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## Research article

# Personal and couple level risk factors: Maternal and paternal parent-child aggression risk



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## ABSTRACT

Previous literature examining parent-child aggression (PCA) risk has relied heavily upon mothers, limiting our understanding of paternal risk factors. Moreover, the extent to which factors in the couple relationship work in tandem with personal vulnerabilities to impact PCA risk is unclear. The current study examined whether personal stress and distress predicted PCA risk (child abuse potential, over-reactive discipline style, harsh discipline practices) for fathers as well as mothers and whether couple functioning mediated versus moderated the relation between personal stress and PCA risk in a sample of 81 couples. Additionally, the potential for risk factors in one partner to cross over and affect their partner's PCA risk was considered. Findings indicated higher personal stress predicted elevated maternal and paternal PCA risk. Better couple functioning did not moderate this relationship but partially mediated stress and PCA risk for both mothers and fathers. In addition, maternal stress evidenced a cross-over effect, wherein mothers' personal stress linked to fathers' couple functioning. Findings support the role of stress and couple functioning in maternal and paternal PCA risk, including potential cross-over effects that warrant further inquiry.

## 1. Introduction

Nearly 700,000 cases of child maltreatment were substantiated in the U.S. in 2015 (U.S. Department of Health & Human Services (DHHS), 2017). Of these validated cases, over 17% of children were victims of physical maltreatment (DHHS, 2017). Nonetheless, underreporting, as well as biases in reporting, suggests that substantiated reports to protective services vastly underestimate national prevalence rates, particularly for physical abuse (Sedlak et al., 2010).

Physical child abuse can best be represented along a parent-child aggression (PCA) continuum, ranging from physical discipline to child abuse, in which physical abuse arises from parents' inadvertent escalation of physical discipline (Benjet & Kazdin, 2003; Durrant, Trocmé, Fallon, Milne, & Black, 2009; Zolotor, Theodore, Chang, Berkoff, & Runyan, 2008). Physically abusive parents often begin in the sub-abusive end of the spectrum using physical discipline, but at some point, excessive discipline transitions into the abusive range (Graziano, 1994; Whipple & Richey, 1997). *Child abuse potential* estimates a parent's likelihood to engage in PCA that could escalate along such a continuum to become abusive (Milner, 1994). Current evidence suggests child abuse potential is linked to harsh parenting styles (Haskett, Scott, & Fann, 1995; Margolin, Gordis, Medina, & Oliver, 2003; Rodriguez, Smith, & Silvia, 2016) as

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well as abusive physical discipline tactics (Rodriguez, 2010a). Given the underreporting of child abuse to protective services, research relying on substantiated cases limits our understanding of factors involved in the transition from harsh discipline to abuse. Consistent with a prevention approach, recent work focuses on identifying factors relevant to parents engaging in sub-abusive, harsh discipline to provide insight into the context surrounding their escalation toward abuse. Child abuse is also unlikely to be demonstrated overtly during research studies. Thus, we can only approximate a parent's probability of engaging in parent-child aggression, a multidimensional concept labeled *PCA risk*, with indicators of this concept along the PCA continuum that include child abuse potential and harsh parenting behavior.

### 1.1. Theoretical issues and predictors of interest

Parent-child aggression is best understood by models that incorporate multiple risk factors simultaneously impinging upon the parent. Ecological models of abuse are centered on the parent-child unit which is nested within gradually more distal systems (Belsky, 1980, 1993; Sidebotham, 2001). At the most proximal, ontogenic level, qualities of the parent's individual, intrapersonal functioning are theorized to impact their parenting behavior. More distally, at the next ecological level, factors in the immediate environment within which a parent-child unit is embedded (microsystem level) can impact PCA. In the present study, individual qualities of the parents were considered as occurring at the ontogenic level (personal stress and distress), with qualities of the couple relationship representing the microsystem level.

Several conceptual hypotheses in the broader parenting literature could enrich the current research on PCA. One such hypothesis already characterizes much of the literature studying parenting and PCA, attempting to explain how a parent's personal (ontogenic) level of functioning (e.g., perceived stress) could interfere with family relations, like parent-child or couple interactions (for review of stress contagion hypotheses, see Bolger, DeLongis, Kessler, & Wethington, 1989). However, research examining the spillover hypothesis (i.e., functioning of the couple, at the microsystem level, affecting a parent's relationship with their child) and the crossover hypothesis (i.e., personal functioning of one parent crossing over to affect their partner's functioning) (Bolger et al., 1989) has remained surprisingly limited within the PCA literature. The current study evaluated individual ontogenic level qualities characterizing a parent's personal risk in conjunction with microsystem level couple functioning (spillover and crossover effects) to predict the risk of a parent engaging in PCA.

