stillborn-52 years; 26% above 18 years old), and the mean time since death was 2.76 years ( $SD = 2.34$ ; range: 0.5-10). Furthermore, 59.4% of the deceased children were male. The causes of death included fetal death related to miscarriage or stillbirth (27.4%), illness (23.4%), accident (16.2%), neonatal death (16.2%), sudden death (7.6%), suicide (4.6%) and homicide (4.1%). For the majority of parents, the death was unexpected (81.2%). Most of the children died in the hospital (61.4%), whereas 17.3% died at home. The majority of parents were present at the time of the death (53.1%) and reported not having the opportunity to say goodbye to the child (56%).

### ***Measures***

Parents' and child's sociodemographic data (e.g., age, sex) and information regarding the circumstances of the death (e.g., type of death, time since death, expectedness of death, place of death, presence and opportunity to say goodbye at the time of death) were collected by a self-reported questionnaire. The type of death was categorized into natural vs. violent deaths. Natural deaths consisted of natural anticipated losses and natural sudden losses (e.g., fetal death, illness, neonatal death, sudden death), and violent deaths consisted of deaths by



accident, suicide or homicide. Regarding the variable timing of death, the different types of death were collapsed into two categories: before birth vs. after birth. In addition, participants completed the Portuguese versions of three self-reported questionnaires.

#### *Prolonged Grief Disorder Scale (PG-13)*

The grief response was assessed with the PG-13 (Prigerson, Vanderwerker, & Maciejewski, 2007; Delalibera, Coelho, & Barbosa, 2011) on the basis of the diagnostic criteria for prolonged grief disorder (PGD). Eleven grief symptoms are assessed in relation to the previous month (e.g., *In the past month, how often have you had intense feelings of emotional pain, sorrow, or pangs of grief related to the lost relationship?*), including: 1) separation distress; 2) cognitive, emotional, and behavioral symptoms; and 3) impairment. Each of these items is answered on a five-point scale ranging from 1 (*Never/Not at all*) to 5 (*Several times a day/Severe*) to represent increasing levels of symptom severity. The grief score was obtained by calculating the sum of the 11 symptom item scores (range: 11-55 points). The remaining two items related to the frequency and duration of symptoms and significant reduction in areas of functioning (e.g., social) were answered with “yes” or “no”. In this study, the majority of the parents did not meet the criteria for a diagnosis of prolonged grief disorder (67.5%). The Cronbach’s alpha in the present sample was .93.

#### *Revised Dyadic Adjustment Scale (RDAS)*

The dyadic adjustment was assessed with the 14-item RDAS (Busby, Christensen, Crane, & Larson, 1995). The RDAS is organized into three subscales: Dyadic Consensus (degree to which the respondent agrees with partner in decision-making, values and affection), Dyadic Satisfaction (degree to which the respondent feels satisfied with partner), and Dyadic Cohesion (degree to which the respondent and the partner participate in activities together). Thirteen items are scored on a six-point scale ranging from 0 to 5 and one item is scored on a five-point scale ranging from 0 to 4. Higher scores indicate better dyadic

adjustment. The total scores range from 0 to 69. The cut-off score for the RDAS is 48 such that scores of 47 and below are an indicator of marital/relationship distress (Crane, Middleton, & Bean, 2000). In this study, 52.8% of parents scored above the cut-off point. In the current sample, the Cronbach's alpha was .89.

#### *Dyadic Coping Inventory (DCI)*

The DCI (Bodenmann, 2008; Vedes, Nussbeck, Bodenmann, Lind, & Ferreira, 2013) is a 37-item inventory that assesses DC, specifically (1) the perception of one's own coping (what I do when I am stressed and what I do when my partner is stressed); (2) the perception of the other's coping (what my partner does when he or she is stressed and what my partner does when I am stressed); and (3) the partners' views of how they cope as a couple (what we do when we are stressed as a couple). This inventory is organized into seven subscales: stress communication (by oneself and by the partner); positive DC (by oneself and by the partner) negative DC (by oneself and by the partner); and joint DC. The items are answered on a five-point scale ranging from 1 (*Very rarely*) to 5 (*Very often*). The mean of the respective items serves as the subscales' total scores. Higher scores on the positive and joint DC subscales and lower scores on the negative DC subscales indicate better DC. In this study, all Cronbach's alphas were above .70, with the exception of the negative DC by oneself subscale ( $\alpha = .67$ ).

