



# Psychometric Evaluation of a Brief Assessment of Parents' Disciplinary Alternatives

Christina M. Rodriguez <sup>1</sup> · Shannon M. O. Wittig<sup>1</sup> · Maria-Ernestina Christl<sup>2</sup>

Published online: 27 March 2019

© Springer Science+Business Media, LLC, part of Springer Nature 2019

## Abstract

**Objectives** The majority of strategies designed to assess parental discipline practices typically focus on ineffective or adverse discipline options. When more comprehensive measures are utilized, parents are often expressly asked to report their use of nonphysical discipline options but such an approach signals to parents that they should report implementing such choices, thereby rendering it susceptible to social desirability.

**Methods** Rather than cueing parents with possible discipline options, the Production of Discipline Alternatives (PDA) is a very brief parent-report coding scheme of the discipline options parents freely generate to an open-ended question after reading a short vignette. The current study investigated the inter-rater reliability and stability as well as concurrent and predictive validity from the coding of this brief qualitative prompt using three waves of longitudinal data collected from mothers and fathers (prenatally, child age 6 months, and child age 18 months).

**Results** Findings demonstrated strong inter-rater reliability (between independent coders) and stability of discipline alternatives provided by parents across nearly two years. Concurrent and predictive validity were also observed; specifically, mothers and fathers who generated proportionally more physical discipline options were more likely to approve of physical discipline, to be inclined to punish perceived misbehavior, to prefer authoritarian parenting approaches, to evidence greater child abuse risk, and to report more frequent use of physical discipline.

**Conclusions** The current findings imply the PDA may have research utility as well as potential value in screenings at primary and integrated care settings relevant for prevention and intervention efforts.

**Keywords** Discipline tactics · Primary care screening · Child abuse prevention · Physical punishment · Nonviolent discipline · Corporal Punishment

Discipline is designed to guide children in how to engage in appropriate behavior and discourage inappropriate behavior in order to foster children's development (Canadian Paediatric Association, 2004; Howard, 1996). Parents do not routinely receive formal education on child rearing and discipline strategies, despite some efforts to teach secondary school students about parenting (e.g., Kind, 2005; Luster and Youatt, 1989). Instead, mothers and fathers seek guidance about how to discipline children from a range of sources (Ateah, 2003; Radey and Randolph, 2009), with considerable evidence that adults adopt the discipline

approaches implemented by their own parents (Bower-Russa et al., 2001; Chung et al., 2009; Rodriguez and Sutherland, 1999). Parents are also affected by societal norms about what is considered acceptable discipline, including influences from their culture (Giles-Sims and Lockhart, 2005; Lansford and Dodge, 2008), religion (Ellison, 1996), as well as professionals (Taylor et al., 2017).

Researchers, mental health providers, and social service professionals are invested in understanding parents' discipline for a number of reasons. Positive parenting practices are associated with optimal socio-emotional and behavioral development in children (Cheah et al., 2009; Flouri et al., 2015; Querido et al., 2002; Rodriguez and Eden, 2008). In contrast, a wealth of literature has documented that physical discipline in particular is associated with adverse outcomes for children (e.g., Alampay et al., 2017; Gershoff and Grogan-Kaylor, 2016; Gershoff et al., 2018; Rodriguez,

✉ Christina M. Rodriguez  
cmrpsych@uab.edu

<sup>1</sup> University of Alabama at Birmingham, Birmingham, USA

<sup>2</sup> University of Denver, Denver, USA

2003; Taylor et al., 2010; Zulauf et al., 2018). Children who are physically disciplined are prone to being physically abused (see Gershoff and Grogan-Kaylor, 2016 meta-analysis). Parents' likelihood of becoming physically abusive, referred to as child abuse potential, is linked to their physical discipline use (Chan, 2012; Rodriguez, 2010; Tucker et al., 2017), overall inclination to punish perceived child misbehavior (Haskett et al., 2006; Rodriguez, 2016), as well as harsh and authoritarian parenting (Haskett et al., 1995; Margolin et al., 2003; Rodriguez, 2010). Further, parents who approve of physical discipline are more likely to administer it to their children (Haskett et al., 1994; Jackson et al., 1999; Rodriguez et al., 2011; Sturge-Apple et al., 2015).

Consequently, child abuse prevention programs often aim to alter parents' attitudes about physical discipline (Chavis et al., 2013; Palusci et al., 2008) and to educate parents about positive parenting and nonphysical discipline options in an effort to reduce adverse parenting practices (e.g., Durrant et al., 2014; Porter and Howe, 2008; Russell and Lincoln, 2017; Smith et al., 2017) given that most adults receive no formal education about discipline options. Indeed, public campaigns to reduce physical abuse have often emphasized a perceived lack of knowledge of positive parenting techniques (see Poole et al., 2014 for review). Others have screened for harsh punishment practices from parents visiting primary care settings—viewed as a venue to identify those who could benefit from psychoeducation on discipline alternatives (Feigelman et al., 2009).

Parents can react with a variety of responses to children's perceived problem behavior, including physical and nonphysical options that have been measured with a range of approaches (see Locke and Prinz, 2002 for review). For example, parents may be asked to report on their use of discipline approaches through interview procedures, like the Parental Discipline Interview (Scarr et al., 1994), which includes nonphysical discipline options of reasoning, removal of privileges, or distraction. Longer, semi-structured interview options, with detailed coding schemes, are available (O'Dor et al., 2017). Alternatively, parents may be provided with a list of options in questionnaires and asked to report on their discipline use, such as the 16-item Parental Responses to Child Misbehavior-Revised (Holden et al., 1995). Another measure asks parents to estimate their frequency of using physical, psychological, and nonviolent discipline approaches, such as on the Parent-Child Conflict Tactics Scale (CTSPC; Straus et al., 1998). Overall, in most measures of parental discipline, parents' use of ineffective or adverse parenting approaches are emphasized relative to nonphysical approaches. Parents' reports of discipline use may also be underreported due to social desirability concerns; even in measures that include nonphysical approaches, social

desirability may lead parents to endorse or overestimate their use of those nonphysical approaches (Locke and Prinz, 2002). Therefore, a measure less susceptible to social desirability more inclusive of nonphysical discipline would be useful.

Apart from the utility to researchers, an efficient means of identifying how a parent would react to child misbehavior could prove valuable to front-line professionals working in prevention and intervention programs. For example, parents can be quickly screened in pediatric primary care settings (cf. Feigelman et al., 2009) given that pediatricians are often an important source of parenting advice (Taylor et al., 2013). Such a measure could be utilized in child abuse prevention programs that often target at-risk perinatal samples (e.g., Chartier et al., 2017; Eckenrode et al., 2017) or administered in intervention programs (e.g., Kennedy et al., 2016) to track change. Further, a screening tool that does not explicitly provide the choices for parents would represent a less leading approach that could minimize socially desirable responding.