All but a fraction of the literature on PCA risk has been drawn from samples involving only mothers, generally at an individual, ontogenic level. The underrepresentation of fathers in past research has been a chronic concern, even though fathers represent nearly half of substantiated cases of abuse (DHHS, 2017). Despite frequent calls for greater attention (Guterman & Lee, 2005; Haskett et al., 1996; Lee, Guterman, & Lee, 2008; Martin, 1984; Phares, 1996), the absence of research on fathers continues to plague PCA research (Coohey, 2000; Stith et al., 2009). Adolescent retrospective reports of their family of origin suggest that, although both parents may engage in physical abuse, abuse perpetrated by fathers occurred more often (Sunday et al., 2008). Even when both mothers and fathers utilize harsh physical discipline, physical discipline by males often included more severe and potentially life-threatening use of repeated and prolonged force or pressure (Nobes, Smith, Upton, & Heverin, 1999; Pittman & Buckley, 2006). Thus, determining the factors relevant to heightened PCA risk for fathers remains a high priority.

Extant research utilizing a range of samples (predominantly mothers) has identified a number of ontogenic, personal level factors within the parent that contribute to elevated risk of PCA (see Black, Heyman, & Smith-Slep, 2001; Stith et al., 2009 for reviews). Foremost among these is maternal stress wherein abusive parenting arises most often within high stress environments (Herrenkohl, Herrenkohl, & Egolf, 1983; Margolin & Gordis, 2003; Pianta, 1984). Longitudinal studies demonstrate greater maternal self-reported personal stress or distress can predict later child maltreatment (Kotch, Browne, Ringwall, Dufort, & Ruina, 1997; Windham et al., 2004). With few exceptions, the relation between stress and PCA risk has been evaluated using a measure of stress associated with parenting specifically (e.g., Crouch & Behl, 2001; Holden & Banez, 1996; Rodriguez & Green, 1997). But parents' sense of experiencing lower personal stress actually reduced the relationship between child-related stress and abuse risk (Holden & Banez, 1996), supporting that at-risk parents may less effectively cope with the personal stress unrelated to the parent-child relationship. Relatively less work has considered the relation of paternal stress to their PCA risk, although some suggest that personal distress is less problematic for maltreating fathers than for mothers (Pittman & Buckley, 2006). One study involving a community sample of fathers identified their greater perceived stress, negative life events, and depressive symptoms were separate indirect contributors to their PCA risk (Smith Slep & O'Leary, 2007); however, mothers and fathers were not compared directly and the study relied on a single self-report measure of PCA. Thus, examining perceived, personal level distress, independent of the parent-child system, and clarifying the relationship of paternal distress in elevated PCA risk were of interest in this study.

Personal stress can also contribute to poorer couple functioning, reflecting theories that identify stress in one member of a couple as a significant precursor for couple dysfunction (Karney & Bradbury, 1995). Indeed, longitudinal studies document that personal stress of one member of a couple decreases later marital functioning (Ngai & Ngu, 2014) as does one member's depression (Papp, 2010). Together, this literature suggests personal stress and distress appears to spillover to impact the quality of the couple and parent-child relationships.

Relatively less research has considered the role of couple level functioning, apart from intimate partner violence, in predicting PCA risk. Cross-sectionally, relationship dissatisfaction predicted elevated child abuse potential for mothers but not fathers (Schaeffer, Alexander, Bethke, & Kretz, 2005). One study demonstrated that relationship satisfaction contributed to less distress during the transition to parenthood as well as lower child abuse potential (Florsheim et al., 2003), suggesting positive couple functioning may serve a moderating role. Longitudinally, poor marital quality was predictive of later child maltreatment (Brown, Cohen, Johnson, & Salzinger, 1998) and coercive, conflictual, or violent relationships predicted later child abuse risk

(Casanueva & Martin, 2007; Kim et al., 2010; Windham et al., 2004) and maternal spanking (Guterman, Lee, Lee, Waldfogel, & Rathouz, 2009). Overall, these findings support couple relationship qualities may spill over to impact parenting quality, particularly their responsiveness to the child (Davies, Sturge-Apple, Woitach, & Cummings, 2009; Stroud, Durbin, Wilson, & Mendelsohn, 2011). Given the overlap of child abuse with intimate partner violence (Margolin & Gordis, 2003), relationship conflict versus warmth would appear important considerations in understanding PCA risk. Additional research needs to consider how couple functioning overall, not simply partner aggression, may spill over to elevate PCA risk for both mothers and fathers.

Within the family system, the couple also assumes the role of co-parents. The extent to which parents are capable of creating a “parenting team” (e.g., respecting and supporting the other in the parenting role) is referred to as parenting alliance (Cohen & Weissman, 1984). As an additional indicator of adaptive couple functioning, parenting alliance is associated with more positive parent outcomes (Abidin & Brunner, 1995) and child outcomes (Hughes, Gordon, & Gaertner, 2004). However, gender differences may be apparent in the impact of parenting alliance on parents’ personal functioning given that poorer maternal but not paternal mental health was associated with weaker perceived parenting alliance (Biehle & Mickelson, 2011; Hughes et al., 2004; Khazan et al., 2008). Yet, the contribution of parenting alliance, within the broader framework of couple functioning, on PCA risk is unknown.