#### ***Procedure***

The present study is part of an ongoing research project entitled "Dyadic interdependence after a child's death: Influence of individual and interpersonal factors in individual and marital adjustment", which was approved by the ethics committees of the Faculty of Psychology and Education Sciences of the University of Coimbra and 24 hospitals. Participants were recruited between November 2013 and May 2015 through an online survey placed on the website of the host institution and through the participating hospitals. In the latter case, mental health professionals were asked to present the study to bereaved parents in

their care and either refer them to the website or give them a paper version of the set of questionnaires.

Both forms of the questionnaire (online and paper) had the respective informed consent attached. This document included detailed information about the study, inclusion criteria, and participants' and researchers' roles. Ethical considerations related to the confidentiality and anonymity of the answers and the possible risks associated with participation in the study (e.g., triggering of painful memories and emotions) were also addressed. Further ethical considerations that aimed to minimize the potential risks of the research process applied to efforts to prevent the participation of parents who had lost their child in the previous six months to avoid the crisis period (Stroebe, Stroebe, & Schut, 2003).

### *Data analysis*

The data analyses were conducted using the Statistical Package for the Social Sciences (IBM SPSS, version 20.0) and the PROCESS macro for SPSS (Hayes 2013). Research suggests that the observations of both members of a given couple cannot be treated as independent (Kenny, Kashy, & Cook, 2006). Thus, when complete couples were included as separate observations in the individual-level data file, one member of the couple was randomly selected. All the study variables were checked for missing values and for the assumption of normality. Pearson's correlations were calculated to assess the associations between study variables. Given the high correlation between positive DC by the partner and joint DC ( $r = .78, p < .001$ ), the forms of DC were entered as mediators (M) separately. Accordingly, seven simple mediation models were tested using model 4 (Hayes, 2013). In these models, grief response was the independent variable (X), whereas dyadic adjustment was the dependent variable (Y).

In addition, conditional process analyses were conducted to explore whether the indirect effect between grief response and dyadic adjustment through DC was moderated by

the timing of death (before vs. after birth), type of death (natural vs. violent) or child's age (younger vs. older than 18 years of age). Because we were not able to formulate predictions regarding which path in a mediation process was moderated, as proposed by Hayes (2015), moderated mediation models were tested using model 59 (Hayes, 2013). In these models, it was hypothesized that the moderator affected the path linking grief response and DC (*a*-path), the path linking DC and dyadic adjustment, after controlling for the effect of grief response (*b*-path), and the direct association between grief response and dyadic adjustment, after holding the mediator constant (*c*'-path; see Figure 1).

[Insert Figure 1 about here]

A bootstrapping procedure was used to generate conditional indirect effects. Bias-corrected and accelerated confidence intervals (BCa CIs) were created to test for significance, as they adjust for any bias and skewness in the bootstrapped distribution. A 95% CI that does not contain zero indicates an effect that is significantly different from zero at  $p < .05$  (Hayes, 2013). Bootstrapping is a nonparametric resampling procedure that does not require that the assumption of a normal distribution be met. Additionally, it has higher power, with reasonable control over the Type-I error rate through an appropriate control of the CIs. Following the recommendations of Preacher and Hayes (2008), significance was determined using BCa CIs with 5,000 iterations. Prior to model estimation, the variables that were used in the construction of the products were mean-centered (Aiken & West, 1991). All variables were transformed into z-scores to produce standardized regression coefficients. Preacher and Kelly's kappa-squared ( $k^2$ ) was used as an estimate of the effect size of the indirect effects, which were interpreted using Cohen's guidelines (Hayes, 2013). Cohen (1988) defined small, medium, and large effect sizes as .01, .09, and .25, respectively. Given the recommendations of Fritz and MacKinnon (2007) and MacKinnon, Lockwood, Hoffman, West, and Sheets (2002) for mediation models, the sample size of this study was reasonably large to achieve

adequate power (i.e., power of .80). In this study, post hoc power analysis for indirect effects revealed values nearby or above .80 ( $\alpha < .05$ ), a value that is considered adequate in Psychology (Cohen, 1990).