Thus, the current study evaluated whether a brief assessment could be utilized to estimate whether parents' preferred discipline alternatives in response to perceived child misbehavior would predict factors reflective of adverse parenting. Mothers and fathers were prompted to provide all responses they would likely use with a hypothetical misbehaving child. The current study evaluated whether parents' qualitative responses could be coded into summary scores to meaningfully predict important abuse risk markers. Parents who predominantly identify physical discipline responses, rather than nonphysical discipline responses, as options to child misbehavior were expected to evidence a greater inclination to punish misbehavior, stronger approval of physical discipline, more frequent use of physical discipline, greater authoritarian parenting, and higher child abuse potential. Drawing from data in a longitudinal study, the current study investigated the inter-rater reliability and stability as well as concurrent and predictive validity of the coded summary scores from this brief qualitative prompt.

## Method

### Participants

Mothers and their partners in this sample were enrolled in the Following First Families (Triple-F) study, a prospective longitudinal study following first-time biological mothers and their partners during the transition into parenthood in an urban city in the Southeast. To be eligible to enroll, primiparous mothers were required to be in the last trimester of their pregnancy. Partners, although referred to as fathers,

were not required to be the biological father of the child to reflect the reality that mothers have partners who serve as father-figures to the child. Complete data have been collected at three time points.

Initially, 203 mothers were enrolled in the study at Time 1 (T1). By the second time point, two babies had died shortly after childbirth and those families were no longer eligible to continue in the longitudinal study. At Time 2 (T2), 186 mothers returned with their 6-month-old baby and at Time 3 (T3), 180 mothers participated with their 18-month-old child. At T1, mothers' average age was 26.04 years ( $SD = 5.87$ , range 16–40). With regard to race and ethnicity, 50.7% of mothers identified as Caucasian, 46.8% as African-American, 1.0% as Asian, and 1.5% as Native American; of these, 3.0% also identified as Hispanic/Latina and 5.5% identified as biracial. In terms of highest educational attainment, 30.3% of mothers reported receiving a high school diploma or less, 20.9% reported obtaining vocational training or some college, and the remainder reported a college degree. Almost 43% of mothers were recipients of public assistance with 49.3% of mothers living within 150% of the poverty line. More than half of the sample reported a combined household income under \$40,000.

At T1, 87% of mothers reported currently being in a relationship with the expected child's biological father. At T1, 151 partners participated, with 146 fathers participating at T2 and T3. At T1, fathers' average age was 28.89 years ( $SD = 6.07$ , range 18–48). In terms of racial and ethnic identity, 54.0% of fathers identified as Caucasian, 45.3% as African-American, and 0.7% as Asian; additionally, of these, 4.0% identified as Hispanic/Latino and 4.7% identified as biracial. Almost 26.0% of fathers reported having received a high school diploma or less as their highest educational attainment, with 24.7% with vocational training or some college, and the remainder with a college degree.

## Procedure

Participants were recruited with flyers distributed at local hospitals' OB/GYN clinics and childbirth classes. The first time point (T1) was collected prenatally, during the mothers' last trimester of pregnancy (typically the last half), the second time-point (T2) was gathered when the infant was 6 months ( $\pm 2$  weeks), and the third time point (T3) was collected when the child was 18 months ( $\pm 3$  weeks). At each time point, mothers and fathers independently provided informed consent and responded to all measures delivered electronically on laptops in separate private rooms. The Triple-F study was approved by the university's Institutional Review Board. All measures described below were administered at all three time points except the Parent-Child Conflict Tactics Scale (CTSPC; Straus et al., 1998),

which was completed only at T3 because the CTSPC was not developmentally appropriate at T1 or T2.

## Measures

### Production of Discipline Alternatives (PDA)

To assess parents' discipline options, the Triple-F study developed a coding strategy based on parents' responses to an open-ended question after reading one short vignette. This vignette was the final item administered in the series of 18 items of the Plotkin Child Vignettes (see below, Plotkin, 1983). Parents read the following: "Shortly after you punished your 5-year-old, you tell her/him to play quietly with his/her toys. Very soon after, s/he stands up, looks at you in the eye, throws a toy at an expensive vase, breaks it, and then laughs." They were then instructed, "Now type out all of the things you can think of to do to discipline your child for breaking the vase." The vignette prompt and parent typed responses took approximately two minutes or less to complete.

Each parent's response was then coded independently by two research assistants into the following categories: Non-physical discipline (e.g., removal of privileges, time-out, reasoning with the child), Physical discipline (spanking with hand or object), or Psychological (e.g., yelling, name calling, threatening) (see Appendix). Subcategories in each of these three broad dimensions were developed with guidance from the options described in Ateah and Durrant (2005) and from classifications of the physical, nonphysical, and psychological categorization of conflict tactics on the CTSPC (Straus et al., 1998). The research assistants tallied the number of individual responses within each category and subcategory. No specialized training was required for the research assistants as they solely relied on the rubric provided in Appendix.

Responses could be classified as nonphysical discipline based on explicit responses or implied by descriptions. For example, a response was classified as *time-out* if the parent explicitly used the phrasing "time-out" or if they described time-out procedures (e.g., "Send them to the corner for 5 min"). This was differentiated from responses that described sending the child to his/her room, which was subcategorized as the nonphysical discipline response of *removing the child from the situation*. Sending the child to bed, making them take a bath, or making them perform extra chores was subcategorized as *requiring the child to do something aversive* as the intent was inferred to be requiring the child to engage in an activity they did not want to do. One ambiguous response—putting the child "on punishment"—is a Southern colloquialism for grounding, which was subcategorized as *removal of privileges* unless the parent specified otherwise. A parent received one tally for

*removal of privileges* if the parent listed several items consecutively that they would remove from the child (e.g., “No TV, games, toys, or friends for the rest of the day”). If the parent included another discipline response between two different removal of privileges, each privilege removal was marked as a separate response. For example, raters would score a response of “Take away toys, ask them why they did that, no dessert” as two counts of *removal of privileges* and one count of *discussing with the child* for a total of three nonphysical forms of discipline.

When describing physical discipline options, some parents provided non-specific responses. Responses similar to “I would spank the child” were considered to be *spank/slap with a hand on buttock* unless the parent specified a different body part or an object. The term “whooping” was categorized as a *spank/slap with a hand on buttock* due to the Southern regional use of this term unless the parent included additional information about using an object. The Other sub-category was reserved for atypical physical forms of discipline (e.g., requiring vigorous physical exercise as punishment).