### 1.2. Methodological issues

Some methodological issues, however, have compromised existing research on PCA. Although researchers often approximate variables of interest with single measures that may only modestly represent a construct of interest, theoretically based multiple-indicator approaches demonstrate advantages (Little, Lindenberger, & Nesselrode, 1999). For example, a single measure may not comprehensively capture the construct of interest or may evidence psychometric weaknesses. One measure of an independent variable may exhibit conceptual or item overlap with the measure of the dependent variable, artificially inflating the observed relationships between measures. Because so much of the existing literature on PCA has relied on single measures, doubts arise about the ability to generalize conclusions because the findings could be limited to the specific measure selected. Such limitations can be offset by incorporating multiple measures of a construct which balance each other’s weaknesses and minimize overlap. In addition, instead of relying solely on self-report approaches, which are susceptible to response distortion particularly in research on PCA (DeGarmo, Reid, & Knutson, 2006), we included an analog task in our multidimensional assessment to more covertly assess PCA risk. Such multidimensional approaches are characteristic of data reduction approaches and the latent construct strategies apparent in contemporary analytic designs (Kline, 2011; Little et al., 1999).

### 1.3. Current study

The current study thus addresses some of the issues raised above, evaluating a model that proposes PCA risk is influenced by factors within the personal, individual level as well as the couple level. First, we sought to extend previous empirical support that personal experience of greater stress and distress directly predicts elevated PCA risk not only for mothers but for fathers as well, evaluating both members simultaneously in a dyadic analysis that nests mothers and fathers within a family to permit critically needed direct comparisons. Second, we examined the role of couple level functioning in PCA risk, consistent with “spillover” effects. In line with the longitudinal literature that suggests personal distress can interfere with couple functioning (Ngai & Ngu, 2014; Papp, 2010), as well as abuse risk (Kotch et al., 1997; Windham et al., 2004), we hypothesized that the relation between parents’ personal experience of stress and distress and PCA risk would be partly attributable to (mediated) or potentially buffered by (moderated) couple functioning. Third, we explored whether there was evidence of potential crossover effects between individual and couple level factors, wherein functioning of one member of the couple affected the risk factors of their partner.

We considered these research questions with a sample of couples from the community to determine what factors may elevate their PCA risk which would be applicable to prevention efforts. Given that prior research has been limited by assessing constructs with single measures, individual level personal stress and distress was operationalized multidimensionally as perceived stress, daily hassles, and psychological distress; couple functioning was inclusively defined as couple relationship satisfaction, couple relationship conflict, parenting alliance and perceived coparenting; and PCA risk incorporated indicators along the PCA continuum to include child abuse potential, over-reactive discipline style, and use of harsh discipline practices.

## 2. Method

### 2.1. Participants

The current sample included 81 married and/or cohabitating mother-father dyads of preschoolers (i.e., two-parent homes). Mothers’ mean age was 33.85 years ( $SD = 5.20$ ) and fathers’ mean age was 35.99 years ( $SD = 7.35$ ). Parents primarily self-identified as Caucasian (Mothers, 76.5%; Fathers, 80.2%), followed by African-American (Mothers, 19.8%; Fathers 18.5%) and Other (Mothers, 3.7%; Fathers, 1.2%); of these, some parents also identified as Hispanic/Latino (Mothers, 6.3%; Fathers, 1.2%). The majority were biologically related to the child (Mothers, 98.8%; Fathers, 92.6%) and the reported couple relationship duration ranged from 1 to 22 years ( $M = 10.4$ ,  $SD = 4.6$ ). Both parents had a median educational level of a four-year college degree and financially support two children with a median annual family income of \$65,000/year.

## 2.2. Measures of PCA-risk dependent variable

The **Brief Child Abuse Potential Inventory** (BCAPI; Ondersma, Chaffin, Simpson, & LeBreton, 2005) uses 34 items from the original 160-item Child Abuse Potential Inventory (CAPI; Milner, 1986), a child abuse screening tool. Items are presented in an Agree/Disagree format, with only 24-items summed for the BCAPE Risk Scale score. A strong correlation between the BCAPE and CAPI Abuse Scale scores ( $r = .96$ ) suggests comparable performance (Ondersma et al., 2005). The full CAPI correctly classifies 89.2% of substantiated abusers and 99% of controls (Milner, 1994). Higher scores are associated with greater physical abuse potential. In the current sample, the BCAPE's internal consistency was  $\alpha = .80$  for mothers and  $\alpha = .78$  for fathers.

The **Adult – Adolescent Parenting Inventory-2** (AAPI-2; Bavolek & Keene, 2001) is a 40-item measure that utilizes a 5-point Likert scale from (1) *strongly agree* to (5) *strongly disagree*. Because the CAPI does not directly assess parenting, the AAPI-2 was utilized as an alternative measure of child abuse potential. The AAPI-2 has demonstrated discriminative validity, discerning between abusive and non-abusive parents. Item scores are summed for the total scores, oriented such that higher AAPI-2 Total scores reflect attitudes associated with abusive discipline. Internal consistency for the AAPI-2 Total score in the present study was strong, with  $\alpha = .89$  for both mothers and fathers.