## **Results**

### ***Preliminary analyses***

The descriptive statistics and Pearson's correlations for the study variables are presented in Table 1. Bivariate Pearson's correlations were calculated for study variables. Grief response was significantly and negatively associated with nearly all forms of DC. The exceptions were the positive association between grief response and negative DC (by oneself and by the partner) and the non-significant correlation between grief response and positive DC by oneself. Dyadic adjustment was significantly and positively associated with all forms of DC, except for negative DC (by oneself and by the partner). Excluding the association between stress communication by the partner and negative DC (by oneself and by the partner), all the mediator variables were significantly correlated and, therefore, were entered separately into the mediation model.

In addition, violent deaths were positively associated with grief response and negative DC by the partner and were negatively associated with dyadic adjustment and the remaining forms of DC. The association between type of death and negative DC by oneself was not significant. The timing of death was negatively associated with dyadic adjustment, stress communication by oneself and by the partner, positive DC by the partner and joint DC. The age of the child was positively correlated with grief response and negatively correlated with dyadic adjustment and joint DC (see Table 1).

[Insert Table 1 about here]

### ***Testing the mediation models***

The results revealed a significant total effect ( $b = -.24, p = .002$ ), accounting for 5.8% variance ( $R^2 = 0.058, F(1,195) = 10.36, p = .002$ ), and significant direct effects of parents' grief response on dyadic adjustment controlling for the effect of stress communication enacted by oneself ( $b = -.17, SE = .07, p = .012$ ) and by the partner ( $b = -.20, SE = .08, p = .011$ ), and positive DC by oneself ( $b = -.17, SE = .07, p = .008$ ) and negative DC by oneself ( $b = -.20, SE = .08, p = .010$ ). No significant direct effects were found controlling for the association with positive DC by the partner ( $b = -.06, SE = .05, p = .238$ ), negative DC by the partner ( $b = -.12, SE = .07, p = .104$ ) and joint DC ( $b = .02, SE = .05, p = .654$ ).

Significant indirect effects of parents' grief response on dyadic adjustment were found through stress communication enacted by oneself ( $b = -.07, SE = .03, 95\% \text{ CI } -.13/-.02, p = .027, k^2 = .07, \text{ power} = .73$ ) and by the partner ( $b = -.05, SE = .02, 95\% \text{ CI } -.11/-.01, p = .039, k^2 = 0.05, \text{ power} = .75$ ), positive DC by the partner ( $b = -.18, SE = .05, 95\% \text{ CI } -.29/-.08, p < .001, k^2 = .20, \text{ power} = .97$ ), negative DC by the partner ( $b = -.12, SE = .04, 95\% \text{ CI } -.21/-.06, p = .002, k^2 = .12, \text{ power} = .99$ ) and joint DC ( $b = -.26, SE = .06, 95\% \text{ CI } -.38/-.15, p < .001, k^2 = .30, \text{ power} = 1.00$ ). Specifically, the results indicated that lower levels of grief response were negatively associated with higher stress communication by oneself and by the partner, positive DC by the partner and joint DC, which, in turn, were associated with higher dyadic adjustment. In addition, lower levels of grief response were associated with lower negative DC by the partner, which, in turn, was associated with higher dyadic adjustment (see Figure 2). No significant indirect effects were found through positive DC by oneself ( $b = -.07, SE = .04, 95\% \text{ CI } -.17/-.01, p = .114, k^2 = .07, \text{ power} = .46$ ) and negative DC by oneself ( $b = -.05, SE = .03, 95\% \text{ CI } -.12/-.005, p = .089, k^2 = .05, \text{ power} = .51$ ).