Less ambiguity was apparent in parents’ responses involving psychological aggression. However, psychological aggression was rarely provided as a response, with only 10 parents describing this particular discipline approach across all three time points. Yelling “no” and threatening the child with spanking, but not spanking the child, were the most commonly used forms of psychological discipline. Name-calling included parents calling the child a bad boy/girl or more offensive names like “dumb” or “lazy”.

Coders were blind to each other’s scores and independently tallied the number of individual responses in each category to generate a total number of nonphysical, physical, and psychological responses. Raters’ total scores in these three categories were then averaged for each participant’s total number of PDA Nonphysical, Physical, and Psychological responses provided. To control for verbose participants who contributed more response options, the proportion of each response type was calculated (e.g., Physical Total options ÷ Total options), where a higher proportion suggests greater proposed use of that approach. As noted, psychological response options were rare and could thus not be independently analyzed but contributed to the total options generated. Because Nonphysical and Physical proportion scores would essentially be inverses of each other (given the low number of psychological responses), for brevity, we concentrate mainly on PDA Physical Proportion scores in the analyses.

### Child Abuse Risk

The *Child Abuse Potential Inventory* (CAPI; Milner, 1986) is a screening measure designed to estimate a parent’s

likelihood of engaging in physical child abuse. Of the 160 items, 77 Agree/Disagree items are variably weighted and summed to contribute to an Abuse Scale score wherein higher scores indicate greater abuse risk. Both intrapersonal characteristics (e.g., distress, rigidity) and interpersonal characteristics (e.g., family conflict) are measured but items largely do not explicitly measure parenting beliefs or behaviors. CAPI Abuse Scale scores have shown validity, distinguishing parents who are substantiated for physical abuse (Milner, 1994).

The *Adult-Adolescent Parenting Inventory-2* (AAPI-2, Form B; Bavolek and Keene, 2001) is an alternative child abuse potential measure assessing parents’ behaviors and beliefs concerning child rearing. Using 40 items on a 5-point Likert scale, from 1 (*strongly agree*) to 5 (*strongly disagree*), scores are combined for a total score; higher AAPI-2 Total scores are oriented to reflect greater abuse risk. AAPI-2 items were selected to distinguish maltreating from non-maltreating samples (Bavolek and Keene, 2001) and prior work has supported reliability and validity (Conners et al., 2006). In the current study, AAPI-2 Total scores demonstrated acceptable reliability across time points for both mothers ( $\alpha = .87-.91$ ) and fathers ( $\alpha = .89$  across time).

To consider an alternative approach to self-report for abuse risk, the *Response Analog to Child Compliance Task* (ReACCT; Rodriguez, 2016) was administered. ReACCT is a computer-simulated parent-child interaction that assesses parents’ responses to child compliance and noncompliance. The simulation begins by instructing the parent that they are running late one morning to take their child to preschool and need to direct their child to get ready to leave. Twelve sequential scenes ensue in which the child is described as either compliant or noncompliant. The participant is asked to select from 16 possible responses to the child’s behavior in the scene. Scores are positively or negatively weighted depending on the parent’s adaptive (e.g., praise) versus maladaptive (e.g., aggressive) response to the child’s actions. Because the child may be depicted as non-compliant, the scene may remain unchanged until the child complies; thus, the ReACCT involves 20 parental responses that can be scored. Parents are also told they will see a game bonus (50 cents) if their response to a scene secures child compliance but that they will remain delayed if the child is noncompliant. A visual and audible clock ticks throughout the simulation serving as a delay reminder to evoke time urgency. Higher ReACCT scores are oriented to indicate harsher responses. The current study focused on responses to noncompliance (12 items). The ReACCT Noncompliance scores have shown good convergent validity relative to both child abuse risk and harsh physical discipline tactics (Rodriguez, 2016). In the present study, across time points, ReACCT Noncompliance scores demonstrated

acceptable reliability for mothers ( $\alpha = .76-.83$ ) and fathers ( $\alpha = .76-.79$ ).

### Parenting Style

The *Expected Parental Authority Questionnaire* (Expected PAQ) assesses parenting style in pre-parent or new parent samples (Boppana and Rodriguez, 2017; Rodriguez et al., 2016a, 2016b). Modified from the Parental Authority Questionnaire (Buri, 1991), the 30-item measure adjusted wording from the original by phrasing items in future tense in which parents were asked to respond how they expect to raise their child. Ten items correspond to each of three parenting styles, including Authoritarian, Authoritative, and Permissive; the current study focused on the Authoritarian parenting scale. Each item is posed to participants with a 5-point Likert scale on which participants respond from 1 (*strongly disagree*) to 5 (*strongly agree*), summed across items for a total subscale score with higher scores indicating higher endorsement of an Authoritarian parenting style. In the current study, across time points, Expected PAQ Authoritarian parenting subscale scores demonstrated adequate reliability for mothers ( $\alpha = .80-.82$ ) and for fathers ( $\alpha = .83-.86$ ).

### Physical Discipline Approval

The *AAPI-2 Value of Corporal Punishment* subscale from an alternate version of the full AAPI-2 (Bavolek and Keene, 2001) was also administered to intentionally target parents' approval of physical discipline. Participants respond to 11 items with a 5-point scale, from 1 (*strongly agree*) to 5 (*strongly disagree*). Items are summed for a total score that indicates greater approval of physical discipline. In this study, this subscale demonstrated adequate reliability for mothers ( $\alpha = .82-.84$ ) and fathers ( $\alpha = .80-.83$ ).

### Punishment Inclination

The *Plotkin Child Vignettes* (PCV; Haskett et al., 2006; Plotkin, 1983) is a measure with 18 short vignettes that depict a child engaging in potentially aversive behavior. Parents were asked to imagine that the child in the vignette is their own child. For this study, we focused on parents' responses to the degree of punishment they would be inclined to employ in response to each of the vignettes, using a 9-point scale from 1 (*I would not punish my child at all*) to 9 (*I would punish my child a great deal*). Higher punishment scores indicate greater inclination to punish. PCV scores demonstrate validity, with physically abusive mothers obtaining higher scores than their peers (Haskett

et al., 2006; Plotkin, 1983). In the current study, across time points, PCV Punish scores demonstrated acceptable reliability for mothers ( $\alpha = .84-.87$ ) and fathers ( $\alpha = .83-.90$ ).