The **Parent-Child Conflict Tactics Scale** (CTS-PC; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) assesses parent-child aggression, including physical assault, psychological aggression, and non-violence discipline. Parents rate the frequency with which they have implemented each of the 22 behaviors. Responses endorsing 0, 1, or 2 receive the corresponding score, while more frequent ratings within one year are more heavily weighted (e.g., 3–5 times scored as 4, 6–10 times scored as 8; 11–20 times scored as 15, more than 20 scored as 25). Straus et al. (1998) provide support for construct and discriminant validity. The current study utilized the 13 items comprising the physical assault subscale due to the interest in identifying physical parent-child aggression strategies. Given the wide range of behaviors assessed, internal consistency was modest:  $\alpha = .70$ , mothers,  $\alpha = .74$ , fathers.

The **Parenting Scale** (Arnold, O'Leary, Wolff, & Acker, 1993) is a 30-item measure wherein parents rate their discipline style in terms of overreactivity, laxness, and verbosity. Each item is presented with two opposing hypothetical parent reactions at endpoints of a 7-point scale in which parents indicate which reaction is most similar to their parenting. Given the focus on physical parent-child aggression, the current study utilized the 10-item Overreactivity subscale to assess the extent to which parents may quickly escalate to excessive physical discipline, which demonstrates concurrent and predictive validity (see Salari, Terreros, & Sarkadi, 2012 for review). The ten items are averaged, with higher scores indicating more discipline overreactivity. In the current sample, internal consistency for this subscale was .74 for mothers and .79 for fathers.

The **Response Analog to Child Compliance Task** (ReACCT; Rodriguez, 2016) is a computerized analog task created to assess parent-child aggression tactics when faced with child compliance and non-compliance. The task was designed to simulate situations where being late is both costly and time-consuming. An overall scene is posed where the parent is running late and needs to direct their child to get ready to go to preschool; this overall scene is divided into 20 consecutive steps. Parents read one screen at a time in which the parent is reported to have provided the child a request and the child is depicted as either complying or not complying with that request. Following a non-compliant scene, a time-clock increments on the screen how late they now are whereas scenes showing child compliance earn a displayed bonus. Parents were instructed they could hypothetically earn \$0.50 bonus for each instance of child compliance but warned noncompliance would increase the time-clock delay. After reading the child's compliance or noncompliance in the scene, the parent selects how they would respond with either adaptive (e.g., praise for compliance) or aggressive (e.g., spanking, hitting with an object) discipline strategies. Scores are weighted for severity of aggressive strategies selected. The present study focused on parents' selected response to acts of noncompliance, the Noncompliance subscale. ReACCT Noncompliance scores significantly relate to measures of child abuse potential, such as the CAPI, AAPI, and BCAPE, and CTS-PC (Rodriguez, 2016).

## 2.3. Measures of personal stress

The **Perceived Stress Scale** (PSS; Cohen, Kamarck, & Mermelstein, 1983) includes 10 items regarding the extent to which, within the last month, participants felt their lives were overwhelming, uncontrollable, or unpredictable. Items are rated on a five point Likert type scale ranging from (0) *never* to (4) *very often*. Scores are summed across items, with higher PSS Total scores indicating greater perceived stress. This version demonstrates concurrent validity with mental health (Mitchell, Crane, & Kim, 2008). Internal consistency observed in the current study was acceptable for both mothers and fathers, with  $\alpha = .84$  and  $\alpha = .83$ , respectively.

The **Daily Hassles and Uplifts Scale** (DHUS; De Longis, Folkman, & Lazarus, 1988) was revised from a longer measure of the same name and consists of the 53 most frequently endorsed items (e.g., related to the household, finances, work, health, etc.) wherein respondents indicate to what degree they experienced the item as either a hassle or an uplift. For the current study, two adjustments were made: to the instructions, extending the time frame consideration (parents' reported on their hassles within the last week) and omitting the uplifts subscale. Using a four-point Likert scale, participants rated the item as a hassle from (0) *none or not applicable* to (3) *a great deal*. Total scores are summed across items with higher DHUS scores indicating higher perceived daily hassles. The observed internal consistency for the DHUS Hassles Scale was high for both mothers,  $\alpha = .91$ , and fathers,  $\alpha = .93$ .

The **Revised Symptom Checklist-90** (SCL-90-R; Derogatis, 1977, 1994) is a list of 90 mental health symptoms, rated on a 5-point Likert scale, from (0) *not at all* to (4) *extremely*. Symptoms include somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. A measure of overall distress (the Global Severity Index) can also be computed by taking the average of the individual items. The authors provide evidence of convergent and concurrent validity of the subscales (Derogatis, 1994). Observed internal consistency from the present study indicates high reliability

with  $\alpha = .93$  for mothers and  $\alpha = .92$  for fathers.

#### 2.4. Measures of relationship functioning

The **Couple Satisfaction Index** (CSI; Funk & Rogge, 2007) includes 16 items measuring relationship satisfaction, rated on a 6-point scale, (0) *not at all/extremely unhappy* to (6) *all of the time/perfect*, which can discriminate between distressed and non-distressed relationships. Individual items were summed to create a CSI Total score, with higher scores indicating greater couple satisfaction. CSI scores are associated with related measures of dyadic adjustment, global relationship satisfaction, and marital adjustment (Funk & Rogge, 2007). Cronbach's alphas in the current sample were high, with  $\alpha = .98$  for mothers and  $.97$  for fathers.