[Insert Figure 2 about here]

### ***Testing the moderated mediation models***

To examine whether the association between grief response and dyadic adjustment through the forms of DC was moderated by the timing of death (deaths occurring before vs. after birth), type of death (natural vs. violent deaths) and child's age (younger vs. older than 18 years of age), moderated mediation models were tested. A significant interaction was found between the timing of death and grief response in the direct effect ( $c'$ -path), after holding stress communication by oneself ( $b = -.30, p = .025$ ), positive DC by oneself ( $b = -.30, p = .018$ ), negative DC by oneself ( $b = -.27, p = .046$ ), stress communication by the partner ( $b = -.29, p = .034$ ) and negative DC by the partner ( $b = -.29, p = .027$ ) constant. Inspection of the conditional direct effects at different levels of the moderator (deaths occurring before vs. after birth) showed that the grief response was negatively associated with dyadic adjustment in the models including stress communication by oneself ( $b = -.24, p = .004$ ) and by the partner ( $b = -.25, p = .007$ ), as well as positive ( $b = -.24, p = .003$ ) and negative ( $b = -.24, p = .008$ ) DC by oneself for deaths that occurred after birth, whereas the association between grief and dyadic adjustment was not significant for deaths that occurred before birth.

A significant interaction was also found between the timing of death and joint DC in the  $b$ -path ( $b = .10, p = .030$ ). Inspection of the conditional indirect effects showed that there was a significant indirect effect between grief response and dyadic adjustment through joint DC for deaths that occurred both before ( $b = -.19, 95\% \text{ CI} = -.37/-.05$ ) and after ( $b = -.27, 95\% \text{ CI} = -.43/-.13$ ) birth. However, the association was stronger in the latter.

Neither the direct nor the indirect effects of grief response on dyadic adjustment were moderated by the type of death and the child's age. No significant interactions were found between the type of death and child's age and grief response in the  $a$ -path as well as between these moderators and DC in the  $b$ -path. Similarly, no significant interactions were found between the type of death and child's age and grief response in the direct effect.

## Discussion

The aim of the present study was to examine whether the association between grief response and dyadic adjustment was mediated by the specific forms of DC and whether the circumstances related to the death of the child (type, timing and child's age) moderated this association. This study extends previous DC literature in several ways. First, it includes a sample of bereaved parents, who have not been examined in the past. Second, and in a more complex domain, this study tests the complete DC model with all its components, taking into account the different effects of diverse death circumstances. Our main findings present evidence of the significant indirect effect of parents' grief response on dyadic adjustment through DC. Overall, this finding of an indirect effect of DC is consistent with other studies that examined the association between specific forms of DC and dyadic adjustment (for a review, see Falconier et al., 2015).

The assumption that support provided within intimate relationships has special value (e.g., Martin et al., 2009) also seems to be true for parents who have lost a child. Our findings showing that positive DC by the partner can function as an important marital resource in parents' dyadic adjustment are in line with existing literature on different samples, including a recent study of couples facing the husband's prostate cancer that found a link between this form of DC and relationship satisfaction (Regan et al., 2014) and a longitudinal study linking DC and marital quality over 2 years (Bodenmann et al., 2006). The reliance on partner support might also occur as a result of perceiving the partner's unique ability to empathize truly with the experience, given that he or she is going through the same loss. Therefore, the partner might be considered as the most well-equipped person to provide support (e.g., Rosenblatt, 2000). The use of positive DC by the partner also contributes to the construction of a positive cognitive representation of the partner, with attributions of helpfulness and trustworthiness. This representation might increase the likelihood of assessing the partner as



someone who is trustworthy, close and supportive and sensing that the relationship is comforting and caring (Bodenmann et al., 2006), thereby explaining the mediating role of this form of DC in relation to dyadic adjustment.

Our findings showing that stress communication (by oneself or by the partner) can function as an important and positive marital resource in parents' dyadic adjustment are supported by recent research showing that marital quality is higher in couples in which there is greater communication about stress (Regan et al., 2014) and that positive and open communication is a key factor in sustaining a functional and healthy marriage during bereavement (Song et al., 2010). Moreover, research on bereaved parents has indicated that if parents know more about their partner's thoughts and feelings, it would be easier for them to be supportive (Rosenblatt, 2000).

