

The Roles of Child Temperament and Parenting in Predicting Child Compliance During
Toddlerhood

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Abstract

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Biru Zhou

Distinctive forms of child compliance, child temperament and parenting styles (i.e., autonomy supportive parenting and power assertive parenting) were examined in two contexts: the parental request context and the prohibition context. Sixty-seven parent-child dyads participated in this two year longitudinal study. Children first participated while they were two-years-old (Wave 1), and participated again one year later (Wave 2). Autonomy supportive parenting was positively associated with wholehearted committed compliance by the child during the request context at both Wave 1 and 2. Parental use of power assertion was negatively related to committed compliance by the child at Wave 1 and 2 in both the request and prohibition contexts. Moderate to large effect sizes were found for power assertion across contexts, highlighting its influential effect on child compliance. The interactions between power assertion and both aspects of child temperament in the two contexts further demonstrated the evidence that power assertion has a detrimental effect on child committed compliance.

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The Roles of Child Temperament and Parenting in Predicting Child Compliance During Toddlerhood

Child temperament and parental socialization are considered the important contributors towards the development of internalization of rules (Derryberry & Reed, 1994; Kochanska, 1997; Kochanska & Aksan, 1995). Young children's emerging ability to comply with parental demands is an important hallmark of internalization, a precursor of children's self-regulating abilities and a significant predictor of subsequent conscience (Kochanska, Aksan & Koenig, 1995; Kochanska & Aksan, 2006; Kochanska, Coy & Murray, 2001; Maccoby, 2007; Maccoby & Martin, 1983). Kochanska's (1993) framework of early conscience development presents two components: "a child's affective discomfort occasioned by an actual or potential wrongdoing, and the capacity for behavioural control in situation where standards of conduct apply" (p. 325). Kochanska proposes that the mere experience of discomfort and anxiety associated with wrongdoing is necessary but not sufficient for the development of conscience in young children. In the second year of life, the emergence of behavioural control coincides with parental expectations that a child will start exercising it and will eventually follow parental demands and prohibitions. The overt manifestation of such behavioural control is in fact the child's compliance with parental standards (Kochanska, 1993). As a result, it is essential to study children very early in life in order to capture the determinants of child compliance.

According to Gralinski and Kopp (1993), child compliance reflects children's ability to observe, initiate and maintain behaviours that conform to parental demands and requests on the one hand (e.g., cleaning up), and to cease or suppress other more desirable behaviours on the other (e.g., playing with toys). It is not difficult for most

parents to get their children to comply as long as the incentive is big enough (Grolnick, 2003). Instead, the challenge is for researchers to understand how and why some children comply with the parental agenda very early in life even without situational incentives. The significance of child compliance in socialization processes has been long appreciated by numerous researchers (e.g., Blandon & Volling, 2008; Gralinski & Kopp, 1993; Kochanska & Aksan, 1995; Kochanska, Aksan & Koenig, 1995). Research on child compliance indicates that gentle parenting practices deemphasizing the usage of parental power are associated with child wholehearted compliance and assertive parenting is associated with child halfhearted compliance and noncompliance (Blandon & Volling, 2008; Kochanska, 1997; Kochanska & Aksan, 1995). The moderating effect of two parenting styles (i.e., autonomy supportive parenting and power assertive parenting) in achieving child compliance in different contexts (e.g., the request vs. the prohibition context) has not yet been studied thoroughly. In addition, child temperament is another key factor that should also be considered for a better understanding of child compliance (Kochanska, 1997; Kochanska, Aksan & Carlson, 2005). The primary goal of this study is to explore the relations between parenting styles and child compliance in different contexts, as well as the moderating effect of child temperament on the relation between parenting styles and compliance.

Compliance

Kochanska and her colleagues have been investigating different forms of compliance since the early 1990s (Kochanska & Aksan, 1995; Kochanska, Aksan & Koenig, 1995; Kochanska, 1997; Kochanska, 2002; Kuczynski & Kochanska, 1990). They identified two forms of compliance: committed compliance (CC) and situational

compliance (SC). Committed compliance occurs when children comply with a sense of internal commitment to and with full endorsement of the parental agenda as their own. Situational compliance in contrast occurs when children comply without opposition but only halfheartedly, in a way that can be maintained only by parental control and reminders. These two forms of compliance have very different developmental outcomes for young children. Committed, but not situational compliance, has been found to predict internalization of adult rules during toddlerhood and preschool years (Kochanska & Aksan, 2006; Kochanska, Aksan & Koenig, 1995). However, situational compliance during toddlerhood was not related to internalization.

Different forms of child compliance are often assessed in two contexts developed by Kochanska and Aksan (1995). In one context, the “Do” context (also known as the request context), parents are asked to assign a toy clean-up task to the child. In the other context, the “Don’t” context (also known as the prohibition context), parents are asked to prohibit the child from touching attractive toys on the “temptation shelf” throughout each laboratory visit. Parental requests and prohibitions are assessed separately in these two contexts.

Kochanska and her colleagues have consistently reported distinct qualitative and quantitative differences of child compliance in the “Do” versus the “Don’t” context (Kochanska & Aksan, 1995; Kochanska et al., 1995; Kochanska, 1997; Kochanska, 2002). Toddlers are more likely to comply during the “Don’t” context than in the “Do” context, with more committed compliance in the “Don’t” context and more half-hearted situational compliance in the “Do” context. In other words, the “Do” task poses a particular challenge for young children. To explain this issue, Kochanska and Aksan

(1995) argued that, based on human ecological development, parents might enforce prohibition earlier than request. As a result, children tend to internalize parental prohibitions earlier than parental requests. Gralinski and Kopp (1993) found that mothers tended to prohibit children from dangerous objects or activities (e.g., not touching the stove or keeping away from grandma's glass collection) as early as 13 months of age. Making requests for manners (e.g., saying "please") or family routines (e.g., putting toys away) were not enforced as often as prohibitions at this age. Perhaps because everyday parental prohibitions mostly concern children's safety issues, enforcement is more consistent and begins earlier. For example, parents might be very firm on young children not going close to the stove but be relatively relaxed about their children not saying "Thank you" after every meal. Given that parenting is situational-based in terms of making requests and prohibitions, it is beneficial to examine child compliance in the "Do" and "Don't" contexts separately. Doing so will allow us to better understand the factors contributing to the particular regulatory challenge found in the "Do" clean up task.

Temperament

In addition to the situational differences of the display of child compliance found in the "Do" and the "Don't" contexts, researchers have also examined individual differences in children's compliance during parent-child interactions. Temperamental characteristics play important roles in children's social development and adjustment (Bates, 1989; Lengua & Kovacs, 2005; Priori, 1992) and there are numerous ways to define temperament. In one influential approach, temperament is defined as constitutionally based individual differences in emotional, motor, and attentional

reactivity and self-regulation (Rothbart & Bates, 1998). Three different domains of temperament – positive emotionality, negative emotionality and effortful control – have been widely studied in developmental psychology (Posner & Rothbart, 2007, for a review). Negative emotionality (also termed difficult temperament or distress-proneness) at a young age includes low adaptability, negative emotion, withdrawal and intensity of negative responding. It is predictive of noncompliance (Lehman, Steier, Guidash & Wanna, 2002) and externalizing difficulties in toddlers (Calkins, 2002; Rubin, Hastings, Chen, Stewart, & McNichol, 1998). Although negative emotions often fall into the same domain of temperament and personality, fear and frustration have unique impact on child adjustment problems (Rothbart & Putnam, 2002). The two scales of child fearfulness and frustration, which both belong to the same temperamental domain — negative emotionality — are differentially associated with internalizing problems and externalizing problems respectively (Rothbart & Putman, 2002). Biederman et al.'s (2001) study on child temperament and adjustment problems found that toddler's fearfulness predicted internalizing problems in childhood. Infant frustration, in contrast, was positively related to aggression seven years later (Rothbart, Derryberry & Hershey, 2000).

Majdandzic and Van den Boom (2007) examined the consistency of temperament across situations and time in four-year-olds using both observational and questionnaire measures. Their results indicated that negative emotionality dimensions, including fear, anger and sadness, had the lowest convergence across dimensions compared with positive emotionality and self-regulation. The researchers argued that some emotions are expressed more than others across situations. The low internal consistency of negative

emotionality might suggest that fearfulness, anger and sadness involve different response channels. Similar findings were supported by neuroscientists; for example, in Gray and McNaughton's (2000) model, the Fight-Flight-Freezing System (FFFS) is activated while encountering novelty, high-stimulation, and evolutionarily prepared fears. Fear responses in the brain circuits involving FFFS include activation of the periaqueductal grey, but different neural networks are activated in response to frustration – the posterior cingulate and the septo-hippocampal system. Thus, fear and frustration responses, which operate through different brain circuits, might have different effects on child compliance.

Therefore, the first goal of the current study would be to examine the different effects of fearfulness and frustration on child compliance. Consistent with previous research on child fearfulness (Kochanska, Coy & Murray, 2001), we hypothesized that fearfulness in toddlers would predict child compliance at age three. Child frustration at age two would be associated with child noncompliance at age three.

Temperament and Parenting

Children's fearfulness is one of the well established temperamental qualities that are associated with child compliance (Kochanska, 1997; Lehman et al., 2002). Fearful children are more likely to be compliant during parent-child interactions in the "Don't" context because fearful children tend to respond to actual or potential wrongdoings with spontaneous anxious arousal and internal discomfort. Gentle parental discipline practices, deemphasizing power, could capitalize on such internal discomfort to foster compliance in fearful children. Compared to fearful temperament, frustration-prone temperament has received little attention in relation to child compliance. Kochanska, Aksan and Carlson (2005) investigated mother-child relations for infants who were highly anger prone. Their

results revealed that not only were anger-prone infants less likely to cooperate with their mothers, they were also less likely to receive responsive parenting at seven months of age. However, infant anger proneness per se did not predict their receptive cooperation with the mothers during toddlerhood. Although the above study emphasized that parent-child relations were in fact systematically related to child compliance, the measure of compliance in the above study was only based on the “Do” task. As a result, it is still unknown whether anger prone children would react differently in the “Don’t” task.

Studies examining the influence of parenting on child temperament and compliance indicate that the relation between child temperament and compliance is in fact associated, either directly or indirectly, through the impact of parenting practices (Bates & Pettit, 2007; Owens & Shaw, 2003). Some suggest that positive, warm and responsive parenting practices could buffer the negative effects of negative emotionality (Bates & Pettit, 2007; Lengua et al., 2000). Other research shows that shared positive affect between parents and their children predicts child compliance for both fearful and fearless children (Kochanska & Aksan, 1995). There is also evidence that parents’ use of gentle control, rather than harsh controlling parenting, may promote conscience for highly fearful children, but not for fearless children (Kochanska, 1991). Kochanska (1997) replicated this result and extended her research on examining the effect of maternal responsiveness on child compliance. She found that maternal gentle discipline practices for fearful children could in fact promote conscience (committed compliance is the precursor of conscience) at age four. Different from fearful toddlers, fearless toddlers were often insufficiently aroused by maternal gentle discipline, and they might not even attend to parental requests and demands. Nevertheless, maternal responsiveness and

secure attachment were found to promote conscience for fearless children at age four and five.

During the course of everyday parent-child interactions, children with negative emotionality might be more likely to elicit negative parental control (Brody & Ge, 2001). Children with negative emotionality are more difficult to soothe and have more difficulties regulating their emotions. As children age, their negative emotionality becomes less tolerable by their parents due to parental expectations and social cultural pressures (Bates & Petit, 2007). As a result, all these problematic behaviours associated with negative emotionality may create many challenges for parents to deal with on a day-to-day basis. It may disrupt the everyday socialization of the child, which in turn reinforces and exacerbates later parent-child conflicts. There are reasons to believe that fearful children who are more compliant (Kochanska, Coy & Murray, 2001) are easier to discipline. Nevertheless, parental discipline practices might be very different for irritated and frustrated children. Research on parental reactions to child temperament suggests that irritability/frustration might relate differently to parental reactions, compared to dispositional anxiousness (similar to fearfulness; Eisenberg et al., 1999). Parental punitive reactions were associated with children's externalizing emotions (e.g., frustration), but not with children's internalizing emotions (e.g, fear). However, a recent meta-analysis investigating the effect of parenting on childhood anxiety suggests otherwise. Both parental control (characterized by excessive parental regulation of children's activity and routines, and encouragement of dependence on parents) and parental rejection (characterized by coldness, disapproval and unresponsiveness) were associated with childhood anxiety (McLeod, Wood & Weisz, 2007). Moreover, high

level of autonomy-granting parenting was found to relate to low levels of childhood anxiety. In sum, child fearfulness and frustration interact with different parenting styles (e.g., parental control, rejection or autonomy-granting parenting) in very different manners, leading to internalizing and externalizing problems. Thus, child fearfulness and frustration temperament was examined separately for their respective influence on child compliance.