### Physical Discipline Use

Administered only at T3, the *Parent-Child Conflict Tactics Scale* (CTSPC; Straus et al., 1998) evaluated how frequently parents use physical aggression, psychological aggression, and non-violent discipline strategies when handling conflict with their child. Parents responded to 22 items asking how frequently they engaged in that behavior within the past year. Weighted scores reflect the frequency reported by respondents: responses of 0, 1, or 2 times receive those corresponding scores; 3–5 times receives a score of 4; 6–10 times is scored an 8; 11–20 times is scored as 15; more than 20 times is scored as 25. Thirteen CTSPC items contribute to the Physical Assault subscale, involving a broad range of physical discipline tactics (e.g., pinching, beating, burning). Higher scores indicate higher frequency of the behavior. The CTSPC Physical Assault scale score provides low-frequency counts of parents' discipline use that have demonstrated both construct and discriminant validity (Straus et al., 1998).

### Data Analyses

All statistical analyses were performed with SPSS 24. Because the tally of discipline options provided in each category on the PDA involves an interval scale of measurement, in which both raters counted every participant response, inter-rater reliability between the two PDA raters was evaluated with two-way mixed intraclass correlations (ICCs) and their 95% Confidence Intervals (CI). An ICC below .50 indicates poor reliability, between .51 and .75 indicates moderate reliability, between .75 and .90 indicates good reliability, and above .90 indicates excellent reliability (Portney and Watkins, 2009). PDA stability was estimated with bivariate correlation coefficients across time, confirmed by a repeated measures ANOVAs, to demonstrate consistency of scores across time points for mothers and fathers. To judge concurrent validity, bivariate correlations were performed to assess the association between PDA Physical Proportion scores and the comparison measures administered within a time point. For predictive validity, bivariate correlations were conducted between PDA Physical Proportion scores and comparison measures at subsequent time points as well as performing multiple regressions to predict T3 abuse risk and physical discipline use from earlier PDA Physical Proportion scores, controlling for demographic covariates.

**Table 1** PDA inter-rater reliability results by category and time point

# options provided	Mean (SD)	ICC	95% CIs
<i>Time 1</i>			
Nonphysical responses	2.41 (1.32)	.939	.925–.951
Physical responses	0.49 (0.53)	.995	.994–.996
Total responses	2.91 (1.31)	.938	.924–.950
<i>Time 2</i>			
Nonphysical responses	2.14 (1.09)	.942	.928–.953
Physical responses	0.36 (0.49)	.990	.988–.992
Total responses	2.51 (1.10)	.938	.923–.950
<i>Time 3</i>			
Nonphysical responses	1.98 (1.14)	.985	.981–.988
Physical responses	0.41 (0.50)	.997	.996–.998
Total responses	2.40 (1.14)	.984	.980–.987

## Results

### PDA Reliability

The ICCs and their CIs for the Nonphysical, Physical, and Total number of responses scored by raters per time point appear in Table 1. These values demonstrated strong inter-rater reliability for the raters' tallies in PDA Nonphysical and Physical categories as well as PDA Total responses. Table 1 also provides the mean number of responses parents generated for each category for the full sample at each time point.

To evaluate stability, focusing on the PDA Physical Proportion scores for mothers and fathers separately (recall, nonphysical proportional scores would be essentially inverse), scores demonstrated stability for both mothers and fathers. First, a repeated measures ANOVA was not significant for mothers,  $F(2, 342) = 1.48, p > .05$ , or fathers,  $F(2, 210) = 1.79, p > .05$ . Further, bivariate correlations also demonstrated consistency for both mothers and fathers across time. Mothers' T1 PDA Physical Proportion scores were significantly correlated with their T2 ( $r = .54, p < .001$ ) and T3 ( $r = .44, p < .001$ ) scores; mothers' T2 PDA Physical Proportion scores were also significantly correlated with their T3 scores ( $r = .53, p < .001$ ). Similarly, for fathers' stability, their T1 PDA Physical Proportion scores were significantly correlated with their T2 ( $r = .59, p < .001$ ) and T3 ( $r = .60, p < .001$ ) scores; fathers' T2 PDA Physical Proportion scores also significantly correlated with their T3 scores ( $r = .63, p < .001$ ). Thus, regardless of gender, PDA Physical Proportion scores remained stable across time.

### PDA Concurrent Validity

Concurrent validity of the PDA Physical Proportion scores was evaluated by examining correlations with physical

discipline approval (AAPI-2 Corporal Punishment subscale), parenting style (Expected PAQ Authoritarian subscale), punishment inclination (PCV Punish subscale), and abuse risk (CAPI Abuse Scale, AAPI-2 Total score, and ReACCT Noncompliance scale) at each time point (with CTSPC Physical Assault scores only at T3). These correlations are presented for mothers and fathers in Table 2. As can be seen in the table, mothers and fathers with a greater proportion of physical discipline responses were significantly more likely to express approval of physical discipline, expect to engage in more authoritarian parenting, were more likely to use physical discipline, and were more inclined toward punishment (with one exception for PCV Punish at Time 1). Higher PDA Physical Proportion scores were associated with greater abuse risk scores on the AAPI-2 and ReACCT, with less consistent effects observed with the CAPI Abuse scale.

### PDA Predictive Validity

In terms of the predictive validity of Physical Proportion scores, Table 3 displays correlations between T1 Physical Proportion scores with scores on the comparison measures at T2 and T3, as well as T2 Physical Proportion scores with T3 comparison scores, separately for mothers and fathers. These results largely mirror the concurrent validity correlations. Note that T1 and T3 are separated by nearly 2 years whereas T1 and T2 are one year apart.

As an additional test of predictive validity, we focused on one measure of child abuse risk (the AAPI-2) and discipline use at T3. From the prenatal T1 assessment predicting T3 AAPI-2 total scores, a multiple regression was conducted controlling for age, education level, household income, and minority status. For mothers, after controlling for covariates, the T1 Physical Proportion scores contributed significant unique variance in predicting mothers' AAPI-2 Total scores nearly two years later,  $F(5, 195) = 16.56, p < .001, R^2 = .30$ . Higher maternal T1 Physical Proportion scores significantly predicted greater maternal T3 AAPI total scores ( $\beta = .18, p = .004$ ). Similarly, for fathers, after covariates were entered in the first block, the prediction model was significant  $F(5, 149) = 10.91, p < .001, R^2 = .27$ , in which higher T1 PDA Physical Proportion scores predicted greater paternal T3 AAPI-2 total scores ( $\beta = .18, p = .014$ ).