The protective role of joint DC in dyadic adjustment that we found in this study is consistent with prior research on other samples (e.g., couples facing cancer), which reported an association between this form of DC and relationship variables (Bodenmann et al., 2006; Regan et al., 2014). This is particularly relevant, as bereaved parents' grieving is an inevitably shared experience that parents face together (Rosenblatt, 2000). Bodenmann's STM (1997) predicts that joint DC occurs when the stressor affects both partners, typically at the same time, and when both partners perceive that their own personal resources might contribute to the coping process. The prioritization of the well-being of both partners and of the relationship, along with the appraisal that the stressor concerns both partners (Donato, Iafrate, Bradbury, & Scabini, 2011), might explain why joint DC is an important mechanism through which the negative association between grief response and dyadic adjustment decreases.

Despite our findings suggesting that partners' efforts (together or towards the partner) to engage in positive DC strategies constitute a particularly relevant mediator, we also found

an indirect effects through negative DC (by the partner) on dyadic adjustment. Negative DC is likely to occur when stress is high and the individuals' resources are lacking (Cutrona & Gardner, 2006). The fact that bereaved parents might both be experiencing individual emotional distress, as previously suggested (Wijngaards-deMeij et al., 2005), might make them more prone to engage in negative behaviors towards their partners. This, in turn, would negatively impact their relationship, as was confirmed by the indirect effects between grief response and dyadic adjustment through negative DC by the partner found in this study. The fact that this form of DC might have a role in this association emphasizes the importance of attending to the impact not only of the positive aspect of partner's support but also of unsupportive partner's behavior (e.g., Manne, Taylor, Dougherty, & Kemeny, 1997).

The timing of death was found to be a moderator of the direct effect in the tested mediation models. Specifically, a significant negative association between grief response and dyadic adjustment was found for deaths that occurred after birth only. This finding is consistent with previous evidence showing that deaths before and after birth involve different processes and difficulties (Wallerstedt et al., 2003). There were also significant conditional indirect effects through joint DC when the death occurred both before and after birth, although the effect was stronger for the latter. A possible explanation for this stronger association with joint DC when the death occurred after birth might pertain to the longer length of these parents' relationship compared to that of parents whose child died in the perinatal period, who have a shorter-term relationship. In fact, prior literature has shown that long-term relationships might have better foundations for DC (e.g., shared appraisal of events/stressors, more effective use of collaborative forms of involvement), as they are often of higher quality and more satisfying (Berg & Upchurch, 2007).

In sum, our findings suggest that specific forms of DC represent possible (and important) underlying mechanisms of the association between grief response and dyadic

adjustment for different circumstances of the child's death, particularly the timing of death. These findings also underscore the importance of assessing both grief response and DC together to develop a comprehensive framework for understanding dyadic adjustment in bereaved parents.

### ***Limitations and strengths***

This study is not without limitations. Due to the study's cross-sectional design, which resulted in a mediation analysis without a manipulated variable, causal inferences cannot be drawn. In this context, longitudinal data would be particularly informative because DC might evolve over the course of parents' adjustment to the death of a child. The study sample size was relatively small, and the response rate is unknown, which limits the generalizability of the findings. The overrepresentation of women compared to men, which is common in the relevant literature, limited our analysis of sex as a moderator and the potential to examine whether the mechanisms reported herein are similar for mothers and fathers in the grieving process after the death of a child. Another limitation relates to the lack of use of couples and the consequent absence of the partner's perspective (the results of DC were based only on the perceptions of one member of the couple), despite our efforts to include the partners of female participants (e.g., all mothers were asked to inform their partner of the study and to reinforce the importance of participation). This limited our understanding of the association between grief response and DC and compromised the test of the mutual influence and interdependence within the dyad (actor-partner effects), which are important components of DC (Bodenmann, 2005). However, it has been shown that perceptions tend to be reasonably accurate accounts of behaviors (Hobfoll, 2009), substantiating the value of the focus on perceptions. To overcome this limitation, future studies with the couple as the unit of analysis would be valuable. In this study, for simplicity and conceptual coherence, we selected as moderators only variables that referred to the child's characteristics or the circumstances of