The **Revised Conflict Tactics Scale Short Form** (CTS-2S; Straus & Douglas, 2004) is an abbreviated version of the Revised Conflict Tactics Scales (Straus, Hamby, Boney-McCoy, & Sugarman, 1996), a frequently used measure providing a weighted frequency count of intimate partner violence. Items are posed regarding how the couple resolves conflict, including negotiation, psychological aggression, physical assault, sexual coercion, and injury. Eight items were selected for the purposes of the present study, specifically those regarding the parent's self-reported experience of victimization. Frequency count scores are weighted as occurrence increases (similar to the CTS-PC above), with *higher* scores indicating *more* experience of aggression in the intimate relationship. The authors provide evidence of concurrent validity, demonstrating strong associations between this short version and the longer CTS-2.

The **Parenting Alliance Inventory** (PAI; Abidin & Konold, 1999) is a 20-item measure of the degree to which parents perceive belonging to a cohesive parenting team with their partner. Items are rated using a 5-point Likert scale, from (1) *strongly disagree* to (5) *strongly agree*. Items assess perceptions of support received from the partner and desire to communicate about the child with their partner. Items scores are summed wherein higher PAI Total scores reflect a stronger parenting alliance. The authors provide support of adequate concurrent and construct validity (Abidin & Brunner, 1995; Abidin & Konold, 1999). Internal consistency was high for the current study, with  $\alpha = .96$  for both mothers and fathers.

The **Coparenting Relationship Scale** (CRS; Feinberg, Brown, & Kan, 2012) is a measure of several coparenting dimensions (childrearing agreement, support/undermining, satisfaction with the division of labor, and family management). A summed Total score is oriented such that higher scores indicate a stronger coparenting relationship. The current study utilized the brief version of this measure: 14-items using a 6-point Likert scale, ranging from (1) *not true* to (7) *very true of us*, which approximates the full version with a correlation of  $.97$  for mothers, and  $.94$  for fathers (Feinberg et al., 2012). The present study observed adequate reliability, with  $\alpha = .86$  and  $.88$  for mothers and fathers, respectively.

#### 2.5. Procedure

As part of a larger parenting study, the Couples Parenting Preschoolers study, families were recruited from various sites in the community, including day care centers, and via newspaper advertisements. Recruitment targeted parents who were cohabitating or married and raising a 3–6 year old child if that particular child was the couples' first experience raising a child together. These criteria were adopted for two reasons: preschoolers represent greater risk for physical abuse (DHHS, 2017); parents with longer coparenting histories (i.e., parenting children together for 8 or more years) are more likely to have a long standing, and thus potentially more resilient, intimate relationship (Florsheim et al., 2003; Lindahl et al., 1997). Parents with younger children than the target child, or those with older children from previous partnerships, were eligible, as were non-biologically related parents provided the latter had assumed caretaking responsibilities with the coparent for the target child for a minimum of one year preceding participation. Interested parents called the lab to schedule a 90-min in-home session. Following consent, parents completed all study tasks on a laptop computer in separate, private rooms. All participant responses were automatically stored in a database identified only by a randomly assigned family identification number, ensuring anonymity in responding. Each parent received \$30 as compensation for their participation. The study was approved by the university's Institutional Review Board.

### 3. Results

#### 3.1. Analytic plan

Preliminary analyses were conducted using SPSS 20 for Windows. Mplus 7.0 was utilized to perform an initial confirmatory factor analysis (CFA) to identify that measures loaded onto their respective underlying construct for both mothers and fathers. Based on these CFA results, composite scores for each construct were generated using standardized values for each measure's score weighted by their CFA loading, separately for mothers and fathers. For mothers, composites were weighted as follows: Stress (.75, PSS; .90, DHUS; and .79, SCL-90-R); Couple Functioning (.82, CSI;  $-.61$ , CTS2 Victimization; .72, PAI; and .95, CRS); PCA Risk (.84, BAPI Risk; .21, AAPI-2 Total; .41, PS Overreactivity; .19, CTS-PC Physical Assault; and .13, ReACCT Noncompliance). For fathers, composites were as follows: Stress (.56, PSS; .69, DHUS; and .84, SCL-90-R); Couple Functioning (.92, CSI;  $-.72$ , CTS2 Victimization; .70, PAI; and .80, CRS); PCA Risk (.91, BAPI Risk; .40, AAPI-2 Total; .30, PS Overreactivity; .42, CTS-PC Physical Assault; and .32, ReACCT Noncompliance). We then conducted an Actor-Partner Independence Model (APIM; Kashy & Kenny, 2000; Kenny & Cook, 1999) using Mplus to perform all dyadic analyses. This approach can accommodate the nested nature of the couple data and examine both actor and partner effects as well as consideration of partner cross-over effects. Moderation was considered using standardized multiplicative terms (see Aiken & West, 1991).