To consider further the predictive validity of T1 PDA Physical Proportion scores in predicting T3 CTSPC Physical Assault subscale scores, additional multiple regressions were performed. For mothers, after controlling for covariates, the full model was significant,  $F(4, 196) = 3.66, p = .007, R^2 = .07$ , in which higher maternal T1 Physical Proportion scores significantly and uniquely predicted greater maternal CTSPC scores ( $\beta = .23, p = .001$ ). For

**Table 2** Means, standard deviations, and concurrent correlations of PDA Physical Proportion scores with comparison measures within time point

	Mothers		Fathers	
	<i>M (SD)</i>	<i>r</i>	<i>M (SD)</i>	<i>r</i>
<i>Time 1</i>				
PDA Physical Proportion	.17 (.23)		.21 (.26)	
CAPI Abuse Scale	95.54 (75.15)	.15*	86.35 (58.91)	.02
AAPI-2 Total	101.97 (18.66)	.22**	106.51 (19.28)	.21*
ReACCT Noncompliance	0.24 (12.87)	.38***	-.44 (12.51)	.31***
Expected PAQ Authoritarian	34.20 (6.53)	.20**	34.03 (6.75)	.30***
AAPI-2 Value Corporal Punishment	31.87 (8.30)	.40**	32.08 (8.99)	.49***
Plotkin Child Vignettes Punishment	41.91 (14.69)	.16*	41.15 (17.16)	.11
<i>Time 2</i>				
PDA Physical Proportion	.13 (.21)		.16 (.25)	
CAPI Abuse Scale	85.42 (70.43)	.10	72.93 (60.32)	.05
AAPI-2 Total	99.87 (22.22)	.32***	103.70 (19.96)	.14
ReACCT Noncompliance	0.22 (14.70)	.42***	0.40 (13.22)	.39***
Expected PAQ Authoritarian	33.69 (6.55)	.30***	33.57 (7.28)	.23**
AAPI-2 Value Corporal Punishment	30.22 (9.11)	.52***	30.49 (8.31)	.53***
Plotkin Child Vignettes Punishment	39.00 (13.82)	.26***	38.04 (12.79)	.30***
<i>Time 3</i>				
PDA Physical Proportion	.17 (.26)		.21 (.28)	
CAPI Abuse Scale	91.18 (78.02)	.19**	76.51 (62.01)	.16
AAPI-2 Total	98.77 (22.20)	.36***	102.25 (19.52)	.31***
ReACCT Noncompliance	-.01 (13.86)	.35***	1.21 (13.60)	.34***
Expected PAQ Authoritarian	34.11 (6.74)	.23**	32.62 (7.15)	.23**
AAPI-2 Value Corporal Punishment	29.65 (9.10)	.49***	30.15 (8.80)	.52***
Plotkin Child Vignettes Punishment	38.02 (14.21)	.27***	38.92 (12.42)	.24***
CTSPC Physical Assault	6.85 (11.24)	.27***	6.35 (10.84)	.26***

*PDA* Production of Discipline Alternatives, *CAPI* Child Abuse Potential Inventory; *AAPI-2* Adult Adolescent Parenting Inventory-2, *ReACCT* Response Analog to Child Compliance Task, *PAQ* Parental Authority Questionnaire, *CTSPC* Parent-Child Conflict Tactics Scale

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

fathers, the full model using T1 Physical Proportion scores, after controlling for covariates, was not significant,  $F(4, 150) = 1.43$ ,  $p = .226$ , and T1 Physical Proportion scores were only marginally predictive of T3 CTSPC nearly two years later ( $\beta = .14$ ,  $p = .09$ ), after controlling for these covariates. Exploring whether paternal T2 Physical Proportion scores could alternatively predict T3 CTSPC Physical Assault scores one year later, this model was significant,  $F(4, 147) = 6.22$ ,  $p < .001$ ,  $R^2 = .15$ , in which fathers' Physical Proportion scores predicted significant unique variance in their later CTSPC scores ( $\beta = .37$ ,  $p < .001$ ).

## Discussion

The current investigation evaluated whether a very brief assessment prompting parents to provide discipline

responses to a hypothetical vignette of child misbehavior would relate concurrently and prospectively to factors associated with adverse parenting. Using a prospective longitudinal design, parents' anticipatory disciplinary responses were assessed prenatally, when infants were 6 months, and when children were 18 months. Coded summary scores of discipline alternatives provided by parents demonstrated both inter-rater reliability and moderate stability across nearly two years. Further, concurrent and predictive validity was also observed. Mothers and fathers who generated proportionally more physical discipline options were more likely to approve of physical discipline, to be inclined to punish perceived misbehavior, to prefer authoritarian parenting approaches, to evidence greater child abuse risk, and to report more frequent use of physical discipline.

As expected, with regard to concurrent and predictive validity, parents who generated more physical discipline

**Table 3** Predictive validity correlations: T1 PDA Physical Proportion scores with T2 and T3 measures and T2 PDA Physical Proportion scores with T3 measures

	Mothers		Fathers	
	T1 Phys Prop <i>r</i>	T2 Phys Prop <i>r</i>	T1 Phys Prop <i>r</i>	T2 Phys Prop <i>r</i>
<i>Time 2</i>				
CAPI Abuse Scale	.20**		.00	
AAPI-2 Total	.24***		.23**	
ReACCT Noncompliance	.36***		.38***	
Expected PAQ Authoritarian	.28***		.29***	
AAPI-2 Value Corporal Punishment	.46***		.49***	
Plotkin Child Vignettes Punishment	.14		.22*	
<i>Time 3</i>				
CAPI Abuse Scale	.20**	.09	.08	.16
AAPI-2 Total	.29***	.33***	.19*	.26**
ReACCT Noncompliance	.29***	.32***	.23*	.39***
Expected PAQ Authoritarian	.22**	.29***	.34***	.29**
AAPI-2 Value Corporal Punishment	.35***	.45***	.42***	.58***
Plotkin Child Vignettes Punishment	.24**	.28***	.07	.14
CTSPC Physical Assault	.27***	.29***	.19*	.45***

*T1* Time 1, *T2* Time 2, *T3* Time 3, *CAPI* Child Abuse Potential Inventory, *AAPI-2* Adult Adolescent Parenting Inventory-2, *ReACCT* Response Analog to Child Compliance Task, *PAQ* Parental Authority Questionnaire, *CTSPC* Parent-Child Conflict Tactics Scale

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

alternatives more strongly approved of its use, consistent with observed links between child abuse risk and parents' self-reported or implicit physical discipline approval attitudes (Jackson et al., 1999; Rodriguez et al., 2011; Rodriguez et al., 2017; Sturge-Apple et al., 2015). Moreover, mothers and fathers who generated proportionally more physical discipline options were more inclined to prefer an authoritarian parenting approach and to want to punish perceived misbehavior—both of which have previously been linked to physical child abuse risk (Haskett et al., 1995, 2006; Rodriguez, 2010, 2016). Likewise, parents with higher PDA Physical Proportion scores assessed prenatally were more likely to later report using physical discipline tactics, similar to prior work that has observed associations between use of physical discipline tactics and child abuse potential (Chan, 2012; Rodriguez, 2010; Tucker et al., 2017). The ability to identify parents' discipline preferences early would be ideal for child abuse prevention programs that often target perinatal samples (e.g., Chartier et al., 2017; Eckenrode et al., 2017). Because the first two time points reflect anticipatory discipline approaches, a particularly valuable quality of the PDA is its potential ability to identify preferences for discipline approaches prior to parents actually having children.

Findings regarding the concurrent and predictive validity of PDA Physical Proportion scores with child abuse

potential were more mixed, depending on the measure of abuse risk. PDA Physical Proportion scores were consistently related concurrently and prospectively with the analog measure of abuse risk (ReACCT) that assessed parents' harsher responses to child noncompliance. Further, controlling for demographic covariates, for both mothers and fathers, PDA Physical proportion scores predicted later scores on the Adult-Adolescent Parenting Inventory-2, a measure used in abuse prevention programs (e.g., Palusci et al., 2008); comparable findings were demonstrated for predicting CTSPC Physical Assault scores prospectively. However, PDA Physical Proportion scores were only weakly or unrelated to the Child Abuse Potential Inventory (Milner, 1986). Although the CAPI is a well-recognized measure designed to screen for child abuse risk, few of the items that contribute to its Abuse Scale pertain to children or parenting. In contrast, the AAPI-2 expressly focuses on child rearing and discipline beliefs, and thus would be more clearly aligned with the discipline options that would be generated by mothers and fathers on the PDA.

### Limitations and Future Research Directions

Given the present findings, a number of limitations are worth noting which should be considered in future research. Although the PDA does not cue parents with



expected discipline choices, responding on the PDA is not entirely free from potential socially desirable responding. The PDA also relies on a parent's ability to generate options that may be limited by the parent's skills in accessing, recalling, and reporting on the options that occur to them. We also considered weighting physical discipline responses by severity although such efforts did not appear to provide meaningfully different information than the total number of physical discipline options parents provided. However, it would be interesting to consider discipline severity including the severity of nonphysical discipline alternatives (e.g., removing a major versus a minor privilege) in future work. We did not conduct analyses on the subcategories within the PDA overall categories and thus future research could explore the potential value of such details more closely. The vignette also conveyed a single dimension of child transgression and parents may employ different responses in a sequence (e.g., starting with nonphysical before resorting to physical) which is not captured by the PDA as administered, particularly because the scene selected involved escalated child misbehavior. The vignette prompt could easily be adjusted along other dimensions that researchers or practitioners may be interested in evaluating (e.g., child gender or age; depicting child compliance; describing common conflict situations, such as temper tantrums or noncompliance) using the same scoring rubric.

With regard to further validity questions, although half of our sample would be considered at-risk, whether PDA proportion scores can correctly identify those who are ultimately identified as abusive would be a particularly important contribution toward demonstrating construct validity. In terms of external validity, although the current study involved a racially and socioeconomically diverse sample, relatively few parents identified as Hispanic/Latino; future research should evaluate how Hispanic/Latino parents respond to the PDA and whether any evident racial/ethnic differences emerge in larger, more diverse samples. Additional reliability data could be gathered by comparing PDA proportion scores to more elaborate interview approaches (cf. O'Dor et al., 2017) to determine how well, given the brevity of the current approach, the PDA can approximate more labor-intensive methods. The current study was limited to PDA scores obtained across two years, in which the first two time points were anticipatory disciplinary responses; thus, the tracking should be continued to determine additional stability estimates as well as whether proportions shift as children age. For

example, parents' production of psychological responses might increase over time as children become older.

Overall, given the brevity and simplicity of coding the PDA, this brief assessment tool appears to be a promising means of providing a glimpse into parents' immediate ideas of how they would approach discipline. Given that the PDA was designed to be a quick assessment that could be easily coded, future work could evaluate its utility for screening purposes in primary or integrated care settings. For those interested in screening expectant and new parents, without explicitly biasing them by prompting them to report on positive, nonphysical discipline approaches, the PDA may prove useful in signaling which parents are inclined toward physical discipline. Identifying parental practices efficiently is a key element for decision makers in whether such parenting information can be gathered in primary care settings. To track whether parents are able to generate more non-physical discipline options, those involved in interventions could assess change in proportion scores over time. Abuse prevention efforts strive to shift parents' reliance on negative parenting approaches (e.g., Durrant et al., 2014; Chavis et al., 2013), and quick approaches like the PDA may lend insight into the success of those efforts.

**Acknowledgements** We thank our participating families and participating Obstetrics/Gynecology clinics that facilitated recruitment. This research was supported by award number R15HD071431 from the National Institute of Child Health and Human Development. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Child Health and Human Development or the National Institutes of Health.

**Author Contributions** CR designed the procedure, analyzed the data, and led the writing of the paper; SMOW and MC jointly coded the data and contributed to writing the methods and results.

## Compliance with Ethical Standards

**Conflict of Interest** The authors declare that they have no conflict of interest.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the Institutional Review Board of the University of Alabama at Birmingham and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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

**Publisher's note:** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

## Appendix

### Production of Discipline Alternatives

<i>Nonphysical discipline approaches</i>	<i># of Responses</i>
Distract child	
Ignore behavior	
Time-out	
Remove child from situation	
Explain/discuss why behavior is inappropriate	
Give child a choice, negotiate	
Removal of privileges	
Present/require something aversive	
Restitution	
TOTAL # NON-PHYSICAL responses	
<hr/>	
<i>Physical discipline approaches</i>	<i># of Responses</i>
Spank/Slap w/ hand (not buttock/face)	
Spank/Slap w/ hand on buttock/ face, pinch	
Spank/Slap w/ object on buttock	
Spank/Hit w/ object elsewhere (including face)	
Other (exercise, holding arms out, etc.)	
TOTAL # PHYSICAL responses	
<hr/>	
<i>Psychological aggression approaches</i>	<i># of Responses</i>
Shouted, yelled, or scream at child	
Threatened to spank/ hit (but did not do it)	
Swore or curse at child	
Called child dumb, lazy or similar name	
Say you'll send child away/kick them out of the house	
Withdraw affection	
TOTAL # PSYCHOLOGICAL responses	

## References

- Alampay, L. P., Godwin, J., Lansford, J. E., Bombi, A. S., Bornstein, M. H., & Bacchini, D. (2017). Severity and justness do not moderate the relation between corporal punishment and negative child outcomes: a multicultural and longitudinal study. *International Journal of Behavioral Development, 41*, 491–502.
- Ateah, C. (2003). Disciplinary practices with children: parental sources of information, attitudes, and educational needs. *Issues in Comprehensive Pediatric Nursing, 26*, 89–101.
- Ateah, C. A., & Durrant, J. E. (2005). Maternal use of physical punishment in response to child misbehavior: implications for child abuse prevention. *Child Abuse & Neglect, 29*, 169–185.
- Bavolek, S. J., & Keene, R. G. (2001). *Adult-Adolescent Parenting Inventory (AAPI-2): Administration and development handbook*. Park City: Family Development Resources, Inc.
- Boppana, S., & Rodriguez, C. M. (2017). Mediators between parenting history and expected at-risk parenting: role of conformity, coping, and attitudes. *Journal of Child and Family Studies, 26*, 3237–3245.
- Bower-Russa, M., Knutson, J. F., & Winebarger, A. (2001). Disciplinary history, adult disciplinary attitudes, and risk for abusive parenting. *Journal of Community Psychology, 29*, 219–240.
- Buri, J. R. (1991). Parental authority questionnaire. *Journal of Personality and Social Assessment, 57*, 110–119.
- Canadian Paediatric Association. (2004). Effective discipline for children. *Paediatric Child Health, 9*, 37–41.
- Chan, K. L. (2012). Evaluating the risk of child abuse: the Child Abuse Risk Assessment Scale (CARAS). *Journal of Interpersonal Violence, 27*, 951–973.
- Chartier, M. J., Brownell, M. D., Isaac, M. R., Chateau, D., Nickel, N. C., Katz, A., & Taylor, C. (2017). Is the Families First home visiting program effective in reducing child maltreatment and improving child development? *Child Maltreatment, 22*, 121–131.
- Chavis, A., Hudnut-Beumler, J., Webb, M. W., Neely, J. A., Bickman, L., Dietrich, M. S., & Scholer, S. J. (2013). A brief intervention affects parents' attitudes toward using less physical punishment. *Child Abuse & Neglect, 37*, 1192–1201.
- Cheah, C. S. L., Leung, C. Y. Y., Tahseen, M., & Schultz, D. (2009). Authoritative parenting among immigrant Chinese mothers of preschoolers. *Journal of Family Psychology, 23*, 311–320.
- Chung, E. K., Mathew, L., Rothkopf, A. C., Coyne, I. T., James, C., & Culhane, J. F. (2009). Parenting attitudes and infant spanking: the influence of childhood experiences. *Pediatrics, 124*, e278–e286.
- Conners, N. A., Whiteside-Mansell, L., Deere, D., Ledet, T., & Edwards, M. C. (2006). Measuring the potential for child maltreatment: the reliability and validity of the Adult Adolescent Parenting Inventory-2. *Child Abuse & Neglect, 30*, 39–53.
- Durrant, J. E., Plateau, D. P., Ateah, C., Stewart-Tufescu, A., Jones, A., Ly, G., & Peters, R. D. (2014). Preventing punitive violence: preliminary data on the Positive Discipline in Everyday Parenting (PDEP) program. *Canadian Journal of Community Mental Health, 33*, 109–125.
- Eckenrode, J., Campa, M. I., Morris, P. A., Henderson, Jr, C. R., Bolger, K. E., Kitzman, H., & Olds, D. L. (2017). The prevention of child maltreatment through the Nurse Family Partnership Program: mediating effects in a long-term follow-up study. *Child Maltreatment, 22*, 92–99.
- Ellison, C. G. (1996). Conservative Protestantism and the corporal punishment of children: clarifying the issues. *Journal for the Scientific Study of Religion, 35*, 1–16.
- Feigelman, S., Dubowitz, H., Lane, W., Prescott, L., Meyer, W., Tracy, J. K., & Kim, J. (2009). Screening for harsh punishment in a pediatric primary care clinic. *Child Abuse & Neglect, 33*, 269–277.
- Flouri, E., Midouhas, E., Joshi, H., & Tzavidis, N. (2015). Emotional and behavioural resilience to multiple risk exposure in early life: the role of parenting. *European Child and Adolescent Psychiatry, 24*, 745–755.
- Gershoff, E. T., & Grogan-Kaylor, A. (2016). Spanking and child outcomes: old controversies and new meta-analyses. *Journal of Family Psychology, 30*, 453–469.
- Gershoff, E. T., Sattler, K. M. P., & Ansari, A. (2018). Strengthening causal estimates for links between spanking and children's externalizing behavior problems. *Psychological Science, 29*, 110–120.
- Giles-Sims, J., & Lockhart, C. (2005). Culturally shaped patterns of disciplining children. *Journal of Family Issues, 26*, 196–218.

- Haskett, M. E., Johnson, C. A., & Miller, J. W. (1994). Individual differences in risk of child abuse by adolescent mothers: assessment in the perinatal period. *Child Psychology and Psychiatry and Allied Disciplines*, 35, 461–476.
- Haskett, M. E., Scott, S. S., & Fann, K. D. (1995). Child Abuse Potential Inventory and parenting behavior: relationships with high-risk correlates. *Child Abuse & Neglect*, 19, 1483–1495.
- Haskett, M. E., Scott, S. S., Willoughby, M., Ahern, L., & Nears, K. (2006). The Parent Opinion Questionnaire and child vignettes for use with abusive parents: assessment of psychometric properties. *Journal of Family Violence*, 21, 137–151.
- Holden, G. W., Coleman, S., & Schmidt, K. (1995). Why 3-year-old children get spanked: parent and child determinants as reported by college-educated mothers. *Merrill-Palmer Quarterly*, 41, 431–452.
- Howard, B. J. (1996). Advising parents on discipline: what works. *Pediatrics*, 98, 809–815.
- Jackson, S., Thompson, R. A., Christiansen, E. H., Colman, R. A., Wyatt, J., Buckendahl, C. W., & Person, R. (1999). Predicting abuse-prone parental attitudes and discipline practices in a nationally representative sample. *Child Abuse & Neglect*, 23, 15–29.
- Kennedy, S. C., Kim, J. S., Tripodi, S. J., Brown, S. M., & Gowdy, G. (2016). Does parent-child interaction therapy reduce future physical abuse? A meta-analysis. *Research on Social Work Practice*, 26, 147–156.
- Kind, M. R. (2005). Parenting education in a public high school system. A primary prevention program. *Journal of Psychohistory*, 32, 344–362.
- Lansford, J. E., & Dodge, K. A. (2008). Cultural norms for adult corporal punishment of children and societal rates of endorsement and use of violence. *Parenting: Science and Practice*, 8, 257–270.
- Locke, L. M., & Prinz, R. J. (2002). Measurement of parental discipline and nurturance. *Clinical Psychology Review*, 22, 895–929.
- Luster, T., & Youatt, J. (1989). *The effects of pre-parenthood education on high school students*. East Lansing, MI: Michigan State University.
- Margolin, G., Gordis, E. B., Medina, A. M., & Oliver, P. H. (2003). The co-occurrence of husband-to-wife aggression, family-of-origin aggression, and child abuse potential in a community sample. *Journal of Interpersonal Violence*, 18, 413–440.
- Milner, J. S. (1986). *The Child Abuse Potential Inventory: Manual*. 2nd edn. Webster: Psyctec.
- Milner, J. S. (1994). Assessing physical child abuse risk: the Child Abuse Potential Inventory. *Clinical Psychology Review*, 14, 547–583.
- O’Dor, S. L., Grasso, D. J., Forbes, D., Bates, J. E., McCarthy, K. J., Wakschlag, L. S., & Briggs-Gowan, M. J. (2017). The Family Socialization Interview-Revised (FSI-R): a comprehensive assessment of parental disciplinary behaviors. *Prevention Science*, 18, 292–304.
- Palusci, V. J., Crum, P., Bliss, R., & Bavolek, S. J. (2008). Changes in parenting attitudes and knowledge among inmates and other at-risk populations after a family nurturing program. *Children and Youth Services Review*, 30, 79–89.
- Plotkin, R. (1983). *Cognitive mediation in disciplinary actions among mothers who have abused or neglected their children: Dispositional and environmental factors*. University of Rochester, NY.
- Poole, M. K., Seal, D. W., & Taylor, C. A. (2014). A systematic review of universal campaigns targeting child physical abuse prevention. *Health Education Research*, 29, 388–432.
- Porter, B., & Howe, T. (2008). Pilot evaluation of the ‘ACT Parents Raising Safe Kids’ violence prevention program. *Journal of Child & Adolescent Trauma*, 1, 193–206.
- Portney, L. G., & Watkins, M. P. (2009). *Foundations of clinical research: Applications to practice*. Upper Saddle River: Pearson & Prentice Hall.
- Querido, J. G., Warner, T. D., & Eyberg, S. M. (2002). Parenting styles and child behavior in African American families of preschool children. *Journal of Clinical Child & Adolescent Psychology*, 31, 272–277.
- Radey, M., & Randolph, K. A. (2009). Parenting sources: How do parents differ in their efforts to learn about parenting? *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, 58, 536–548.
- Rodriguez, C. M. (2003). Parental discipline and abuse potential effects on child depression, anxiety, and attributions. *Journal of Marriage and Family*, 65, 809–817.
- Rodriguez, C. M. (2010). Parent-child aggression: association with child abuse potential and parenting styles. *Violence and Victims*, 25, 728–741.
- Rodriguez, C. M. (2016). Parental discipline reactions to child noncompliance and compliance: association with parent-child aggression indicators. *Journal of Child and Family Studies*, 25, 1363–1374.
- Rodriguez, C. M., Bower-Russa, M., & Harmon, N. (2011). Assessing abuse risk beyond self-report: analog task of acceptability of parent-child aggression. *Child Abuse & Neglect*, 35, 199–209.
- Rodriguez, C. M., & Eden, A. (2008). Disciplinary style and child abuse: association with indicators of positive functioning in children with behavior problems. *Child Psychiatry and Human Development*, 39, 123–136.
- Rodriguez, C. M., Smith, T. L., & Silvia, P. J. (2016a). Multimethod prediction of physical parent-child aggression risk in expectant mothers and fathers with Social Information Processing theory. *Child Abuse & Neglect*, 51, 106–119.
- Rodriguez, C. M., Smith, T. L., & Silvia, P. J. (2016b). Parent-Child aggression risk in expectant mothers and fathers: a multimethod theoretical approach. *Journal of Child and Family Studies*, 25, 3220–3235.
- Rodriguez, C. M., Silvia, P. J., & Gaskin, R. E. (2017). Predicting maternal and paternal parent-child aggression risk: Longitudinal multimethod investigation using Social Information Processing theory. *Psychology of Violence*. <https://doi.org/10.1037/vio0000115>.
- Rodriguez, C. M., & Sutherland, D. (1999). Predictors of parents’ physical disciplinary choices. *Child Abuse & Neglect*, 23, 651–657.
- Russell, B. S., & Lincoln, C. R. (2017). Reducing hostile parenting through computer-mediated parenting education. *Children and Youth Services Review*, 73, 66–73.
- Scarr, S., Pinkerton, R., & Eisenberg, M. (1994). *Parental discipline interview manual*. Charlottesville: University of Virginia.
- Smith, A. E., Hudnut-Beumler, J., & Scholar, S. J. (2017). Can discipline education be culturally sensitive? *Maternal and Child Health Journal*, 21, 177–186.
- Straus, M. A., Hamby, S. L., Finkelhor, D., Moore, D. W., & Runyan, D. (1998). Identification of child maltreatment with the Parent-Child Conflict Tactics Scales: development and psychometric data for a national sample of American parents. *Child Abuse & Neglect*, 22, 249–270.
- Sturge-Apple, M. L., Rogge, R. D., Peltz, J. S., Suor, J. H., & Skibo, M. A. (2015). Delving beyond conscious attitudes: validation of an innovative tool for assessing parental implicit attitudes toward physical punishment. *Infant and Child Development*, 24, 240–255.
- Taylor, C. A., Manganello, J. A., Lee, S. J., & Rice, J. C. (2010). Mothers’ spanking of 3-year-old children and subsequent risk of children’s aggressive behavior. *Pediatrics*, 125, e1057–e1065.

- Taylor, C. A., McKasson, S., Hoy, G., & DeJong, W. (2017). Parents' primary professional sources of parenting advice moderate predictors of parental attitudes toward corporal punishment. *Journal of Child and Family Studies*, *26*, 652–663.
- Taylor, C. A., Moeller, W., Hamvas, L., & Rice, J. C. (2013). Parents' professional sources of advice regarding child discipline and their use of corporal punishment. *Clinical Pediatrics*, *52*, 147–155.
- Tucker, M. C., Rodriguez, C. M., & Baker, L. R. (2017). Personal and couple level risk factors: maternal and paternal parent-child aggression risk. *Child Abuse & Neglect*, *69*, 213–222.
- Zulauf, C. A., Sokolovsky, A. W., Grabell, A. S., & Olson, S. L. (2018). Early risk pathways to physical versus relational peer aggression: The interplay of externalizing behavior and corporal punishment varies by child sex. *Aggressive Behavior*. <https://doi.org/10.1002/ab.21744>.