death. However, additional consideration of other variables (e.g., parent-related variables) that might change or affect the pattern of DC would also be of value. Additionally, all measures were self-reported and, therefore, subject to the bias that is inherent to this type of assessment (e.g., social desirability). Moreover, the online component of the study required some participant conditions such as their being computer-literate, having a connection to the Internet and not responding more than once. This online component might also be a strength, primarily because research suggests that social desirability is minimized in online studies, especially when they address sensitive topics, compared to the traditional use of pen-and-paper questionnaires (Turner et al., 1998). However, in this study, no differences were found in the study variables between participants who completed online and paper-based questionnaires. Finally, because the research that explores DC in the context of the death of a child is currently preliminary, qualitative studies might also be particularly relevant. These studies might help to reveal the complex processes of coping together with such a shared event and might shed additional light on the role of specific DC strategies in parents' adjustment, both as individuals and as a couple.

Despite these limitations, this study presents important strengths and innovative contributions to the state of the art, both theoretically and empirically. This study examines DC in the context of bereaved parents and explores the role of the specific forms of DC. These aspects have seldom been considered in the DC literature. Few studies have documented the unique associations between the different forms of DC and dyadic adjustment in a context of adversity that is likely to affect marital relationships profoundly. Furthermore, this study makes an important contribution to the grief literature by providing additional insights into the potential mechanisms through which grief response is associated with dyadic adjustment and by providing information on the differences in these associations in groups with diverse circumstances relating to the child's death.

### *Clinical implications*

The results of this study can also be valuable to informing clinical practice with bereaved parents. In general, the negative association between grief response and dyadic adjustment was attenuated by DC, which reinforces the role of the partner and supports DC-promoting interventions in improving parents' individual and relational outcomes through more efficient mutual support within the relationship. In this context, it is important not only to foster existing forms of positive DC and joint DC but also to develop new ones. For example, promoting couples' communication about their individual needs might be of primary importance to discuss new and creative positive and joint DC behaviors conjointly. In addition to promoting these adaptive forms of DC, considering the negative forms (e.g., hostile DC) might also be beneficial for bereaved parents. Conflicts within the marital dyad reportedly result from the lack of energy needed to focus on the partner, given the intensity of one's grief (Rosenblatt, 2000). However, plausible, conflictual interactions should not be disregarded by health care providers, and after an adequate evaluation, referrals for appropriate services should be made. Therapeutic goals targeting a decrease in maladaptive forms (e.g., hostile DC) might include improving couples' ability to identify negative DC behaviors and to modify their interactions accordingly.

Finally, regardless of the value of the data reported herein to inform clinical practice, the examination of the efficacy of DC-promoting interventions remains important. Clinical trials or treatment-outcome studies that examine interventions aimed at improving the DC of bereaved parents might help to establish the optimal focus of treatment and advance the practical applications of this line of research. Doing so will be of major importance, primarily due to the detrimental effects that the death of a child can have on the parents not only individually but also as a couple.

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Table 1. Descriptive statistics and Pearson's correlations for all of the study variables

	Mean (SD)	1	2	3	4	5	6	7	8	9
1. Grief	34.51 (12.36)	-	-.24**	-.18*	-.13	.14*	-.20**	-.27***	.29***	-.35***
2. Dyadic adjustment	46.02 (12.53)		-	.41***	.56***	-.34***	.29***	.69***	-.45***	.74***
3. SCO	3.10 (1.10)			-	.43***	-.32***	.27***	.61***	-.15*	.58***
4. PDCO	3.50 (0.86)				-	-.32***	.37***	.62***	-.21**	.60***
5. NDCO	1.86 (0.78)					-	.01	-.36***	.39***	-.29***
6. SCP	3.04 (0.99)						-	.36***	-.10	.39***
7. PDCP	3.20 (1.09)							-	-.40***	.78***
8. NDCP	2.19 (0.93)								-	-.43***
9. Joint DC	3.14 (1.13)									-
Type of death	-	.22**	-.30***	-.20**	-.21**	.09	-.17**	-.26***	.18*	-.34***
Timing of death	-	.11	-.20**	-.15*	-.13	.03	-.15*	-.19**	.04	-.18*
Age of the child	-	.23**	-.17*	-.08	-.04	.13	-.05	-.11	.13	-.27**