**Table 1**  
Means, Standard Deviations, and Correlations Among Measures.

	Mother <i>M</i> (SD)	Father <i>M</i> (SD)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. BCAPEI	3.11 (2.86)	4.32 (3.14)	—	.38***	.27*	.30**	.32**	.49***	.43***	.64***	-.45***	-.45***	-.55***	.46***
2. AAPI	84.32 (16.76)	96.83 (16.83)	.26*	—	.18	.40***	.47***	.27*	.18	.12	-.15	-.34**	-.16	.14
3. PS-Over	24.41 (7.23)	24.73 (7.72)	.27*	.38***	—	.40***	.15	.35**	.37***	.20	-.52***	-.36***	-.29**	.23*
4. CTSPC	7.30 (9.35)	9.75 (15.97)	.09	.48***	.25*	—	.49***	.32**	.32**	.16	-.16	-.07	-.14	.23*
5. ReACCT	6.50 (6.36)	6.09 (6.02)	.10	.45**	.26*	.46***	—	.16	.13	.06	-.16	-.09	-.08	.03
6. PSS	23.39 (5.13)	22.58 (5.08)	.62***	.21*	.44***	.15	.22*	—	.42***	.43***	-.31**	-.44**	-.36***	.21*
7. DHUS	80.91 (15.93)	80.73 (16.54)	.72***	.09	.35***	.08	.15	.71***	—	.60***	-.29**	-.29**	-.39***	.23*
8. SCL-90-R	24.78 (20.38)	6.06 (10.19)	.65***	-.03	.28*	.00	.07	.58***	.73***	—	-.37***	-.26*	-.58***	.51***
9. CRS	84.53 (12.51)	86.86 (11.00)	-.35***	-.07	-.34**	-.26*	-.17	-.40***	-.35***	-.24*	—	.68***	.73***	-.59***
10. PAI	87.93 (13.72)	89.50 (10.42)	-.10	.02	-.07	-.25*	-.15	-.19	-.10	-.01	.70***	—	.65***	-.38***
11. CSI	63.37 (17.06)	64.92 (14.42)	-.46***	-.05	-.15	-.23*	-.14	-.42***	-.39***	-.24*	.79***	.59***	—	-.71***
12. CT2S	5.75 (8.71)	5.32 (7.21)	.26*	.08	.19	.36**	.25*	.36**	.29*	.18	-.58***	-.40**	-.47***	—

Note: Mothers' correlations below the diagonal, fathers above the diagonal; 1 = Brief Child Abuse Potential Inventory; 2 = Adult – Adolescent Parenting Inventory-2; 3 = Parenting Scale, Overreactivity; 4 = Parent-Child Conflict Tactics Scale, Physical Assault; 5 = Response Analog to Child Compliance Task, Noncompliance; 6 = Perceived Stress Scale; 7 = Daily Hassles Uplifts Scale; 8 = Revised Symptom Checklist; 9 = Coparenting Relationship Satisfaction; 10 = Parenting Alliance Inventory; 11 = Couple Satisfaction Inventory; 12 = Revised Conflict Tactic Scale. Victimization.

\*  $p \leq 0.05$ .

\*\*  $p \leq 0.01$ .

\*\*\*  $p \leq 0.001$ .

+  $p \leq 0.07$ .

### 3.2. Preliminary analyses

Analyses were conducted to evaluate potential covariates by determining whether PCA risk differed across demographic characteristics. Lower income was significantly correlated with increased maternal PCA Risk ( $r = -.38, p \leq .001$ ) and paternal PCA Risk ( $r = -.25, p \leq .05$ ). Mothers' and fathers' lower educational attainment was significantly correlated with elevated PCA Risk ( $r = -.27$  and  $r = -.26, p \leq .05$ , respectively). Although age was unrelated to PCA Risk for mothers, younger fathers evidenced higher PCA risk ( $r = -.28, p \leq .01$ ). Given the limited representation of Hispanic or Asian/Pacific Islander, race/ethnicity was collapsed into Caucasian or Minority groups. Minority mothers demonstrated significantly higher PCA Risk ( $t(78) = 3.11, p \leq .01$ ), a pattern also observed among Minority fathers, ( $t(79) = 2.99, p \leq .01$ ). Consequently, these demographic variables were treated as covariates in the subsequent dyadic analyses.

The initial correlations among the measures of interest were examined for mothers and fathers (see Table 1). The associations mirror the factor loadings in the earlier reported CFA wherein the measures of personal stress and couple functioning were strongly intercorrelated.

### 3.3. Dyadic analyses

An initial model considering maternal stress predicting maternal PCA risk simultaneously with paternal stress predicting paternal PCA risk confirmed that stress significantly increased PCA risk for both mothers and fathers, ( $\beta = .68$  and  $\beta = .53, ps \leq .001$ , mothers and fathers respectively). However, this model did not indicate significant partner-effects of stress predicting partner's PCA risk (maternal stress to paternal PCA,  $\beta = .18, p = .12$ ; paternal stress to maternal PCA,  $\beta = .06, p = .47$ ). This model obtained an  $R^2 = .49$  and  $R^2 = .46$  for mothers and fathers PCA risk, which increased to .58 and .53 for mothers and fathers respectively when including demographic controls; however, the significance of the paths from stress to individual PCA risk were unaffected by including demographic controls.

Next, we examined whether better couple functioning buffered the association between personal stress and PCA risk. Despite good fit (CFI = .996, TLI = .975, RMSEA = .05), there was no evidence that couple functioning moderated the relationship between stress and PCA risk. Specifically, the Maternal Stress  $\times$  Maternal Couple Functioning interaction was not significantly associated with maternal PCA risk ( $\beta = .03, p = 0.756$ ); further, the Paternal Stress  $\times$  Paternal Couple Functioning interaction was not significantly associated with paternal PCA risk ( $\beta = -.08, p = .490$ ).

Finally, we examined whether poorer couple functioning mediated the association between personal stress and PCA risk. The full model demonstrated that the direct paths from maternal stress to maternal PCA risk and paternal stress to paternal PCA risk remained significant controlling for couple functioning, indicating partial mediation. In addition, a cross-over partner effect was observed from maternal stress to their partner's couple functioning to father's PCA risk. Given that this model was just-identified, we were unable to obtain fit indices and thus we conducted a supplemental model that excluded non-significant paths to estimate model fit (see Fig. 1). Indices indicated that this model fit the data well (CFI = .999, TLI = .996, RMSEA = .02). The indirect effects were also significant, indicating higher maternal stress to lower maternal couple functioning to greater maternal PCA risk ( $\beta = .06, p \leq .05$ ), and from higher paternal stress to lower paternal couple functioning to greater paternal PCA risk ( $\beta = .13, p \leq .01$ ). The model accounted for significant variance in PCA risk ( $R^2 = .48$ , mothers,  $R^2 = .37$ , fathers). Controlling for demographics did not alter the pattern of these

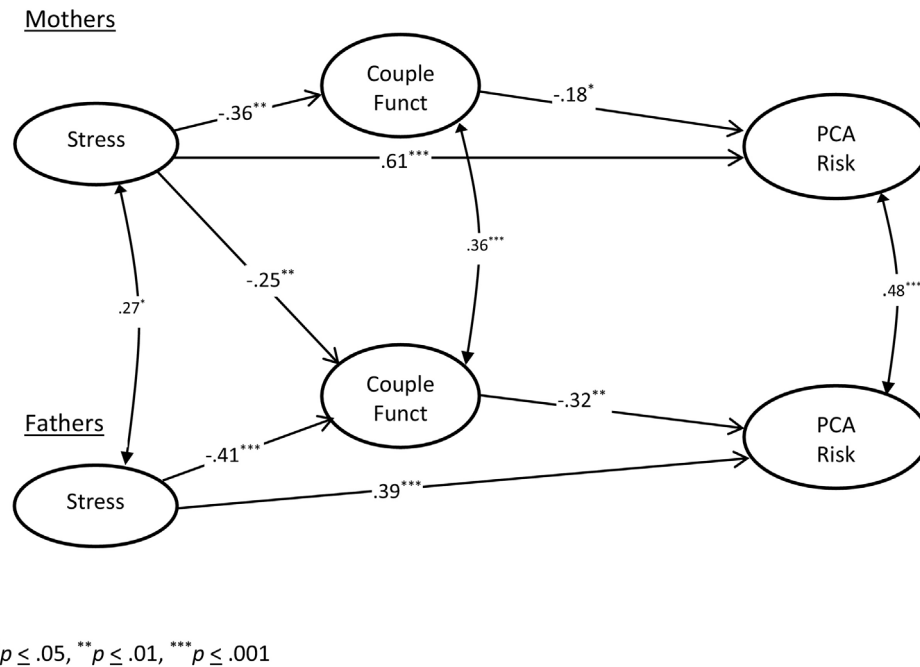


Fig. 1. Dyadic Analysis Illustrating Couple Functioning as a Mediator of PCA Risk.

relationships, but accounted for more variance in PCA risk,  $R^2 = .60$  for mothers,  $R^2 = .55$  for fathers. Note also that partners' PCA risk and couples' functioning are strongly intercorrelated.

#### 4. Discussion

The current investigation adopted an ecological approach to consider how personal level factors operated in conjunction with couple level factors in the microsystem to heighten PCA risk for both mothers and fathers. The study evaluated whether parents' personal vulnerabilities (stress and psychological distress) would relate to couple dysfunction to increase PCA risk in a sub-abusive sample of married and/or cohabitating couples of preschoolers. The current findings affirmed that greater personal stress and poorer couple functioning were associated with increased PCA risk for both mothers and fathers. Moreover, the link between greater personal stress and PCA risk for both parents was partially mediated by poorer couple functioning, and a cross-over effect was observed between higher maternal stress and fathers' perception of poorer couple functioning.

The present study confirms the prior research on increased maternal stress in PCA risk (Rodriguez & Green, 1997; Rodriguez, 2010b; Stith et al., 2009) and extends this finding to paternal stress, answering the call of many to consider paternal PCA risk factors (e.g., Guterman & Lee, 2005; Lee et al., 2008). The strong positive relationships of PCA risk with stress and distress observed in the present study suggests that, beyond the parenting stress frequently cited as a PCA risk factor in the prior research (e.g., Crouch & Behl, 2001; Rodriguez & Green, 1997), a parent's perceptions of feeling overwhelmed by stressors and psychological distress serves to increase risk for both mothers and fathers. This observation for fathers contrasts those suggesting psychological distress was less relevant to maltreating fathers (Pittman & Buckley, 2006). Indeed, psychological distress, negative life events, and perceived stress all independently indirectly linked to PCA in a community sample of fathers as well (Smith Slep & O'Leary, 2007). In conjunction with our findings, the collective observed direct effect of paternal stress may be more pronounced for fathers who have not been identified as abusive and who may be engaging in behaviors lower on the PCA continuum. If replicated, this would also imply that risk factors may differ across the PCA continuum, which would be important to clarify to better inform prevention programs intending to avert abuse in the first place.