Power assertive parenting. There is a large body of research on parent-child relations and child rearing behaviours with respect to child development (Maccoby & Martin, 1983). Scholars have suggested that the best socialized children are the ones who are friendly and cooperative. Moreover, these children also tend to have parents who are warm, give guidelines, allow a certain degree of autonomy, provide reasons for disciplinary practices and communicate clear expectations (Grusec, 1997). Power assertion, the most studied technique of parental control, is characterized by the parents' use of power to achieve obedience in children (Bates & Pettit, 2007; Grolnick & Ryan, 1989; Grusec, 1997; Grusec & Davidov, 2007). Research has consistently found that parental power assertion is detrimental for children's development of conscience (Kochanska, 1993; Kochanska & Thompson, 1997) and for school adjustment (Grolnick & Ryan, 1989).

According to Self-Determination Theory (Deci & Ryan, 2008, for a review; Joussemet, Landry & Koestner, 2008), children who have power assertive parents might understand and follow parental values with parental surveillance but might not internalize and incorporate such values within the self (Grolnick, 2000). In the case of compliance under parental control, the child might behaviourally comply with the concurrent agenda

but not wholeheartedly internalize such values as his or her own. This is very similar to Kochanska's definition of situational compliance, where young children only comply with parents halfheartedly and need frequent reminders in order to stay on task. Studies have found that parental use of power assertion for two- to three-year-old children is predictive of child noncompliance at age four (Kochanska & Aksan, 1995; Kochanska, 1997). Furthermore, as discussed earlier, parents tend to socialize their children in prohibitions (i.e., similar to the "Don't context") earlier than in making requests (i.e., similar to the "Do context"; Gralinski & Kopp, 1993). Even though power assertion is detrimental for promoting child committed compliance and later internalization of parental standards (Kochanska & Aksan, 1995), the temporal effect of obedience from power assertion might be important in an everyday situation where parents have to prevent the child from danger, and may explain in part, why parents employ it, despite its well-known negative effects.

Autonomy support. While power assertion is generally considered detrimental to child development, autonomy support has more positive effects on child compliance, competence and school adjustment (Grolnick, 2003; Joussemet, Koestner, Lokes & Landry, 2005; Lengua & Covacs, 2005; Ng, Kenney-Benson & Pomerantz, 2004). According to Self-Determination Theory, autonomy support is operationally defined as the "parental values and techniques that encourage choice, self-initiation and participation in making decisions" (Grolnick, Deci & Ryan, 1997, p. 148). To our knowledge, however, the effect of parental autonomy support on compliance for children who are frustration prone awaits investigation.

Although power assertive and autonomy supportive parenting appear to be contrasting parenting styles, parents frequently use both styles depending on the situation (Grusec & Davidov, 2007). Baumrind (1967) and Hoffman (1983) have argued that modest amounts of power assertion combined with egalitarianism might facilitate children's acquisition of values. Baumrind (1983) also argued that authoritative parents (i.e., parents demonstrates both high demandingness and high responsiveness) do use a magnitude of control to obtain behavioral compliance. Parental firm control alone in the absence of parental warmth and reasoning might not linearly related to internalization. In Crokenberg and Litman's (1990) study, they found that the strategy of combining control with guidance was the most likely to elicit compliance for toddlers. Thus, combining power assertive and autonomy supportive parenting might be an effective parenting strategy in obtaining child compliance.

In light of socialization goals, parents have different goals and use different parenting strategies in different situations (Hastings & Grusec, 1998). For children with different temperaments (i.e., fearfulness vs. frustration), parents might employ very different strategies during parent-child interactions in different situations (e.g., making a request to clean up or prohibiting the child from touching attractive toys). Nevertheless, positive parenting has received far less research attention than negative parenting. Previous studies show that parental autonomy support is associated with toddlers' internalization and preschoolers' school adjustment (Joussemet, Landry & Koestner, 2008, for a review). In order to promote child compliance in different contexts during toddlerhood, the importance of autonomy supportive parenting was explored in relation to child temperament. In the current study, we examined different parenting styles (power

assertion vs. autonomy support) in different situations (“Do” task and “Don’t” task) for children with fearful temperament and who are frustration prone.

The Current Study

Autonomy support parenting was predicted to be associated with committed compliance in the “Do” task, while power assertive parenting would be associated with situational compliance in both “Do” and “Don’t” tasks. The interaction between autonomy supportive parenting and power assertive parenting would be associated with committed compliance. Specifically, high autonomy supportive parenting and high power assertive parenting would be associated with high committed compliance in the “Do” context.

Interactions between child temperament and parenting styles are also important in the current study. Consistent with previous studies (Kochanska, 1997; Kochanska, Aksan & Carlson, 2005), we predicted that child temperament would moderate the effects of parenting styles on child compliance at ages two and three. Specifically, high autonomy supportive parenting during the “Do” task was expected to predict committed compliance for fearful children at age two and three. Autonomy supportive parenting would be related to noncompliance for fearless children at ages two and three. Autonomy supportive parenting would be positively associated with committed compliance if child has a low level of frustration; it would be negatively associated with committed compliance and positively related to noncompliance if the child has a high level of frustration.

This study also investigated power assertive parenting in relation to child temperament in different contexts. In both the “Do” and the “Don’t” context, power

assertive parenting was expected to be positively associated with situational compliance for fearful children at ages two and three. For fearless children, power assertive parenting was hypothesized to be associated with situational compliance at age two and three, and noncompliance at age three in the “Don’t” context. In the “Don’t” context only, child frustration was expected to show a negative association with committed compliance and a positive association with noncompliance, if the use of power assertive parenting was high at ages two and three.

Method

Participants

This study is part of a larger investigation of children’s collaborative learning. Parent-child dyads were recruited from the Montreal area through newspaper advertisements, flyers, daycare postings, and birth lists. One hundred and nine two-year-old children ($M = 26.40$ months, $SD = 1.73$ months, 57 boys) and their primary caregivers participated in our study. There are two Waves in this study. In Wave 1 (i.e., children at age two), participants attended two laboratory visits approximately one to two weeks apart. One year later, participants from Wave 1 were invited to the laboratory again to attend two visits scheduled one to two weeks apart. Eighty-five parent-child dyads from Wave 1 returned for the Wave 2 laboratory visits, when children turned age three. All activities took place in one of the two laboratory rooms: one room was decorated as if a common living room; and the other room was designed as a play room, where free-play, clean-up and game related activities took place. All activities during the visits were videotaped.

Due to camera recording problems, incomplete questionnaires and participant attrition (e.g., too busy to participate), the final sample consisted of sixty-seven parent-

child dyads (i.e., 39 boys and 28 girls) with completed data in all measures in both waves for analyses. All parents in the final sample primarily spoke either English (64%) or French at home and the majority of the caregivers were mothers (93%). The sample included participants who were predominantly from white European (72%) backgrounds, but also included parent-child dyads that have Hispanic (1%), Asian (3%) or mixed cultural (24%) backgrounds. Participating families covered a diverse range of economic backgrounds: 9% of the families below \$25,000, 21% between \$25,000 - \$50,000, 27% between \$50,000 - \$75,000, 27% between \$75,000 - \$100,000 and 16% above \$100,000.

Attrition analyses showed no significant difference on any measures between participants who were included in the final sample versus who were not, with the exception of power assertion in the “Don’t” context at Wave 1. Participants who were not included in the final sample (mean = .54) for analyses scored higher in the power assertion measure than the ones included in the final sample (mean = .40), $t(107) = 2.35$, $p < .01$.

Procedure

Children and their primary caregivers were invited to the laboratory for two testing sessions one to two weeks apart at each wave. Each session lasted about 60 to 90 minutes. Upon arrival, parents were asked to read and sign a consent form outlining the purpose and the activities of the study. Parent-child interactions then were videotaped and later coded for analyses. After each session, the child was given a small gift (e.g., a colouring book) and the parent was given \$20 for completing each visit. Each laboratory visit comprised a clean-up task (“Do” task) and parental prohibition from touching the toy shelf (“Don’t” task), as well as other activities that were not the focus of the current

investigation (see Appendix A for full scripts of the laboratory visits). There was a “Do” task and a “Don’t” task at both Wave 1 and 2. The procedures and instructions for the “Do” and the “Don’t” tasks were identical at both waves.

Child Compliance/Noncompliance

Kochanska’s child compliance measure was used in our study (Kochanska & Aksan, 1995). The two contexts of the measure were coded separately. In the “Do” context, following a free-play period with a set of toys, parent-child dyads were given seven minutes to clean up the toys in the play room. The parents were instructed to request the child to clean up some toys on the ground and do it as if they were at home.

In the “Don’t” context, compliance was assessed regarding the “temptation shelf” full of attractive toys. The “temptation shelf” was located in the living room. Before the experiment started, experimenters asked the parent to prohibit the child from touching anything on the shelf during the entire visit. The parent was instructed to convey this prohibition once they entered the living room. The parent was also told to reinforce this prohibition as they would when they didn’t want the child to do something at home. The “Don’t” task was coded every time when the parent-child dyads were in the living room.

Compliance Coding. In the “Do” context, the child’s behaviours regarding the clean up task were coded every 30 seconds. In the “Don’t” context, any behaviours regarding the “temptation shelf” (e.g., talking about the toys or looking at the “temptation shelf”) were identified and coded for the subsequent 30 seconds each time it occurred. Six mutually exclusive child compliance codes reflecting qualitatively different forms of acceptance of parental agenda were identified during both the “Do” context and “Don’t” context:

(1) Committed compliance was coded in the “Do” context while the child eagerly picked up the toys and put them in a box. The parental request for clean-up is treated by the child as if it were the child’s own agenda. In the “Don’t” context, committed compliance was coded when the child looked at the toys, or gently touched the prohibited toys less than 2 seconds and immediately followed by self correction, such as moving away from the temptation table.

(2) Situational compliance was coded in the “Do” context when the child cooperated but not wholeheartedly. Without parental reminders, the child frequently ceased the clean up task and directed his or her attention towards playing. In the “Don’t” context, the child appeared to be cooperating, but required frequent parental reminders.

(3) In both “Do” and “Don’t” contexts, Passive noncompliance was coded when the child “played” deaf and ignored the parental requests and prohibitions.

(4) Overt resistance was coded when the child argued about the directives and attempted to resist the parental requests and prohibitions in both contexts.

(5) Defiance was coded while the child resisted the parental directives with anger, frustration or any signs of negative affect in both contexts.

(6) Time out was coded in both the “Do” and the “Don’t” contexts when the parent granted the child to be off task (e.g., playing instead of cleaning up) for more than 15 seconds.

Reliability. A team of research assistants were trained on the coding scheme and coded child compliance in “Do” context for Wave 1 cases. Two other staff were trained on the coding scheme and coded all the cases from Wave 1 for the “Don’t” task. A separate team of trained staff coded both “Do” and “Don’t” contexts for Wave 2 cases.

Twenty-one cases at Wave 1 and twenty cases at Wave 2 were randomly selected for calculating Cohen's Kappa for the "Do" and the "Don't" contexts. Approximately half of the reliability cases were selected from visit 1 and the other half reliability cases were from visit 2 at each wave. All Cohen's Kappas were above .75 (see Table 1).

Data aggregation. Since the specific forms of noncompliance were not of interest in this study, all codes associated with noncompliance (i.e., passive noncompliance, overt resistance and defiance) were added to form an overall score of noncompliance. At Wave 1, all compliance variables were significantly consistent across the two visits and so scores were averaged across the two visits for each context. The same was true for Wave 2. In short, the measure of child compliance comprised of CC, SC and noncompliance scores in both the "Do" and the "Don't" contexts at Wave 1 and 2.

Autonomy Support Measures

A coding system, derived from Self-Determination Theory (Frodi, Bridges, & Grolnick, 1985; Grolnick & Ryan, 1989), was used to assess autonomy support at Wave 1 (2-year-old) and Wave 2 (3-year-old). This coding system was coded during the clean up task (the "Do" context) whereby each behavioural code was marked as being present or absent in each 30-second segment. Eight aspects of parental behaviours and a verbal enthusiasm score were examined. These behaviours were coded as follows: Positive Feedback (informational feedback about the task being done, not the child); Suggestion (parent asked indirectly, rather than telling the child to (not to) perform action, e.g., "Can you cleanup?"); Model (parent demonstrated to the child how to perform the task); Sing a Song (sing any song related to cleaning up); Reason (parent gave rationale for doing the task); Reflect (parent showed empathy or was able to take the child's frame of reference

in his or her desires to continue playing); Choice Provision (parent encouraged the child to make choices or incorporate his/her input regarding the manner in which the task was achieved); Structure (parent gave structure on activity/task or reframed rules, including step-by step instructions on how to perform and reminding the child that there were set times for different activities); Make it Fun (any attempt to make the task fun, including making the task a game, silly noises, etc.). The verbal enthusiasm is the global rating for how enthusiastic the parent appears to be during the entire “Do” context varied from 1 (no enthusiasm) to 5 (Highly enthusiastic). Two trained staff coded both Wave 1 and 2 cases for this measure.