*Note.* SCO = Stress Communication by Oneself; PDCO = Positive Dyadic Coping by Oneself; NDCO = Negative Dyadic Coping by Oneself; SCP = Stress Communication by Partner; PDCP = Positive Dyadic Coping by Partner; NDCP = Negative Dyadic Coping by Partner; Type of death (natural = 0; violent = 1); Timing of death (before birth = 0; after birth = 1); Age of the child (younger than 18 years old = 0; older than 18 years old = 1).

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

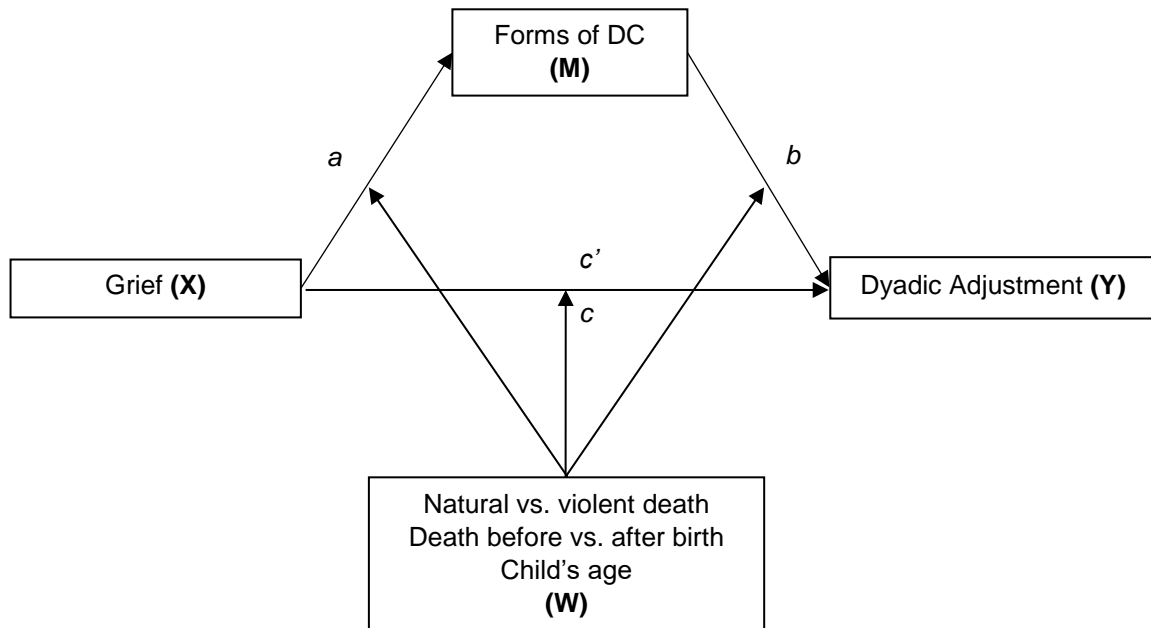


Figure 1. Conceptual diagram showing moderated mediator effects of the different forms of DC in the association between grief and dyadic adjustment. Moderators = natural vs. violent death; death before vs. after birth; child's age (younger vs. older than 18 years old).