The current study also considered the role of couple level functioning on PCA risk, conceptualizing couple functioning inclusive of couple conflict, relationship satisfaction, as well as coparenting quality. Although the current study did not find evidence that better couple functioning buffered the connection between personal stress and PCA risk for either mothers or fathers (therefore, not serving as a resource to members of a couple to reduce their stress), past research suggests that the interaction with stress may be limited to those in dissatisfying relationships (Florsheim et al., 2003). Regarding couple functioning, the present findings support that parents' report of a satisfying relationship and stronger coparenting support was predictive of lower child abuse potential. Moreover, poorer couple functioning partially mediated the relation between parental personal stress and PCA risk, reflective of potential spillover effects of couple level functioning on parent-child relationships (cf. Bolger et al., 1989). Prior research has attributed greater couple dissatisfaction to greater personal distress (Karney & Bradbury, 1995; Ngai & Ngu, 2014). The current findings adopted a more

inclusive conceptualization of couple functioning than has typically been considered in research predicting PCA risk, suggesting that personal stress may be associated with poor functioning in the co-parenting relationship that then spills over into the parent-child relationship.

Further, this study was the first to consider cross-over effects in a model of PCA risk; maternal stress was linked to paternal couple functioning, suggesting that mother's higher stress level may relate to their partner's perception of their relationship functioning more poorly and thereby elevate PCA risk. Prior PCA research has yet to explore such cross-over effects although such transactional processes are consistent with ecological models that conceptualize the parent's personal risks interface with more distal levels. Future studies should consider how other factors relate across ecological levels given that individual risk factors may be exacerbated by more distal influences (e.g., personal level anger difficulties may affect couple functioning to increase PCA risk). Moreover, continued research should evaluate other potential cross-over effects to determine how individual level PCA risk may be influenced by their partner (e.g., personal level emotion dysregulation affecting partner-level PCA risk). Such approaches likely reflect the reality of how PCA transpires because a parent approaches physical discipline decisions influenced by their partner and their community.

The current investigation adopted an inclusive approach to measure constructs, folding in multiple aspects into a given construct to be comprehensive in our assessment and balance the weaknesses of any particular measure. Thus, our findings are more robust against concerns about whether observed relations are limited to the measures selected. However, we utilized weighted composite scores for these constructs and were restricted from more sophisticated statistical analyses (e.g., structural equation modeling with latent factors) due to sample size.

In addition, although we posited the direction of relations in our model based on existing longitudinal research, the present design is cross-sectional and findings are correlational, not causal, in nature. Indeed, consideration of an alternative model with couple functioning leading to PCA risk partially mediated by personal stress resulted in comparable model fit, although we retained the a priori model based on literature from longitudinal studies. However, longitudinal designs alone may not be sufficient—in the future, longitudinal studies with multiple time points would be particularly informative to clarify how the sequence of transactional processes amongst the individual level and couple level risk factors considered in this study may evolve across time. For example, a cross-lagged study could track how a parent's personal stress level impairs subsequent couple functioning that then worsens their stress level in a reciprocal fashion which then translates to each parent's increased PCA risk.

Because the majority of parents were first time parents of the target child, it would be interesting to know whether the salience of these factors changes across time with subsequent children, or as children age or the couple relationship evolves. Moreover, given that the present study focused on a parent sample from the community, the pattern of relationships examining cross-over effects should be considered with parents further along the PCA continuum, including high-risk and substantiated samples to discern the nuances of how factors may differ at various levels across the PCA spectrum. Because of the characteristics of the current sample, the current findings may not generalize to parents of lower education or income levels. Future investigations should also examine whether the pattern of findings generalizes to households wherein fathers represent the primary caregiver as well as same sex or non-cohabitating parents. Indeed, for single parents, other microsystem influences (e.g., different family members that serve coparenting roles) may be more relevant to consider in PCA risk models.

Overall, these findings underscore the need for community-based interventions aimed at increasing adaptive coping for both mothers and fathers in response to contextual or demographic stressors. The observed spillover from couple functioning to increased PCA risk affirms that increasing parents' sense of a strong relationship, either with communication training to improve validation or explicit guidance to parents regarding the importance of shared parenting, appears likely to improve couple functioning. Such improved couple functioning appears associated with their personal level vulnerabilities (e.g., stress levels), thereby potentially reaping benefits for the parent as an individual as well as spilling over to impact their relationship with their children. Finally, as the current study demonstrates, understanding the role of fathers within the family remains an important avenue for future research as we attempt to clarify what factors augment the likelihood that fathers' harsh physical discipline may escalate to become abusive.

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