Reliability. Across sixteen cases randomly selected from Wave 1 and Wave 2 during the “Do” task for reliability calculation, there were only seven items (i.e., Positive Feedback, Suggestion, Model, Sing a Song, Reflect, Reason and Make it Fun) that reached a satisfactory Intra Class Correlation (i.e., $ICC > .80$). Principal component analyses were conducted in both Wave 1 and 2 using these seven items. In both waves, Reflect and Make it fun had factor loadings lower than .30. Hence, using only the first factor extracted from the analysis (Eigenvalue= 1.50 with factor loadings ranging from .30 to .78 at Wave 1; Eigenvalue = 1.44 with factor loadings ranging from .35 to .68 at Wave 2), the final measure of autonomy support from parents was the presence of the following items during the “Do” task: Positive Feedback, Reason, Suggestion, Model, and Sing a song.

Data aggregation. Even though the internal consistency was low for the measure of autonomy supportive parenting (i.e., Cronbach’s alpha was .40 at Wave 1 and .06 at Wave 2), it was analyzed in the current study as originally planned. Similar to the

conceptualization of attachment (Srouf & Waters, 1977), autonomy supportive parenting was viewed as an organizational construct not a static trait in this study. The five items above have important meanings in the conceptualization of autonomy supportive parenting based on the Self-Determination Theory (Joussemet, Koestner, Lokes & Landry, 2005). Therefore, the validity of this construct may not rest upon the high intercorrelations among items from a random sample of cases. Rather, the interactions between items might enable future studies to better understand the function and usage of autonomy supportive parenting. However, examining the influence of individual items on child compliance would be beyond the scope of this study. For both theoretical and practical reasons, autonomy supportive parenting measure was indexed by the frequency of the five items given the time spent during the “Do” context across two visits at each wave. Since the autonomy supportive parenting measure was consistent for the two visits at each wave, the scores for autonomy supportive parenting were averaged across the visits at both Wave 1 and Wave 2.

Power Assertion

This coding system examines power assertive parental behaviours that have been used in previous examinations of maternal behaviours with preschool-age children during clean-up and other procedures (Rubin & Cheah, 2000). This coding system was coded in both the “Do” and the “Don’t” tasks. The behaviours were coded as follows: Control (parent controls child behaviour in a non-forceful, yet matter-of-fact and assertive manner, typically involving strong directives with a total quality reflecting a hint of impatience or mild irritation, but not anger); Threaten/Punish (parent suggested negative outcome if child did not help, e.g., "Do you need a time-out", "If you don't do this now

you can't play later", "ok, no treat for you"); Physical Force (each time the parent held the child's hand/arm or held down as a way to make him/her cleanup). This coding scheme also included codes for Verbal Negativity, Parental Emotion, Personal Praise and Bribing/Bargaining, which were not under investigation in the current study due to their low ICC scores (i.e., $ICC < .80$).

Reliability. A team of trained staff coded all Wave 1 cases with ICC scores for all items greater than .80 across twelve cases. A separate team of coders were trained on the coding scheme and coded all Wave 2 cases with ICC scores also greater than .80 across fifteen cases (see Table 1). Principal component analysis was also conducted. The Eigenvalue in the first factor extracted was 1.44 in the “Do” context and 1.71 in the “Don’t” context at Wave 1. All factor loadings for the three items in the first factor extracted ranged from .61 to .79 across contexts at Wave 1. For Wave 2, the Eigenvalue in the first factor extracted was 1.55 in the “Do” context and 1.93 in the “Don’t” context. All factor loadings ranged from .55 to .84 across contexts.

Data aggregation. Internal consistency reached a satisfactory level (i.e., Cronbach’s alpha ranged from .60 to .83 across contexts and waves). The power assertive parenting measure was then indexed by the frequency of the three items given the time spent during the “Do” or the “Don’t” context across two visits at each wave. Since the power assertive parenting measure was consistent for the two visits at each wave, the scores for power assertive parenting were averaged across the visits at both Wave 1 and Wave 2.

Temperament Measures

Children's fearfulness and frustration were assessed from parental reports on the Early Childhood Behavioural Questionnaire (ECBQ; Putman, Gartstein & Rothbart, 2006). There are eleven items for measuring child fearfulness in ECBQ. For example, "During everyday activities, how often did your child startle at loud noises (such as a fire engine siren)?" There are eight items for assessing child frustration in ECBQ. One of the items is "When told that it was time for bed or a nap, how often did your child get irritable?" Parents were then asked to circle the child's behaviours on a seven point scale ranging from 1 = never to 7 = always. A "Not applicable" option was also included in the rating scale. Principal component analyses were performed for both the fearfulness and frustration items separately in Wave 1 and Wave 2. Item selections were based on the first factor extracted from the analyses with Eigenvalue greater than 1. For fearfulness, three items' factor loadings in the first factor were lower than .30. Hence, these three items were excluded from the fearfulness measure. New composite scores for fearfulness were created using the remaining eight items. At Wave 1, the eight fearfulness items together accounted for about 35% of the variance, compared to 28% of the variance that was accounted for by the original eleven items. At Wave 2, about 38% of the variance was accounted for by the eight items, while the original eleven items accounted for about 30% of the variance. Factor loadings for all frustration items were higher than .30. No items were deleted from the frustration measure. Specific items for fearfulness and frustration are included in Appendix B.

Results

Overview

The analyses encompassed several steps. First, we examined the parenting effects on child compliance in different contexts. Next, child temperament would be analyzed separately across contexts. Interactions between parenting styles and child temperament in different contexts were also explored. In the final step of the analyses, longitudinal effects were examined to test changes in compliance over time. Table 2 presents the descriptive statistics for all variables.

Preliminary Analyses

Age. Pearson correlations between child age at both waves and the measures of compliance and parenting styles indicated that testing age at Wave 1 was only correlated with Wave 1 autonomy supportive parenting during the “Do” context ($r = -.23, p < .05$). Testing age at Wave 2 was correlated with Wave 2 CC ($r = -.32, p < .05$), noncompliance ($r = .28, p < .05$) and power assertion ($r = .26, p < .05$) during the “Don’t” context. Hence, in the subsequent analyses of the “Do” context, age would be entered as a control variable for analyses involving autonomy supportive parenting at Wave 1, and for all the analyses in the “Don’t” context at Wave 2.

Gender. In a multivariate analysis of variance (MANOVA), gender was used as the between-subject factor. Parenting styles (i.e., autonomy supportive parenting and power assertive parenting) in both “Do” and “Don’t” contexts, Child temperament (i.e., fearfulness and frustration) in both Wave 1 and Wave 2, forms of compliance (i.e., CC, SC and noncompliance) were entered as dependent variables in the analysis. The multivariate effect of gender was not significant, $F(22, 44) = 1.45, n.s.$. The univariate effect of gender was significant for SC in the “Don’t” context at Wave 1, $F(1, 65) = 11.99, p < .01$. Boys ($M = .30, SD = .17$) were more likely to show situational compliance

during the prohibition context at age two than girls ($M = .15$, $SD = .19$). There was a significant gender difference in autonomy supportive parenting during the “Do” context at Wave 1, $F(1, 65) = 6.40$, $p < .05$. Parents tended to provide more autonomy supportive parenting toward girls ($M = 1.73$, $SD = .41$) than boys ($M = 1.47$, $SD = .43$). The univariate effects of gender were also significant for power assertive parenting in the “Don’t” context at both Wave 1, $F(1, 65) = 11.02$, $p < .01$, and Wave 2, $F(1, 65) = 5.12$, $p < .05$. Power assertive parenting was used more often by parents of boys ($M = .69$, $SD = .23$ in Wave 1; $M = .51$, $SD = .25$ in Wave 2) than parents of girls ($M = .49$, $SD = .26$ in Wave 1; $M = .38$, $SD = .21$ in Wave 2). No other univariate effect of gender was significant. Gender would be entered as a control variable for analyses regarding autonomy supportive parenting in the “Do” context at Wave 1 and for power assertive parenting analyses during the “Don’t” context at both Wave 1 and Wave 2.

Relations between Parenting Styles and Child Compliance

Autonomy supportive parenting and child compliance. All variables were standardized in the analyses. Pearson correlations and partial correlations were conducted to examine the relation between autonomy supportive parenting and different types of compliance at Wave 1 and 2 (see Table 3). Partial correlations revealed that Wave 1 autonomy supportive parenting was related to Wave 2 CC, SC and noncompliance (see Table 4) after controlling for Wave 1 compliance levels respectively.

Power Assertive Parenting and Child Compliance. In the “Do” context at Wave 1 (see Table 3), as expected, power assertion was negatively associated with committed compliance (CC), but positively related to child noncompliance. Partial correlations showed that Wave 1 power assertion did not show any association with the three types of

Wave 2 compliance measures after controlling for the Wave 1 compliance measures (see Table 4).

Similar patterns of relations between power assertive parenting and child compliance in the “Don’t” task emerged at Wave 1 (see Table 5). Pearson correlations showed that Wave 1 power assertion was negatively associated with Wave 1 CC and was positively associated with Wave 1 SC and noncompliance. Partial correlations indicated that Wave 1 power assertion was related to Wave 2 SC after controlling for Wave 1 SC (see Table 4). No other significant results were obtained.

Not only were we interested in the effects of two parenting styles separately on child compliance, we were also interested in the additive interaction effect of the two parenting styles on child compliance. Pearson correlations indicated that autonomy supportive parenting and power assertion were not related significantly at either wave. We expected that a positive interaction between autonomy supportive parenting (AS) and power assertive parenting (PA) would yield high levels of committed compliance in toddlers. Therefore, analyses regarding the interaction between autonomy supportive parenting and power assertive parenting were conducted using Hierarchical Linear Regression Analysis. Since we only obtained autonomy supportive parenting data in the “Do” context, the analyses were only conducted in the “Do” context. All predictors were standardized before the analyses. Age and gender were entered in Step 1 as control variables. Autonomy supportive parenting and power assertion were entered as Step 2 predictors; in Step 3, the AS by PA interaction was entered for the analysis. The interaction between autonomy supportive parenting and power assertion was not statistically significant for any of the three Wave 1 compliance variables

Similar results were obtained for Wave 2 analyses. During the Wave 2 analyses, Age, gender and Wave 1 compliance (CC, SC and Noncompliance) were entered as the Step 1 control variables. Wave 1 power assertion and autonomy support in the “Do” context were entered as Step 2 predictors. The interaction term was entered in Step 3. The interaction between autonomy supportive parenting and power assertion at Wave 1 was not statistically significant for all three Wave 2 compliance variables, after controlling for Wave 1 compliance measures. In conclusion, the interaction between power assertive parenting and autonomy supportive parenting did not demonstrate any significant effect on committed compliance, situational compliance or child noncompliance at either Wave 1 or Wave 2. Regression coefficients regarding the interaction between power assertive parenting and autonomy supportive parenting are presented in Appendix C Table I for Wave 1 and Appendix C Table II for Wave 2.

General Analyses of Temperament

According to Pearson correlations, as depicted in Table 3, Wave 1 temperament measures were related to Wave 2 temperament measures. No associations between fearfulness and frustration were significant at both waves. In order to determine the general relations between temperament and child compliance, combined scores of the “Do” and the “Don’t” context were calculated for committed compliance, situational compliance and noncompliance. Fearfulness assessed at Wave 1 was positively correlated with the combined scores of committed compliance at Wave 1, but not at Wave 2 as shown in Table 6. Frustration assessed at Wave 2 was positively related to noncompliance at Wave 2, but not at Wave 1. No other correlations were significant. The

relations between child temperament and compliance measures within each context were also examined using Pearson correlations in Table 3.

Analyses of the Interaction between Parenting and Temperament on Compliance

The analyses for interactions between temperament and different parenting styles were conducted in the following order: 1) fearfulness by autonomy supportive parenting, and then frustration by autonomy supportive parenting were examined during the “Do” context at Wave 1 first, followed by analyses at Wave 2; 2) fearfulness by power assertive parenting, and then frustration by power assertive parenting were examined during the “Do” context at Wave 1, also followed by analyses at Wave 2 in the same context; 3) fearfulness by power assertive parenting, and then frustration by power assertive parenting were examined during the “Don’t” context at Wave 1, followed by analyses at Wave 2 in the same context.

Interactions between autonomy supportive parenting and temperament.

Hierarchical Linear Regression analyses were used to test the effects of interactions between parenting styles and child temperament on different types of child compliance at Wave 1 and 2. All predictors were standardized. Autonomy supportive parenting in the “Do” context was first examined in our analyses. At Wave 1, child age at Wave 1 and gender were entered as Step 1 control variables. Wave 1 autonomy supportive parenting and child temperament (i.e., Fearfulness or Frustration) were entered as Step 2 predictors. The interactions between autonomy supportive parenting and fearfulness and between autonomy supportive parenting and frustration were entered separately in the analyses in predicting CC, SC and noncompliance. There were no significant results.

In order to test the effect of Wave 1 autonomy supportive parenting on Wave 2 child compliance, age at time testing, gender and Wave 1 compliance (CC, SC and noncompliance respectively) were entered in Step 1 as the control variables. Wave 1 autonomy supportive parenting and child fearfulness were entered in Step 2. The interaction between Wave 1 autonomy supportive parenting and child fearfulness was entered as Step 3 predictor. Wave 2 CC, SC and noncompliance were entered separately as outcome variables in the analyses. Wave 1 interactions between autonomy supportive parenting and child fearfulness did not predict any changes in child compliance at Wave 2 during the “Do” context.

Analyses were also conducted for Wave 2 CC, SC and noncompliance using Wave 1 child frustration as the child temperament variable. Age at Wave 1, gender, and Wave 1 compliance (CC, SC and noncompliance respectively) were entered in Step 1 as the control variables. Wave 1 autonomy supportive parenting and child frustration were entered in Step 2. The interaction between Wave 1 autonomy supportive parenting and child frustration was entered as Step 3 predictor. Wave 2 CC, SC and noncompliance were the outcome variables respectively. Similar results emerged as in the previous analyses for fearfulness. No interaction was significant in predicting Wave 2 compliance after accounting for Wave 1 child compliance variables. Appendix C Tables III and IV present the regression coefficients for the Wave 1 and Wave 2 analyses respectively.

Interactions between power assertive parenting and child temperament during the “Do” context. Power assertive parenting was also a focus in our analyses of temperament and parenting styles. Here, the moderating effect of child fearfulness was examined first in relation to power assertion at Wave 1, and then the interaction between power

assertion and child frustration was analyzed at Wave 1. The same analyses were conducted for Wave 2 measures. All predictors were standardized before the analyses.

In the analyses for child fearfulness in the “Do” context, power assertion and child fearfulness at Wave 1 were entered as Step 1 predictors. In Step 2, the interaction term power assertion by fearfulness was entered. The three types of compliance (i.e., CC, SC and Noncompliance) were used as dependent variables separately in the analyses.

Hierarchical Linear Regression analysis for CC indicated that the interaction between fearfulness and power assertive parenting was not significant in this regression model (see Table 7). In the analysis predicting Wave 1 SC, the interaction term between power assertion and fearfulness explained unique variance of Wave 1 SC. To interpret all significant interactions in this study, simple slopes were examined following the procedures suggested by Preacher, Curran and Bauer (2006). As depicted in Figure 1, the effect of power assertive parenting differed significantly at different levels of child fearfulness. For children who were low in fearfulness, power assertion did not have an effect on situational compliance ($\beta = .00, n.s.$). For children who were high in fearfulness measures, power assertive parenting had a positive effect on SC ($\beta = .08, p < .01$). In the analysis of child noncompliance at Wave 1 during the “Do” context, no specific effects were significant.

Child frustration, power assertion and the interaction between frustration and power assertion at Wave 1 were used as predictors in the Hierarchical Linear Regression analyses to examine the effect of the interaction between child frustration proneness and power assertive parenting on different forms of compliance in the “Do” context at Wave 1. Power assertion and child frustration at Wave 1 were entered in Step 1, and the

interaction term frustration X power assertion was entered in the second step. Wave 1 CC, SC and noncompliance were used as dependent variables separately. The results indicated that there was no significant interaction between frustration and power assertive parenting on the three types of child compliance at Wave 1 during the “Do” context (see Table 7).

For predicting Wave 2 CC, SC, and noncompliance in the “Do” context, Hierarchical Linear Regression analyses were conducted using Wave 1 CC, SC, and noncompliance as Step 1 predictors respectively. Wave 1 power assertion and child fearfulness were entered as Step 2 predictors, while the interaction between power assertion and fearfulness at Wave 1 was entered in Step 3. Wave 2 CC, SC and noncompliance were used as outcome variables. Similar to the results obtained at Wave 1, no interaction between child fearfulness and power assertion was significant in predicting CC, SC or noncompliance during the “Do” context at Wave 2 (see Table 8).

Additionally, Hierarchical Linear Regression analyses indicated that the interaction between child frustration and power assertion at Wave 1 did not show any significant effect on predicting CC, SC or noncompliance at Wave 2, after controlling for Wave 1 CC, SC and noncompliance respectively (see Table 8).

Interactions between power assertive parenting and child temperament during the “Don’t” context. Different from the “Do” context indicated above, the link between temperament and parenting styles was more complex in the “Don’t” context. Hierarchical Linear Regression analyses were conducted to examine the effects of the interaction between child temperament and power assertion on child compliance. The interaction between power assertion and child fearfulness was first studied at Wave 1 and Wave 2,

following by the interaction between power assertion and frustration at Wave 1 then at Wave 2. All predictors were standardized before analyses.

For Wave 1 analyses, gender was entered in Step 1 as control variable, power assertion and fearfulness were entered as Step 2 predictors while the interaction between power assertion and fearfulness was entered as the Step 3 predictor. Wave 1 compliance measures (CC, SC or noncompliance) were entered as the outcome variables. For Wave 2 compliance analyses, age, gender and Wave 1 compliance measures were entered in Step 1 as control variables. Wave 1 power assertion and fearfulness were entered as Step 2 predictors, and the Wave 1 interaction term power assertion by fearfulness was entered as the Step 3 predictor. Wave 2 CC, SC and Noncompliance were entered separately as dependent variables. Results indicated that the main effect of power assertion was significant for CC, SC and noncompliance at Wave 1 (see Table 9).

The results also indicated that the interaction between fearfulness and power assertion was significantly predictive of CC and noncompliance at Wave 1, but not at Wave 2. Parental power assertion varied as a function of child fearfulness in predicting CC during the “Don’t” context, as shown in Figure 2. Simple slopes were then examined. At Wave 1, for children who were low in fearfulness, power assertion had a negative effect on CC, $\beta = -.14, p < .001$. For children who were high in fearfulness, power assertion had a weaker negative association with CC, $\beta = -.04, p < .05$. Noncompliance was negatively predicted by the interaction between fearfulness and parental power assertion (see Figure 3) at Wave 1. In the simple slope analysis for noncompliance, the significant simple slope indicated that for children who were low in fearfulness, as the use of power assertion increased, children were more likely to display noncompliance, β

= .22, $p < .001$. For children who were high in fearfulness, power assertion did not have an effect on noncompliance, $\beta = .05$, *n.s.*. The interaction between fearfulness and power assertion did not significantly predict SC at both Wave 1 and 2 during the “Don’t” context.

Another child temperament, frustration, was also considered in the analyses of interactions between child temperament and parenting styles. Similar to the analyses above, gender was the Step 1 control variable. Wave 1 power assertion and frustration were entered as Step 2 predictors, and the interaction term power assertion X frustration was entered as the Step 3 predictor. Wave 1 CC, SC and Noncompliance were entered separately as dependent variables. The main effect of power assertion was also significant in predicting CC, SC and noncompliance at Wave 1 (see Table 10). Wave 1 power assertion again showed significant predictive effects on Wave 1 CC, SC and noncompliance during the “Don’t” task. At Wave 1, about 49% of unique variance was accounted for by power assertion in the prediction of CC, about 12% of unique variance in predicting SC, and about 35% of variance in predicting noncompliance over and above child frustration and the interaction.

The interaction between power assertion and frustration was significantly predictive of CC at Wave 1 during the “Don’t” context. No other significant interaction was found. The significant interaction term demonstrated that at Wave 1, the effect of power assertion on CC (see Figure 4) was dependent on the level of child frustration. At Wave 1, simple slope analysis showed that power assertion had a negative effect on CC when the level of child frustration was low, $\beta = -.08$, $p < .001$. The effect of power assertion on CC was also negative when child frustration was high, $\beta = -.14$, $p < .001$.

For Wave 2 compliance analyses, age, gender and Wave 1 compliance level was entered in Step 1 as the controlled variable. Wave 1 power assertion and frustration were entered as Step 2 predictors, while the interaction between Wave 1 power assertion and frustration were entered as Step 3 predictor. Wave 2 CC, SC and noncompliance were the outcome variables in separate analyses. Results showed that the main effects of Wave 1 CC and noncompliance were significantly predictive for Wave 2 CC and noncompliance (see Table 10). Wave 1 power assertion explained about 7% unique variance in Wave 2 SC during the “Don’t” context. No interactions were significant in predicting Wave 2 CC, SC or noncompliance. Please see Tables 11 and 12 for the summary of significant interaction findings.

Child Effects

Since there were no specific hypotheses for child effect in the current study, a series of exploratory analyses were conducted to determine the effect of the interaction between child compliance and child temperament at Wave 1 on Wave 2 parenting styles, controlling for Wave 1 parenting styles.

Interaction between child compliance and temperament on autonomy supportive parenting during the “Do” context. In predicting Wave 2 autonomy supportive parenting during the “Do” context, Wave 1 autonomy supportive parenting was entered in Step 1 as a controlled variable. Wave 1 compliance level (i.e., CC, SC and noncompliance respectively) and child temperament (fearfulness vs. frustration) were entered as Step 2 predictors. The interaction between Wave 1 compliance level (CC, SC and noncompliance respectively) and temperament was entered in Step 3. For both fearfulness and frustration analyses, Wave 1 autonomy supportive parenting was

predictive of Wave 2 autonomy supportive parenting over and above Wave 1 compliance and child temperament (see Table 13 and Table 14). No other significant results were found.

Interaction between child compliance and temperament on power assertive parenting. In order to determine the effect of child compliance on power assertion, Wave 1 power assertion was entered in Step 1 as a controlled variable. Wave 1 compliance (CC, SC and noncompliance respectively) and child temperament (fearfulness vs. frustration) were entered as Step 2 predictors. The interaction between child compliance and temperament was entered as Step 3 predictor. Wave 2 power assertion was used as the outcome variable. Hierarchical Regression analyses indicated that Wave 1 power assertion was predictive of Wave 2 power assertion in both fearful and frustration analyses in both the “Do” and the “Don’t” context, as depicted in Tables 15 and 16. Moreover, Wave 1 frustration was found to predict Wave 2 power assertive parenting during the “Do” context. There were no other significant results.

Analyses summary. The above analyses examined the effect of the interaction between autonomy supportive parenting and power assertion on different forms of compliance at both Wave 1 and 2. A series of Hierarchical Regression Analyses were conducted to investigate the interaction effect between parenting styles (autonomy supportive parenting vs. power assertive parenting) and child temperament (fearfulness vs. frustration) in different contexts. In order to fully understand the relation between parenting and child compliance, exploratory analyses for child effects were also conducted. Results indicated that Wave 1 autonomy supportive parenting has a positive effect on predicting CC, SC and noncompliance at Wave 2, while power assertive

parenting at Wave 1 has a negative effect on CC and positive effect on noncompliance at Wave 1. Power assertive parenting varied as a function of fearfulness on Wave 1 situational compliance during the “Do” context, Wave 1 committed compliance and noncompliance during the “Don’t” context. The significant interaction effect revealed that the use of power assertive parenting at Wave 1 was dependent on the level of child frustration proneness on committed compliance at Wave 1. Child effect analyses revealed that Wave 1 parenting styles were significantly related to Wave 2 parenting styles. Wave 1 Frustration was associated with Wave 2 power assertion but only during the “Do” context. No interaction between child compliance and child temperament was associated with parenting styles at Wave 2.

Discussion

Evidence from this investigation sheds some light on the effects of using power assertive parenting in different contexts. The current study also emphasizes the importance of examining child fearfulness and frustration separately in relation to child compliance. The moderating effect of individual child characteristics (temperament) had distinctly different impacts on child compliance in the request versus prohibition contexts.

Child Temperament and Compliance

The data presented here indicated that child fearfulness at age two (Wave 1) was positively associated with the combined score of committed compliance from the two contexts at age two only, but child frustration was positively related to the combined score of child noncompliance from the two contexts at age three (Wave 2). This is consistent with the previous finding that child fearfulness was correlated with committed compliance (Kochanska, Coy & Murray, 2001). However, the non-significant result of child

fearfulness at age three might suggest that longitudinally stable individual characteristics might influence the expression of child compliance differentially depending on the developmental stage. It is also possible that child fearfulness, like shyness, might forecast reduced parental encouragement of independence (Rubin, Nelson, Hastings & Asendorpf, 1999). Chiefly, parents might constrain fearful children's opportunities to be independent and to display internalized committed compliance at age three.

In their investigation of child anger and compliance, Kochanska, Aksan and Carlson (2005) found that child anger was negatively associated with committed compliance in the request context. However, the relationship between child anger and child noncompliance was not examined. To fill in this gap, we included not only the prohibition context, but also the measure for child noncompliance in the analyses. No significant associations between child frustration and the compliance measures (e.g., CC and SC) were obtained in either context. Instead, the results revealed that child frustration was indeed positively related to the combined noncompliance score of the two contexts, and the relation between child frustration and committed compliance was not replicated. The inconsistent results we obtained in this study at different ages and across contexts could be due to measurement errors. Kochanska and her colleagues frequently used laboratory observational methods or a combination of the observational methods and maternal reports to measure temperament (Kochanska, Aksan & Carlson, 2005; Kochanska, Coy & Murray, 2001). In the current study, only parental reports were used for measuring fearfulness and frustration. Observational measures might have provided more fruitful and objective indications of child temperament, compared to parental reports alone. It is also possible that, as children grow older, parental expectations for self-regulation increase and child

frustration becomes less tolerable (Bates & Petit, 2007). Because of changes in parental expectations, child frustration might have become more salient at age three from the parental reports of temperament. Therefore, the relation between child frustration and noncompliance may have become significant due to parental expectations of increased self-regulation.

Parenting and child compliance

The direct effect of autonomy supportive parenting and power assertive parenting were also of interest in this study. The results partially supported our hypothesis that autonomy supportive parenting would be positively associated with committed compliance. This association was found at age three, but not at age two. Starting from age two, parents start to require and expect their children to conform to values, conventions and discipline (Dix, Stewart, Gershoff & Day, 2007; Kochanska, 1993). According to Self-Determination theory, children have an innate propensity toward mastery of the environment; the internalization of social norms and values is a natural process (Deci & Ryan, 2008). Once the need for autonomy is granted by the parents, the internalization process would proceed under children's intrinsic motivation, which then leads to the expression of the wholehearted willingness to comply. This relation between autonomy supportive parenting and child compliance was absent at age two. This is inconsistent with previous research, in which Dix and his colleagues (2007) found that at 27 months of age, children with autonomy granting mothers were more likely to comply willingly during a clean-up task. This difference might be due to the fact that autonomy supportive parenting was measured during the free-play period in Dix et al.'s study, and child compliance was measured during the clean-up task. In order to capture the true

relationship between autonomy supportive parenting and child compliance, we measured both constructs in the same context – the clean-up task. With this mind, the results presented here might reflect a more direct relation between autonomy supportive parenting and committed compliance during the request context at age three. Furthermore, the low internal consistency of autonomy supportive parenting measure might also contribute to the absence of relation between autonomy supportive parenting and child compliance at age two.

The association between power assertion and child compliance was supported in this study. Power assertion was in fact negatively associated with committed compliance and positively related to child noncompliance at age two and three in both the request and the prohibition contexts. Our data replicated previous findings that power assertive parenting was positively associated child noncompliance and low levels of committed compliance (Kochanska & Aksan, 1995; Kochanska, Coy & Murray, 2001). One of the strongest patterns in this study is the disadvantage of using power assertion to achieve child compliance. Power assertive parenting is not only associated with less wholehearted committed compliance, but also with more child noncompliance.

Parenting by Temperament Interactions on Child Compliance

Previous literature also suggests that the implication of different parenting styles for the development of child compliance, and for later internalization and conscience is dependent on individual child temperament (Bates & Pettit, 2007; Kochanska, Aksan & Carlson, 2005; Kochanska, Coy & Murray, 2001). In order to further examine the interactive effects of parenting styles and child temperament on child compliance, we conducted a series of Hierarchical Linear Regression analyses. The results revealed that,

when children were low in fearfulness, only situational compliance would increase as power assertion increased during the request context at age two. As expected, power assertion contains the temporal function of obtaining situational compliance for fearless children. Since fearless children do not respond in discomfort after a transgression, gentle discipline practices and autonomy supportive parenting might not arouse sufficient attention level for the child to “take in” the parental message. Hence, the use of power in parenting might be beneficial to maintain fearless children on task and gain situational compliance. Although power assertion had a positive effect on situational compliance for fearful children, it did not predict committed compliance (i.e., the precursor of internalization and conscience) for either fearless or fearful children. The lack of relation with committed compliance in fearless children supported Baumrind’s (1983) view that parental control may achieve temporary behavioral compliance at the expense of internalization of rules. This is also consistent with Kochanska, Aksan and Joy’s (2007) study that the interaction between fearfulness and power assertive parenting was not predictive of child receptive and willingness stance (i.e., similar to committed compliance) towards the parents. However, the researchers in the previous study did not examine the “Do” and “Don’t” contexts separately. Our study provided a more detailed investigation on the relations between power assertion and child compliance. As suggested in Kochanska’s studies, positive parenting, namely maternal responsiveness and secure attachment, might be more effective in achieving child compliance and developing conscience later in life. The current results also supported Kochanska, Coy and Murray’s (2001) finding that maternal power assertion was correlated with situational compliance.

Unlike the results in the request context, the interactive effect of fearfulness and parental power assertion was negative during the prohibition context. For both fearful and fearless children, power assertive parenting had a negative effect on committed compliance. The use of power assertion was associated with less committed compliance at age two during the prohibition context. This finding is in fact inconsistent with previous finding that power assertive parenting has a negative impact on conscience only for fearful children (Kochanska, 1997; Kochanska, Aksan & Joy, 2007). This discrepancy could be due to the different measurement for fearfulness in Kochanska and her colleagues' studies. It is also possible that in their studies, they used conscience (internalization measures in 1997 and moral self measures in 2007) as the outcome variables instead of measuring child compliance directly. This inconsistency could also be due to the lack of consideration of context, namely the request and the prohibition contexts, in Kochanska, Aksan and Joy's study.

The negative effect of power assertion on committed compliance was more detrimental for fearless children, as reflected by its steeper simple slope compared to the simple slope of the fearful children. The aversive nature of power assertive parenting (e.g., the use of threat, punishment and physical or psychological control) would indeed impair the child's tendency to attribute any form of compliance as self-generated or internalized (Joussemet, Landry & Koestner, 2008; Kochanska, 1997). The child then might attribute compliance, when it occurs, as externally driven by the parents. Consequently, wholehearted committed compliance becomes less likely. Even though the interaction term was not significant at age three, age two compliance level was predictive of age three compliance level in the final regression models. This relation shed some light

on the possibility of bidirectional relation between parenting and child compliance. For instance, fearless children who were low in committed compliance at age two might have evoked higher level of power assertion from parents at age three. However, the exploratory child effect analyses did not support this assumption. Parenting styles (autonomy supportive vs. power assertive parenting) at age two were significant predictors of parenting styles at age three, over and above the effects of child compliance and the interaction between compliance and temperament at age two.

Our results also suggested that for fearless children, power assertion had a positive association with child noncompliance at age two. This result continued to provide support that power assertive parenting is indeed detrimental for child development (Dawber & Kuczynski, 1999; Karreman, Tuijl, Aken & Dekvovic, 2006; Kochanska & Aksan, 1995). When forced to comply, children often experience resentment toward the parent, followed by the rejection of parental messages, values and demands (Hoffman, 1983). However, this relation was not significant at age three in the current study. One explanation could be the dramatic developmental changes from age two to age three in the prohibition context. It has been suggested that in the request context, both committed and situational compliance increased at a relatively similar and modest rate, but the developmental changes in the prohibition context were rapid, especially for committed compliance (Kochanska, Coy & Murray, 2001). Committed compliance grew from about 45% at 14 months of age to 85% at 45 months of age in the prohibition context, while situational compliance dropped from 9% at 14 months of age to 4% at 33 months of age (noncompliance was not examined in their study). The rapid increase in committed compliance in the prohibition context might then cause the absence

of a significant relation between power assertion and noncompliance for fearless children at age three. Furthermore, our study provided a fuller picture of the relation between power assertion and noncompliance for fearless children in the prohibition context. As we expected, not only did power assertion have a negative relation with committed compliance, fearless children also showed more noncompliance with the increase of power assertion at age two during the prohibition context.

The current study also produced evidence of another form of interaction involving power assertion and child frustration. The results showed negative effects of power assertion on committed compliance for both high and low frustration prone children at age two in the prohibition task. The negative effect of power assertion appeared to be more severe for children who were high in frustration proneness than those who were low. This result is in fact consistent with previous finding that toddlers subjected to a high level of maternal negativity (e.g., high hostile affect and negative control toward the child; similar to power assertive parenting), would demonstrate a stronger relationship between age two and age four aggression than toddlers without experiencing a high level of maternal negativity (Rubin, Burgess, Dwyer & Hastings, 2003). The non-significant main effect of child frustration on committed compliance is also supportive of previous views that child temperament (e.g., anger proneness) per se does not predict child compliance, but it interacts with parenting styles (e.g., responsiveness and secured attachment) in predicting child compliance (Kochanska, Aksan & Carlson, 2005). The results of the present investigation bolster the view that high levels of frustration proneness in conjunction with high levels of power assertive parenting may be more likely to place children in a difficult developmental trajectory (i.e., low committed

compliance leads to low internalization and conscience), which might negatively affect future parent-child interactions (Harach & Kuczynski, 2005; Kochanska, Coy & Murray, 2001). The exploratory child effect analyses showed that higher frustration proneness at age two was related to more power assertive parenting at age two but not at age three. Taken it all together, consistent with Lee and Bates' (1985) study, children with difficult-to-control temperament (similar to frustration proneness) were more likely to be noncompliant to parental control. Parents who perceived their children more likely to be "difficult" were also more likely to use intrusive control techniques, which then might lead to more parent-child conflicts. Although the bidirectional effect was not very clear due to the non-significant interactions between child compliance and temperament on parenting styles in the current study, frustration prone children showed some influence on the use of power assertive parenting at age three during the request context. The non-significant child effect could again be due to the measurement errors of parental reports of child temperament. If both parental reports and observational measures of child temperament were used, it might provide a better measure for child fearfulness and frustration proneness.

Nevertheless, it is important to point out that the significant interactions found in the study could be interpreted from the child effect perspective. For example, the significant interaction between power assertive parenting and fearfulness on committed compliance at Wave 1 during the prohibition context could be due to the fact that fearless children might have posed more challenges for parents during the prohibition task and elicited higher level of power assertive parenting, which then reflected in low committed compliance. In this study, consistent and significant unique variance explained by power

assertion showed that the parental effect on child compliance might be more salient in explaining the interaction terms. Furthermore, the non-significant child effect analyses provided indirect evidence supporting the more prevalent effect of power assertive parenting on child compliance in the current study. Perhaps, future investigations could examine sequential parental reactions to child compliance and how this might affect future parent-child relationship qualities, later child compliance, and the development of internalization and conscience. Some evidence indicated that supportive and accommodating mothers were more likely to have children who displayed defiance (i.e., a form of child noncompliance; Dix, Stewart, Gershoff & Day, 2007). The authors argued that sensitive mothers were more adaptive to children's signals and allow children to control parent-child interactions. Children then develop a strong sense of autonomy motivation and believe they can control events and expect their parents to respond favourably when they assert their needs for autonomy. For this reason, children's behavioural defiance may very well reflect their immature attempts to control events and strive for autonomy.

Finally, it is also noteworthy that across age and contexts, power assertive parenting has been shown to be a robust predictor of committed compliance (negative), situational compliance (positive) and noncompliance (positive), even after taking child temperament and the interaction terms into consideration. The unique contribution of power assertion, with modest to large effect sizes (Cohen, 1992), to child compliance/noncompliance in our investigation has once again strengthened the evidence for the futility of using parental power to achieve obedience in toddlers. Furthermore, there was no interaction between autonomy supportive parenting and child temperament

in predicting child compliance in the analyses of the clean-up task. This might also indicate that autonomy supportive parenting, which values the autonomy of the child and allows certain degrees of freedom, might be most prevalent in other collaborative tasks (Dix, Stewart, Gershoff & Day, 2007; Joussemet, Landry & Koestner; 2008), for instance, building a castle with blocks, where collaboration and true autonomy granting would be possible. Due to the inadequate measure of autonomy supportive parenting, the results would not support more additional discussion regarding the relation between autonomy supportive parenting and child compliance.

Strength, Limitations and Future Directions

This study examined both autonomy supportive parenting and power assertion in both the request and prohibition contexts at ages two and three. It is one of the most comprehensive studies in the field of child compliance to my knowledge. The longitudinal approach of the study provided strong evidence for the negative effect of power assertion on child compliance. Many of the predictions were supported by the data, but the bidirectional relation between parenting styles and compliance was not statistically supported in our study. Children are active agents contributing to and having goals in the parent-child relationship (Grusec & Kuczynski, 1997). Both the parent's and the child's influences to the relationship are indeed reciprocal (Harah & Kuczynski, 2005). The results in the current study revealed stronger evidence for the parenting effect on child compliance. However, the current study did not examine autonomy supportive parenting under the prohibition context. The poor measure of autonomy supportive parenting did not allow me to conclude much from the findings. Thus, it is still unclear whether autonomy granting is appropriate and beneficial for child development in every

context and situation. Future studies may also include the prohibition context in order to examine the effect of autonomy supportive parenting on child compliance. Because the aggregated measure had such low internal consistency, individual items measuring autonomy supportive parenting and their interactions may also be of focus in future studies investigating autonomy supportive parenting.

A child's willingness to comply with parental agendas could be a very powerful socialization force. Even though autonomy supportive parenting during the "Do" task did not show any interaction effect with child temperament in predicting child compliance, the positive correlation between autonomy supportive parenting and committed compliance provided some evidence of the positive influence of intrinsic motivation in achieving child compliance. In contrast, power assertive parenting appeared to have a short-term function in obtaining immediate child compliance. However, situational compliance is not associated with child internalization of rules and the effects of power assertion in undermining committed compliance and stimulating noncompliance for fearless and easily frustrated children appeared to be very robust. This study has great implications in everyday home or school settings. For children who are fearless and high in frustration, they might create many challenges for parents and teachers in everyday interactions. The use of power assertion will not only damage parent-child qualities, but it will also elicit more child noncompliance. More interaction conflicts might follow due to frustration prone children's tendency to oppose control (Lee & Bates, 1985). Moreover, the sample in this study was not from clinical fearful or frustration prone children, but it could provide some support for the development of Parent Management Training and parent education programs in clinical samples of families to better train parents with

“difficult” children to effectively achieve child compliance. It is also important for future studies concerning negative emotionality to examine child fearfulness and frustration proneness separately in different contexts even though they belong to the same temperament domain.

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Appendix A

Laboratory Visit Scripts

Wave 1 Visit 1

- 1. Introduction to the living room (5 minutes)**
You will be with your child in the room with the off-limit toys.
- 2. Imitation Task, in playroom (approximately 15 – 25 minutes)**
You will teach your child a series of actions to imitate.
- 3. Free Play, in playroom (5 minutes)**
You are free to play as you like.
- 4. Toy Cleanup, in playroom (7 minutes)**
Your child cleans up the toys.
- 5. Snack, in living room (8 minutes)**
You have a snack and relax in the living room.
- 6. Structured Building Task, in playroom (5 minutes)**
You help your child to build using table blocks.
- 7. Mother busy with questionnaire, in living room (10 minutes)**
- 8. Gift, in playroom (3minutes)**

Wave 1 Visit 2

- 1. Introduction to the living room (5 minutes)**
You will be with your child in the room with the off-limits toys.
- 2. Parent busy with questionnaire, in living room (10 minutes)**
- 3. Semi-Structured Building Task, in playroom (5 minutes)**
You help your child to build using table blocks.
- 4. Free Play, in playroom (5 minutes)**
You are free to play as you like.
- 5. Toy Cleanup, in playroom (7 minutes)**
Your child cleans up the toys.
- 6. Story without Words, in living room (8-10 minutes)**
You will tell a story to your child from a picture book.

7. **Snack, in living room (8 minutes)**
You have a snack and relax in the living room.
8. **Imitation Task, in playroom, (approximately 15 - 25 minutes)**
You will teach your child a series of acts to imitate.
9. **Gift, in playroom (3 minutes)**

Wave 2 Visit 1

1. **Introduction to the living room (5 minutes)**
You will be with your child in the room with the off-limits toys.
2. **Story without Words, in living room (8-10 minutes)**
You will tell a story to your child from a picture book.
3. **Lost Stopwatch (2 min)**
The research assistant will pretend to lose her stopwatch
4. **Semi-Structured Building Task, in playroom (5 minutes)**
You help your child to build using table blocks.
5. **Free Play, in playroom (5 minutes)**
You are free to play as you like.
6. **Toy Cleanup, in playroom (7 minutes)**
Your child cleans up the toys.
7. **Parent busy with questionnaire, in living room (12 minutes)**
8. **Snack, in living room (10 minutes)**
You have a snack and relax in the living room.
9. **Hurt Foot (2 min)**
The research assistant will pretend to hurt her foot
10. **Imitation Task, in playroom, (15 minutes)**
You will teach your child a series of acts to imitate.
11. **Gift, in living room (3 minutes)**

Wave 2 Visit 2

10. **Introduction to the living room (5 minutes)**
You will be with your child in the room with the off-limits toys

11. Hurt Finger (2min)

The research assistant will pretend to hurt her finger.

12. Free Play, in playroom (5 minutes)

You are free to play as you like

13. Toy Cleanup, in playroom (7 minutes)

Your child cleans up the toys

14. Activities with research assistant (up to 30 minutes)

The research assistant will ask your child to name some pictures, do some puzzles, and build with some blocks. During this time another research assistant will show you the actions for the silly imitation.

15. Silly Imitation (5 minutes)

You will play two silly imitation games with the research assistants and your child.

16. Snack, in living room (10 minutes)

You will have a snack and relax in the living room.

17. Parent busy with questionnaire, in living room (12 minutes)

You will have questionnaires to answer while your child keeps themselves busy.

18. Building Task, in playroom (6 minutes)

You will help your child to build using table blocks.

19. Drop blocks (2 min)

The research assistant will “accidentally” spill the blocks.

20. Gift, in living room (3 minutes)

Appendix B

Early Child Behavioural Questionnaire for Measuring Fearfulness and Frustration

Proneness

INSTRUCTIONS: Please read carefully before starting.

As you read each description of the child's behaviour below, please indicate how often the child did this during the last two weeks by circling one of the numbers in the right column. These numbers indicate how often you observed the behaviour described during the last two weeks.

<u>never</u> 1	<u>very rarely</u> 2	<u>less than half the time</u> 3	<u>about half the time</u> 4	<u>more than half the time</u> 5	<u>almost always</u> 6	<u>always</u> 7	<u>does not apply</u> NA
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The "Does Not Apply" column (NA) is used when you did not see the child in the situation described during the last two weeks. For example, if the situation mentions the child going to the doctor and there was no time during the last two weeks when the child went to the doctor, circle the (NA) column. "Does Not Apply" (NA) is different from "NEVER" (1). "Never" is used when you saw the child in the situation but the child never engaged in the behaviour mentioned in the last two weeks. Please be sure to circle a number or NA for every item. The excluded items are labeled with the asterisk sign (*).

Fearfulness Items:**During everyday activities, how often did your child**

1. startle at loud noises (such as a fire engine siren)? * 1 2 3 4 5 6 7 NA

While at home, how often did your child

2. show fear at a loud sound (blender, vacuum cleaner, etc.)? 1 2 3 4 5 6 7 NA
3. seem afraid of the dark? 1 2 3 4 5 6 7 NA

While watching TV or hearing a story, how often did your child

4. seem frightened by 'monster' characters?* 1 2 3 4 5 6 7 NA

While in a public place, how often did your child

5. seem uneasy about approaching an elevator or escalator? 1 2 3 4 5 6 7 NA
6. cry or show distress when approached by an unfamiliar animal? 1 2 3 4 5 6 7 NA
7. seem afraid of large, noisy vehicles? 1 2 3 4 5 6 7 NA
8. show fear when the caregiver stepped out of sight? 1 2 3 4 5 6 7 NA

During everyday activities, how often did your child

9. seem frightened for no apparent reason? 1 2 3 4 5 6 7 NA

When visiting a new place, how often did your child

10. not want to enter? 1 2 3 4 5 6 7 NA
11. go right in?* 1 2 3 4 5 6 7 NA

Frustration items:

When told that it was time for bed or a nap, how often did your child

12. react with anger?	1	2	3	4	5	6	7	NA
13. get irritable?	1	2	3	4	5	6	7	NA

While having trouble completing a task (e.g., building, drawing, dressing), how often did your child

14. get easily irritated?	1	2	3	4	5	6	7	NA
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When s/he couldn't find something to play with, how often did your child

15. get angry?	1	2	3	4	5	6	7	NA
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When another child took away his/her favorite toy, how often did your child

16. scream with anger?	1	2	3	4	5	6	7	NA
17. <u>not</u> become angry?	1	2	3	4	5	6	7	NA

When given something to eat that s/he didn't like, how often did your child

18. become angry?	1	2	3	4	5	6	7	NA
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When s/he asked for something and you said "no", how often did your child

19. become frustrated?	1	2	3	4	5	6	7	NA
20. protest with anger?	1	2	3	4	5	6	7	NA
21. have a temper tantrum?	1	2	3	4	5	6	7	NA

When tired after a long day of activities, how often did your child

22. become easily frustrated?	1	2	3	4	5	6	7	NA
-------------------------------	---	---	---	---	---	---	---	----

When you mildly criticized or corrected her/his behaviour, how often did your child

23. get mad?	1	2	3	4	5	6	7	NA
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Appendix C

Additional Regression Tables

Table I

Interaction between Power Assertion and Autonomy Supportive Parenting at Wave 1 Child Compliance during the "Do" context.

	<i>F</i>	β	R^2	<i>sr</i>
Dependent Variable CC				
	3.37**		.22	
Age		.11		.11
Gender		.10		.09
Power Assertion		-.45***		-.44***
AS		.11		.11
PA X AS		.11		.11
Dependent Variable: SC				
	1.02		.08	
Age		.07		.07
Gender		-.08		-.08
Power Assertion		.16		.15
AS		.11		.10
PA X AS		-.17		-.17
Dependent Variable: Noncompliance				
	1.65		.12	
Age		-.17		-.16
Gender		-.06		-.05
Power Assertion		.30*		-.29*
AS		-.11		-.10
PA X AS		-.02		-.02

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. AS means autonomy supportive parenting. PA X AS means the interaction between power assertion and autonomy supportive parenting.

Table II

Interaction between Power Assertion and Autonomy Supportive Parenting at Wave 2 Child Compliance during the "Do" context.

	<i>F</i>	β	R^2	<i>sr</i>
Dependent Variable: CC				
	3.17**		.24	
Age		-.10		-.10
Gender		.00		.00
CC		.21		.19
Power Assertion		-.14		-.13
AS		.37**		.35**
PA X AS		.09		.09
Dependent Variable: SC				
	3.49**		.26	
Age		.13		.13
Gender		.02		.02
SC		.29*		.28*
Power Assertion		.21		.20
AS		-.27*		-.26*
PA X AS		-.16		-.16
Dependent Variable: Noncompliance				
	1.36		.12	
Age		.10		.10
Gender		.06		.05
Noncompliance		.25		.23
Power Assertion		-.03		-.03
AS		-.20		-.19
PA X AS		.06		.06

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. AS means autonomy supportive parenting. PA X AS means the interaction between power assertion and autonomy supportive parenting. Predictors are all Wave 1 measures.

Table III

Interaction between Autonomy Supportive Parenting and Temperament at Wave 1 during the "Do" Context.

	Fearfulness				Frustration			
	<i>F</i>	β	R ²	<i>sr</i>	<i>F</i>	β	R ²	<i>sr</i>
Dependent Variable: CC								
	.76		.06		1.01		.08	
Age		.15		.15		.20		.19
Gender		.02		.02		.01		.01
AS		.02		.02		.03		.03
Temperament		.20		.19		-.14		-.14
Temp X AS		-.07		-.07		-.19		-.19
Dependent Variable: SC								
	.87		.07		.82		.06	
Age		.09		.08		.09		.09
Gender		-.03		-.02		-.05		-.05
AS		.19		.17		.14		.13
Temperament		.14		.14		.02		.02
Temp X AS		-.19		-.17		-.19		-.19
Dependent Variable: Noncompliance								
	1.13		.09		1.23		.09	
Age		-.21		-.21		-.24		-.23
Gender		-.02		-.01		-.00		-.00
AS		-.07		-.06		-.06		-.05
Temperament		-.22		-.21		.13		.13
Temp X AS		.13		-.12		.20		.20

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. AS means autonomy supportive parenting. Temp X AS means the interaction between temperament (fearfulness vs. frustration) and autonomy supportive parenting.

Table IV

Interaction between Autonomy Supportive Parenting and Temperament at Wave 2 during the "Do" Context.

	Fearfulness				Frustration			
	<i>F</i>	β	R ²	<i>sr</i>	<i>F</i>	β	R ²	<i>sr</i>
Dependent Variable: CC								
	2.91*		.23		3.44**		.27	
Age		-.10		-.09		-.11		-.10
Gender		.00		.00		.02		.02
CC		.29*		.28		.30*		.29*
AS		.34*		.28		.37**		.35**
Temperament		.02		.02		-.11		-.11
Temp X AS		.05		.05		.15		.15
Dependent Variable: SC								
	2.66*			.21	2.34*		.19	
Age		.09		.08		.10		.10
Gender		.05		.04		.05		.04
SC		.40**		.38**		.36**		.35**
AS		-.24		-.21		-.21		-.19
Temperament		-.14		-.13		.09		.09
Temp X AS		.14		.13		.00		.00
Dependent Variable: Noncompliance								
	1.71			.15	2.03		.17	
Age		.10		.10		.08		.07
Gender		.04		.03		.00		.00
Noncompliance		.27*		.25*		.23		.22
AS		-.23		-.21		-.27*		-.25*
Temperament		.12		.11		.17		.18
Temp X AS		-.09		.08		-.07		-.07

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. AS means autonomy supportive parenting. Temp X AS means the interaction between temperament (fearfulness vs. frustration) and autonomy supportive parenting. All predictors are Wave 1 measures.

Table 1

Reliability Scores for Compliance, Autonomy Supportive Parenting and Power Assertion.

		"Do" Context	"Don't" Context
Wave 1			
Compliance		.78	.76
Autonomy Support			
	Positive Feedback	.84	-
	Reason Model	.85	-
	Sing a Song	.97	-
	Suggestion	1.00	-
		.82	-
Power Assertion	Control	.81	.99
	Threat/Punish	.98	.93
	Physical Force	.90	.89
Wave 2			
Compliance		.78	.86
Power assertion	Control	.92	.88
	Threat/Punish	.82	1.00
	Physical Force	.94	1.00

Note. The reliability scores for Compliance were calculated using Cohen's Kappa (in bold). The reliability scores for Autonomy support and Power assertion measures were calculated using Intra Class Correlation. Since the sixteen reliability cases for autonomy supportive parenting were randomly selected from either Wave 1 or 2, the ICC scores were only presented in Wave1.

Table 2

Descriptive Statistics of All Variables.

	Wave 1		Wave 2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>Do Context</i>				
AS	1.77	.45	1.48	.40
PA	.77	.31	.24	.20
CC	.25	.22	.30	.25
SC	.32	.16	.46	.18
Noncompliance	.42	.25	.24	.20
<i>Don't Context</i>				
PA	.44	.33	.27	.28
CC	.79	.21	.88	.19
SC	.09	.10	.04	.05
Noncompliance	.11	.18	.08	.16
<i>Temperament</i>				
Fearfulness	2.36	.89	2.76	.94
Frustration	3.53	.93	3.50	.90

Note. AS stands for autonomy supportive parenting; PA stands for power assertive parenting; CC stands for committed compliance; SC stands for situational compliance.

Table 3

Pearson Correlations among Wave 1 and Wave 2 Variables during the "Do" Context.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Fear1	-	.45	.23	.10	.15	.14	-.13	.06	.18	.14	.13	-.10	-.19	-.22
2. Fear2		-	.09	.21	.37**	.34**	.08	.02	-.01	.18	.07	-.20	.02	-.01
3. Frus1			-	.61	.05	-.01	.10	.42	-.13	-.14	.03	.10	.11	.13
4. Frus2				-	-.01	-.04	-.08	.15	-.02	-.17	-.02	-.04	.07	.10
5. ASDO1					-	.55	.14	-.13	-.01	.37	.15	-.19	-.01	-.10
6. ASDO2						-	.09	-.10	-.10	.20	.06	-.06	.09	.07
7. PADO1							-	.47	-.43	-.18	.14	.20	.29*	.26*
8. PADO2								-	-.24*	.33**	.01	.13	.21	.16
9. CCDO1									-	.27*	-.05	-.33**	-.83	-.26*
10. CCDO2										-	.09	-.57	-.29*	-.22
11. SCDO1											-	.33**	-.46	.02
12. SCDO2												-	.11	.21
13. NoncompDO1													-	.21
14. NoncompDO2														-

Note. * for $p < .05$; ** for $p < .01$. Numbers in bold and italicized are for $p < .001$. Frus1 means the measure for frustration proneness at Wave 1. Frus 2 means the measure for frustration proneness at Wave 2.

Table 4

Partial Correlations for Wave 2 Compliance in Different Contexts Controlling for Wave 1 Compliance.

	Do			Don't		
	CC	SC	Noncomplince	CC	SC	Noncompliance
1. Fear1	.05	-.15	.05	-.13	.09	.05
2. Frus1	-.09	.10	.18	.01	.09	.08
3. ASDO1	.13*	-.25*	-.28*	--	--	--
4. PADO1	-.17	.16	-.04	--	--	--
5. PADont1	--	--	--	-.09	.27*	.16

Note. * for $p < .05$. Frus1 means the measure for frustration proneness at Wave 1.

Table 5

Pearson Correlations among Wave 1 and Wave 2 Variables during the "Don't" Context.

	1	2	3	4	5	6	7	8	9	10	11	12
1. Fear1	-											
2. Fear2		-										
3. Frus1			-									
4. Frus2				-								
5. PADont1					-							
6. PADont2						-						
7. CCDont1							-					
8. CCDont2								-				
9. SCDDont1									-			
10. SCDDont2										-		
11. NoncompDont1											-	
12. NoncompDont2												-

Note: * for $p < .05$; ** for $p < .01$. Numbers in bold and italicized are for $p < .001$. Frus1 means the measure for frustration proneness at Wave 1. Frus2 means the measure for frustration proneness at Wave 2.

Table 6

Correlations Between Temperament and Child Compliance.

	Wave 1			Wave 2		
	CC	SC	Noncompliance	CC	SC	Noncompliance
Wave 1 Fearfulness	.24*	-.02	-.19	-.00	-.10	.06
Wave 1 Frustration	-.21	.08	.18	-.11	.09	.16
Wave 2 Fearfulness	.06	-.15	.06	.09	-.17	-.02
Wave 2 Frustration	-.12	.02	.12	-.20	-.01	.25*

Note. * for $p < .05$. Correlations between child temperament and Wave 2 CC, SC and Noncompliance were conducted after controlling for Wave 1 CC, SC and Noncompliance respectively.

Table 7

Interactions between Power Assertion and Temperament at Wave 1 during the "Do" Context.

	Fearfulness				Frustration			
	<i>F</i>	β	R ²	<i>sr</i>	<i>F</i>	β	R ²	<i>sr</i>
Dependent Variable: CC								
Step 2:								
	5.68**		.21		4.99**		.19	
Power Assertion		-.37**		-.35**		-.43***		-.42***
Temperament		.14		.14		-.09		-.09
Temperament X PA		.13		.12		-.05		-.05
Dependent Variable: SC								
Step 2:								
	3.14*		.13		.49		.02	
Power Assertion		.26*		.25*		.14		.14
Temperament		.17		.17		.01		.01
Temperament X PA		.31**		.30**		-.04		-.04
Dependent Variable: Noncompliance								
Step 2:								
	4.04*		.16		2.14		.09	
Power Assertion		.20		.18		.29*		.28*
Temperament		-.17		-.17		.08		.08
Temperament X PA		-.24		-.23		.02		.02

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. Temperament X PA means the interaction between temperament (fearfulness vs. frustration) and power assertive parenting. "sr" represents the semipartial correlations in the final step.

Table 8

Interactions between Power Assertion and Temperament at Wave 2 during the “Do” Context.

	Fearfulness				Frustration			
	<i>F</i>	β	R ²	<i>sr</i>	<i>F</i>	β	R ²	<i>sr</i>
Dependent Variable: CC								
Step 3:								
	2.04		.12		1.54		.09	
CC		.20		.18		.23		.21
Power Assertion		-.02		-.02		-.06		-.06
Temperament		.10		.10		-.10		-.10
Temperament X PA		.18		.17		.04		.04
Dependent Variable: SC								
Step 3:								
	3.10*		.17		2.70*		.15	
SC		.37**		.35**		.31*		.31*
Power Assertion		.08		.07		.16		.16
Temperament		-.14		-.13		.08		.08
Temperament X PA		-.16		-.14		.10		.10
Dependent Variable: Noncompliance								
Step 3:								
	1.15		.07		1.63		.10	
Noncompliance		.21		.19		.22		.21
Power Assertion		-.07		-.07		-.07		-.07
Temperament		.03		.03		.18		.18
Temperament X PA		-.13		-.12		-.11		-.10

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. Temperament X PA means the interaction between temperament (fearfulness vs. frustration) and power assertive parenting. All predictors are Wave 1 measures. “*sr*” represents the semipartial correlations in the final step.

Table 9

Interactions between Child Fearfulness and Power Assertion at Wave 1 and Wave 2 during the "Don't" Context.

	Wave 1				Wave 2			
	<i>F</i>	β	R ²	<i>sr</i>	<i>F</i>	β	R ²	<i>sr</i>
Dependent Variable: CC								
	23.63***		.60		10.20***		.51	
Age		-		-		-.12		-.11
Gender		.01		.01		.03		.03
CC		-		-		.69***		.44***
PA		-.63***		-.54***		-.06		-.04
Fearfulness		.20*		.19*		-.15		-.13
PA X Fearfulness		.30**		.27**		-.10		-.08
Dependent Variable: SC								
	11.46***		.43		2.74*		.22	
Age		-		-		.07		.05
Gender		.25*		.22*		-.09		-.07
SC		-		-		.15		.12
PA		.36**		.31**		.30*		.24*
Fearfulness		-.13		-.12		.07		.06
PA X Fearfulness		-.03		-.03		-.20		-.18
Dependent Variable: Noncompliance								
	15.53***		.42		5.89***		.38	
Age		-		-		.17		.16
Gender		.01		.01		-.05		-.04
Noncompliance		-		-		.41**		.31**
PA		.51***		.44***		.27		.19
Fearfulness		-.18		-.16		.14		.12
PA X Fearfulness		-.27*		-.24*		.10		.09

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. PA X Fearfulness is the interaction between power assertion and fearfulness. "sr" represents the semipartial correlations in the final step.

Table 10

Interaction between Child Frustration and Power Assertive Parenting at Wave 1 and Wave 2 during the "Don't" Context.

	Wave 1				Wave 2			
	<i>F</i>	β	R ²	<i>sr</i>	<i>F</i>	β	R ²	<i>sr</i>
Dependent Variable: CC								
	19.93***		.56		9.49***		.49	
Age		-		-		-.09		-.08
Gender		.09		.08		.02		.02
CC		-		-		.62***		.40***
PA		-.78***		-.70***		-.07		-.05
Frustration		-.11		-.10		.00		.00
PA X Frustration		-.19*		-.19*		-.02		-.02
Dependent Variable: SC								
	6.54***		.30		2.09		.18	
Age		-		-		.10		.09
Gender		.24		.22		-.13		-.12
SC		-		-		.13		.10
PA		.39**		.35**		.33*		.27*
Frustration		.07		.07		.08		.08
PA X Frustration		.01		.01		.06		.06
Dependent Variable: Noncompliance								
	10.29***		.40		5.70***		.37	
Age		-		-		.15		.14
Gender		-.06		-.06		-.04		-.04
Noncompliance		-		-		.34*		.26*
PA		.66***		.59***		.28		.20
Frustration		.07		.07		.07		.07
PA X Frustration		.20		.19		.08		.07

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. PA X Frustration is the interaction between frustration and power assertion. "sr" represents the semipartial correlations in the final step.

Table 11

Pattern of Findings for Power Assertion X Fearfulness Interactions Predicting Child Compliance in Different Contexts and Waves.

Wave 1 "Do" Context	Wave 2 "Do" Context	Wave 1 PA X Fear → Wave 2 "Do" Context
---	SC	---
Wave 1 "Don't"	Wave 2 "Don't"	Wave 1 PA X Fear → Wave 2 "Don't" Context
CC and NC	---	---

Note. "---" means there were no significant interaction effects on committed compliance, situational compliance or noncompliance. CC means significant interaction effect of power assertion by fearfulness on committed compliance. SC means significant interaction effect of power assertion by fearfulness on situational compliance. NC means significant interaction effect of power assertion by fearfulness on child noncompliance.

Table 12

Pattern of Findings for Power Assertion X Frustration Interactions Predicting Child Compliance in Different Contexts and Waves.

Wave 1 "Do" Context	Wave 2 "Do" Context	Wave 1 PA X Frustration → Wave 2 "Do" Context
---	---	---
Wave 1 "Don't"	Wave 2 "Don't"	Wave 1 PA X Frustration → Wave 2 "Don't" Context
CC	---	---

Note. "---" means there were no significant interaction effects on committed compliance, situational compliance or noncompliance. CC means significant interaction effect of power assertion by frustration on committed compliance.

Table 13

Child effect: Interactions between Wave 1 Child Compliance and Fearfulness on Wave 2 Autonomy Supportive Parenting.

	<i>F</i>	β	<i>R</i> ²	<i>sr</i>
Step 3:	8.56***		.36	
AS		.57***		.57***
CC		-.07		-.06
Fearfulness		.03		.03
CC X Fearfulness		.13		.13
Step 3:	7.71***		.33	
AS		.58***		.57***
SC		-.02		-.02
Fearfulness		.01		.01
SC X Fearfulness		.03		.03
Step 3:	8.72***		.36	
AS		.58		.58
SC		.05		.05
Fearfulness		.02		.02
Noncompliance X Fearfulness		-.15		-.14

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. Predictors are all Wave 1 measures. “*sr*” represents the semipartial correlations in the final step.

Table 14

Child Effect: Interaction between Wave 1 Child Compliance and Frustration on Wave 2 Autonomy Supportive Parenting.

	<i>F</i>	β	<i>R</i> ²	<i>sr</i>
Step 3:	8.33***		.35	
AS		.58***		.57***
CC		-.10		-.10
Frustration		-.10		-.10
CC X Frustration		-.05		-.05
Step 3:	8.64***		.36	
AS		.54***		.52***
SC		-.00		-.00
Frustration		-.10		-.09
SC X Frustration		-.15		-.14
Step 3:	8.48***		.35	
AS		.57***		.56***
Noncompliance		.11		.11
Frustration		-.10		-.10
Noncompliance X Frustration		.08		.07

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. Predictors are all Wave 1 measures. “*sr*” represents the semipartial correlations in the final step.

Table 15

Child Effect: Interaction between Wave 1 Child Compliance and Fearfulness on Wave 2 Power Assertion.

	Do Context				Don't Context			
	<i>F</i>	β	R ²	<i>sr</i>	<i>F</i>	β	R ²	<i>sr</i>
Step 3:	4.98***		.24		10.24***		.40	
PA		.47***		.41***		.54***		.38***
CC		-.07		-.07		-.12		-.08
Fearfulness		.14		.14		.11		.10
CC X Fearfulness		-.03		-.03		.04		.03
Step 3:	5.09***		.25		10.34***		.40	
PA		.52***		.47***		.70***		.60***
SC		-.09		-.09		-.12		-.10
Fearfulness		.15		.15		.09		.09
SC X Fearfulness		-.05		-.05		.02		.02
Step 3:	5.27***		.25		10.57***		.41	
PA		.48***		.44***		.54***		.41***
Noncompliance		.12		.11		.16		.13
Fearfulness		.16		.15		.11		.11
Noncompliance X Fearfulness		.08		.07		-.03		-.03

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. PA means power assertive parenting. Predictors are all Wave 1 measures. "sr" represents the semipartial correlations in the final step.

Table 16

Child Effect: Interaction between Wave 1 Child Compliance and Frustration on Wave 2 Power Assertion.

	Do Context				Don't Context			
	<i>F</i>	β	R^2	<i>sr</i>	<i>F</i>	β	R^2	<i>sr</i>
Step 3:	9.43***		.38		9.87***		.39	
PA		.43***		.39***		.52**		.36**
CC		-.01		-.00		-.14		-.09
Frustration		.38***		.37***		-.03		-.03
CC X Frustration		.13		.13		.07		.07
Step 3:	3.11***		.37		10.09***		.39	
PA		.45***		.44***		.68***		.59***
SC		-.07		-.07		-.14		-.12
Frustration		.38***		.38***		-.00		-.00
SC X Frustration		.07		.07		.05		.05
Step 3:	9.50***		.38		10.23***		.40	
PA		.42***		.40***		.52***		.41***
Noncompliance		.04		.04		.17		.13
Frustration		.39***		.38***		-.02		-.02
Noncompliance X Frustration		-.13		-.13		.08		.08

Note. * for $p < .05$; ** for $p < .01$; *** for $p < .001$. PA means power assertive parenting. Predictors are all Wave 1 measures. "sr" represents the semipartial correlations in the final step.

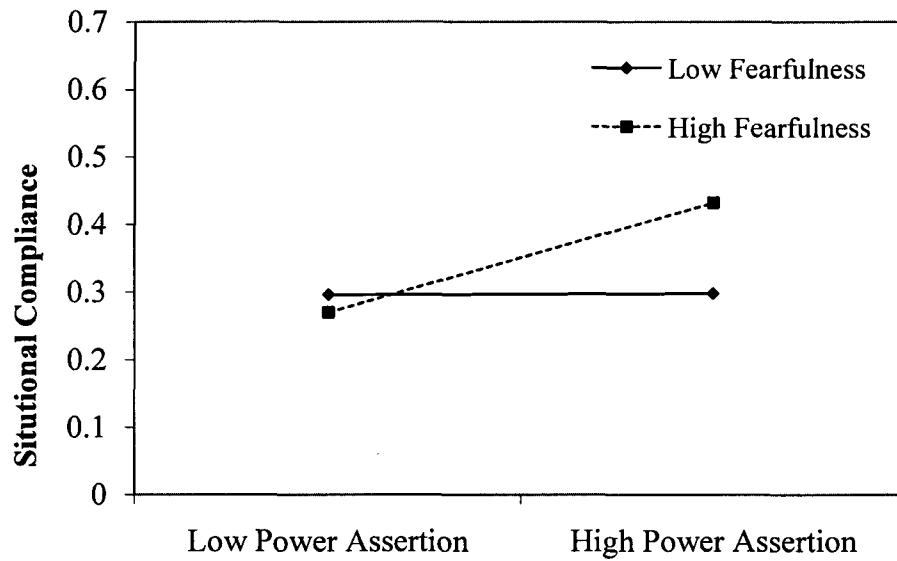


Figure 1. The interaction between fearfulness and power assertion for situational compliance at Wave 1 during the request context. Low Power Assertion represents one standard deviation below the mean and High Power Assertion represents one standard deviation above the mean.

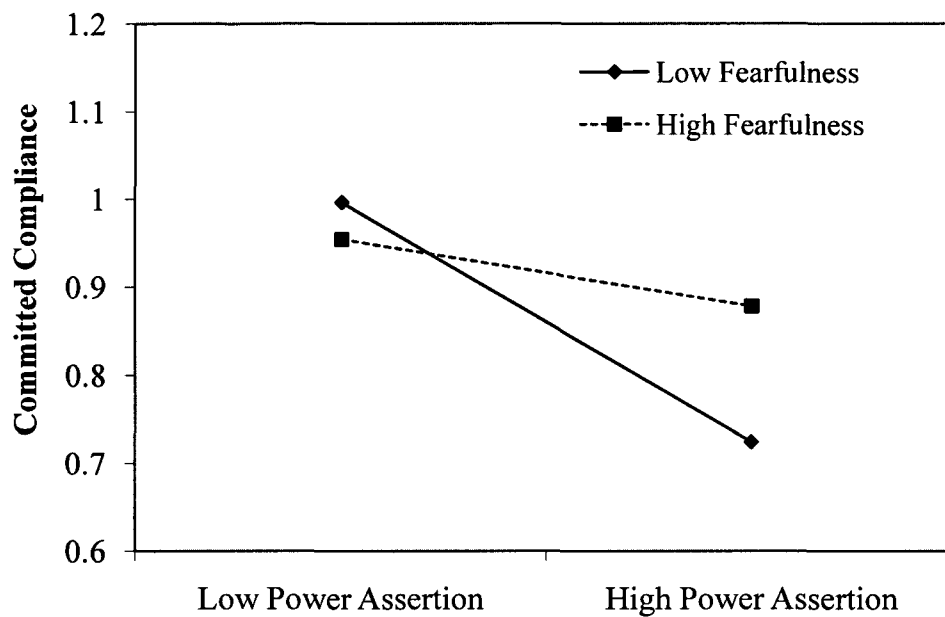


Figure 2. The interaction between fearfulness and power assertion for committed compliance at Wave 1 during the prohibition context. Low Power Assertion represents one standard deviation below the mean and High Power Assertion represents one standard deviation above the mean.

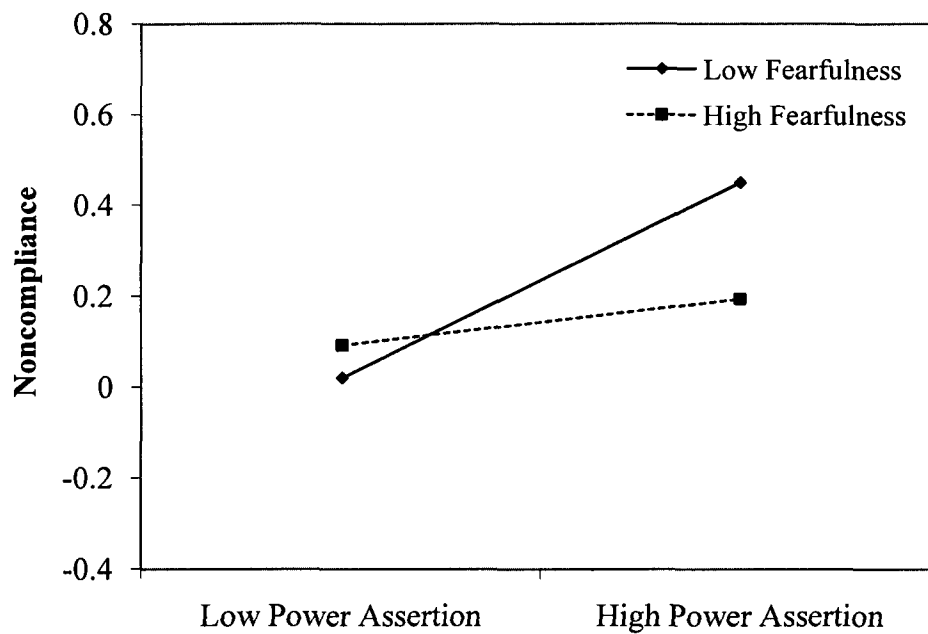


Figure 3. The interaction between power assertion and fearfulness for Noncompliance at Wave 1 during the prohibition context. Low Power Assertion represents one standard deviation below the mean and High Power Assertion represents one standard deviation above the mean.

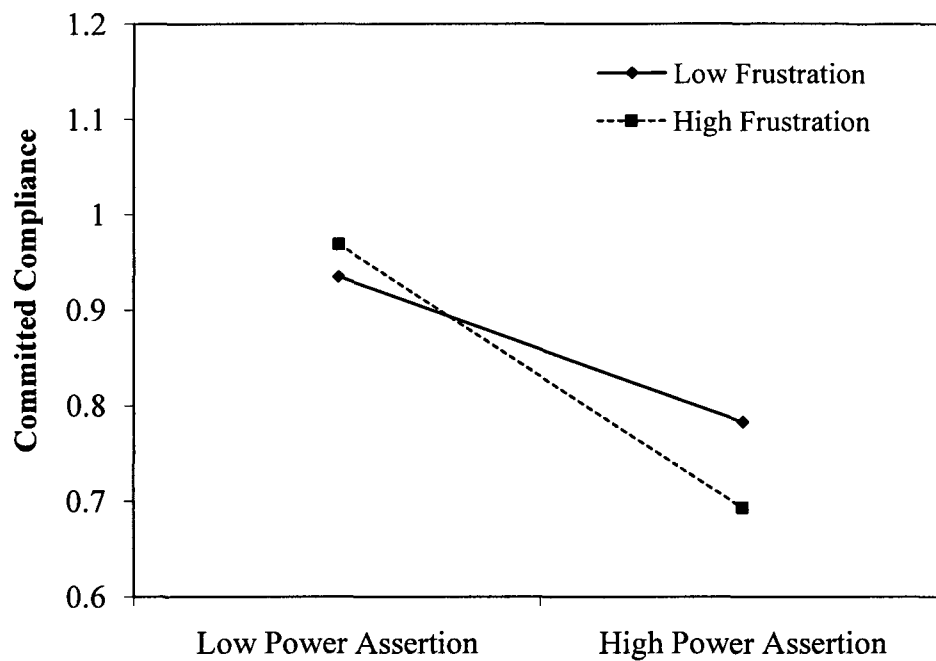


Figure 4. The interaction between power assertion and frustration for committed compliance at Wave 1 during the prohibition context. Low Power Assertion represents one standard deviation below the mean and High Power Assertion represents one standard deviation above the mean.