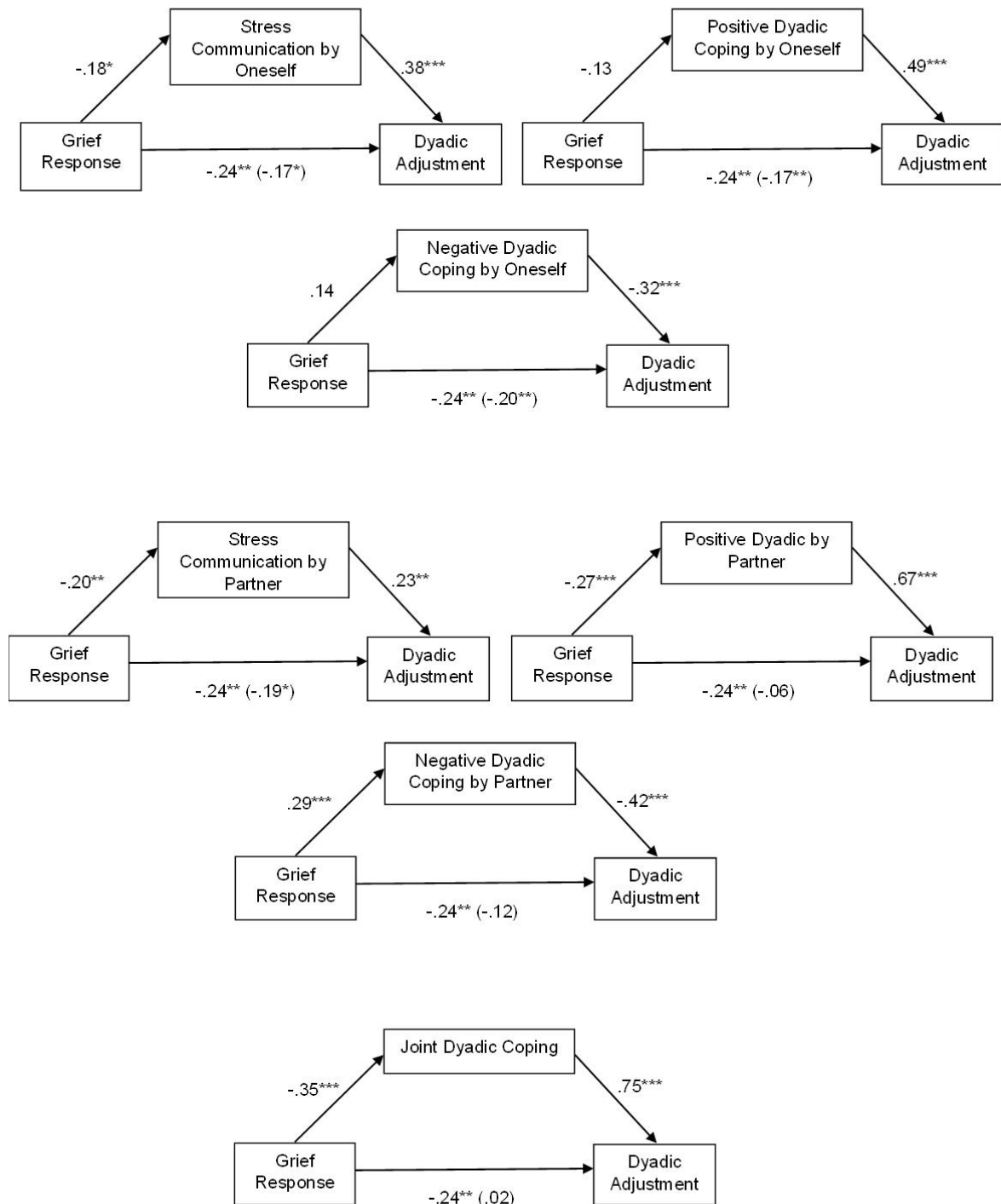


Figure 2. Graphic depiction of the mediating models of dyadic coping on the association between grief and dyadic adjustment. *Note:* Path values represent standardized regression coefficients. In the arrow linking grief and dyadic adjustment, the value outside the parentheses represents the total effect of grief on dyadic adjustment. The value in the parentheses represents the direct effect, from the bootstrapping analysis, of grief on dyadic adjustment after inclusion of the mediator. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .