Running head: PARENTING AND CONDUCT PROBLEMS

Childhood Callous-Unemotional Traits Moderate the Relation Between Parenting Distress and

Conduct Problems Over Time

Kostas A. Fanti[1]

University of Cyprus

Luna C. Munoz Centifanti[2]

University of Durham

[1]Correspondence regarding this paper should be sent to Kostas A. Fanti, Department of

Psychology, University of Cyprus, P.O. Box 20537, CY 1678, Nicosia, Cyprus, via email to

kfanti@ucy.ac.cy, fax +357.22892071, or phone +357.22892067

[2]Luna C. Munoz Centifanti, Department of Psychology, University of Durham, DH1 3LE,

Durham, United Kingdom. E-mail: luna.munoz@durham.ac.uk

Abstract

The present short-term longitudinal study examines the bidirectional effects among paternal-reported and maternal-reported involvement, distress and conduct-problems (CP) in children ages 7-12 years with callous-unemotional (CU) traits as a potential moderator. Latent profile analysis revealed four groups: high, moderate, decreasing, and low on CU traits. Findings suggested that children high on CU traits were at higher risk to exhibit CP and were more likely to experience low parental-involvement and high parental-distress compared to children with low, decreasing, and moderate CU traits. Findings from the cross-lagged structural equation model suggested that high levels of CP predicted increases in parenting distress, and this was shown for youth with high levels of CU traits. In turn, parental-reported distress predicted increases in CP for children in the low and decreasing CU groups. A negative bidirectional association between maternal-involvement and CP was also identified. Findings extend cross-sectional research showing parents become distressed by CP behaviors, particularly when accompanied by high CU traits.

Keywords: Parenting stress; Parental involvement; Conduct problems; Callous-unemotional traits; Bidirectional.

Childhood Callous-Unemotional Traits Moderate the Relation Between Parenting Distress and

Conduct Problems Over Time

Some actions may place children in danger or get them into trouble, and this can be very distressing to parents. Greater parenting distress may result, because some children engage in these behaviors more than others and with seeming imprudence. For example, the conduct problem (CP) behaviors of children who are cold, uncaring, and whose emotions appear to be shallow (indicative of callous-unemotional [CU] traits) may cause great distress to parents [1]. However, the distress of a parent may differentially affect children with and without CU traits. Indeed, children who are high on CU traits have been found to be less disturbed by the effects their behaviors have on others [2]; thus, they may be unlikely to react to the distress of another. Just as likely, the CP of children with high levels of CU traits may depend less on parent-related factors [3, 4]. Bidirectional effects involving children with CU traits and parents have been gaining attention; that is, child-driven effects have been shown as well as parent-driven effects [5, 6]. However, longitudinal research on parents' feelings of distress in managing a child who is lacking in empathy would enhance existing research by informing on possible treatment targets [7].

Children's displays of CP behaviors have been found to be distressing to parents [8], supporting a child-driven effect. Child-driven effects in the families of children with CP may specifically relate to externalizing symptoms of oppositional defiant disorder (ODD) and conduct disorder (CD). Also, the impact on parenting-related stress may be specific to these types of CP. For example, when ODD/CD symptoms were included in statistical models, other childhood clinical symptoms, such as attention-deficit/hyperactivity disorder were found to be unrelated to parenting [9, 10]. Moreover, Podolski and Nigg [10] examined children ages 7 to 12 years and

noted differences between mothers and fathers in relation to parenting-related stress. That is, both mothers and fathers expressed dissatisfaction in their parenting roles and performance when their child exhibited externalizing symptoms. However, fathers' parenting-related stress was restricted to those externalizing symptoms that involved aggression, so it may take severe externalizing symptoms to distress fathers. Yet mothers expressed dissatisfaction based on a broad range of externalizing symptoms.

Furthermore, while CP behaviors may make parents worry, remorseless problem behaviors may make parents particularly distressed. Indeed, a cross-sectional study showed that parents of children who were higher on psychopathic traits (which include the deficits in affect typical of CU traits) reported more parenting distress (i.e., parenting-related stress) than parents of children who were lower on psychopathic traits [1]. Thus, parents may feel their parenting strategies are inadequate, that they lack support, or that parenting is impinging on their freedom, by the manner in which CP behaviors are carried out; the personality traits that accompany problem behavior may be important. Recent longitudinal studies demonstrated parents changed their behavior in response to child problem behavior as well as to CU traits [e.g., 5, 6]. That is, parents became less consistent, monitored and controlled less, and withdrew parental involvement when children showed CU traits or a combination of CU traits and problem behavior.

Although research has focused on supervision and parental involvement and parental actions in general, longitudinal research is lacking on general levels of parenting distress, which reflects the feelings parents have about their role as a parent. Also, this distress may differ for mothers and fathers. For example, Shaw, Owens, Giovannelli, and Winslow [11] found that children with CP had mothers who reported higher daily hassles within the parenting context.

Additionally, mothers have continued to spend more time with children than fathers [12]. Thus, examining mothers' and fathers' parenting-related stress separately may be needed. For example, mothers of children with high levels of CU traits, as compared to fathers, have been shown to have a greater ability to emotionally connect to their children [13] and this emotional scaffolding may be particularly important for the CP behavior of children high on CU traits [14]. Thus, the socialization context between mother and child has been found to be more consistent than for the father-child relationship [15].

For children with high levels of CU traits, their CP behaviors may be less likely to change based on their parents' concerns over their ability to parent effectively; that is, parent-driven effects may be less important for those high on CU traits. Twin studies suggest genetic factors may be more involved in the expression of CP for children high on CU traits than for children low on CU traits [16, 17], and shared environmental factors such as parenting were less involved in their CP behaviors [17]. Also, CU traits have been found to relate to temperamental fearlessness [18, 19]; this lack of fear may explain why children with CU traits are more difficult to socialize since they fail to experience transgression-related anxiety. Notably, fearless children may be resistant to socialization efforts, because typical disciplinary strategies have failed to increase anxiety in fearless children [20]. Consistent with this theory, the CP of children who were low on CU traits, but not those who were high on CU traits, have been shown to relate to high levels of ineffective parenting [3, 4]. More recently, Pasalich, Dadds, Hawes, and Brennan [21] showed these differential associations also applied to observational measures of fathers' and mothers' negative comments about their child. Taken together, these results suggest high parenting-related distress (i.e., negative feelings or dissatisfaction about their parenting role) may predict increases in child CP, but only for those children lower on CU traits.

In contrast to punitive discipline techniques, which rely on transgression-related anxiety or fear, parental warmth/involvement may reflect the quality of the parent-child relationship. Contrary to the findings presented above, high parental involvement has been found to relate to lower CP, particularly for those high on CU traits [21]. That is, the parent-child relationship may be a way to prevent problem behavior for children high on CU traits. In prior research, both mothers' and fathers' parental involvement statistically predicted lower CP for youths highest on CU traits [21]. However, prior research has been cross-sectional and longitudinal research fails to show differential effects of parental involvement on CP [5]. Thus, the present study will examine if involvement differs over time in relation to CP and CU traits.

The present study examined the idea that parenting distress and parental involvement may change over time given the presence of high levels of CP and CU traits. Also, the present study aimed to fill the gaps of prior research by examining bidirectional effects of parenting distress and parental involvement with CP, with CU traits acting as a potential moderator. Notably, research is converging on the idea that parents are affected by children's problematic behavior while also showing parents may affect children's behavior. Indeed, children are a significant part of a parent's social context. Thus, bidirectional effects between parents and their children should be unsurprising [22]. To test this bidirectional association, a short-term longitudinal study of a community sample of school age children (ages 7 – 12 years) was conducted using paternal- and maternal-reports of CU traits, CP, parental involvement, and parenting distress at two time points. Middle childhood is important, because parenting-related stress and involvement may be particularly malleable in response to developmental transitions, such as adolescence [23, 5].

To identify unique information provided by mothers and fathers, we initially investigated a multi-group Structural Equation Model (SEM) that took into account maternal and paternal-reported conduct problems, distress (e.g. feelings of frustration and loneliness due to a perceived inability to handle the demands of the child; perceived inability to maintain one's self-identity in the face of parenthood) and involvement (e.g. providing help with homework or other activities, positive parent-child interactions, attend school meetings, and talking to child about his/her friends, school, etc.) [24].

A latent profile analysis was used on CU traits to separate the sample into groups, taking into account both mother and father reports of CU traits across the one year period under investigation. In addition to comparing the identified groups on average levels of CP, parental distress and involvement, a cross-lagged model using structural equation modeling was used to estimate the bidirectional effects among the variables under investigation and these effects were compared across the CU groups. The effects from CP to parenting distress were hypothesized to be stronger for those highest in CU traits, and most notable for maternal parenting-related distress. In contrast, we expected the effects of parenting-related distress, reflecting the negative feelings that parents may have about their parenting role, on CP to be stronger for those lowest in CU traits. In line with prior cross-sectional research, parental involvement (both fathers' and mothers' involvement) was expected to predict CP for those highest on CU traits. Of importance, this was examined longitudinally.

Method

Participants and procedure

For the purposes of the current study, data was collected from a large sample of families in Cyprus, each with a child age 7 to 12 (53.4% girls) at two time points, one year apart. Data was

collected from 904 mothers and fathers at Time 1 and 832 mothers and fathers at Time 2. The sample was evenly divided in the 6 elementary grades with approximately 16% of the sample in each grade. The sample was diverse in terms of parental educational levels: 11.7% did not complete high school, 37.9% had a high school education, and 50.4% had a university degree, which is representative of the population in Cyprus. Families who did not participate at Time 1 ($n = 72$) were compared to those participating longitudinally ($n = 832$) on child's gender, parental education, and Time 1 maternal and paternal reports of CU traits, distress, and involvement. There were no significant differences between groups according to chi-square and t-test analyses.

Following approval of the study by the Cyprus Ministry of Education, the first author randomly selected 26 schools (10 from rural areas) in the four school districts (Larnaca, Lemeso, Papho, and Lefkosia) in Cyprus to ensure that the sample is representative of the population in Cyprus. School administrators and personnel were provided with a description of the study, and the study was approved by the school boards of all participating schools. Before data collection, signed parental consent and youth assent were obtained from all participating families (85% of parents and children agreed to participate). Families were also informed about the longitudinal nature of the study and their rights as participants. Children were given a sealed envelope that included the questionnaires to be completed by both parents. Parents were instructed to place the completed questionnaires in a sealed envelope and return them to the child's school. Parents were also instructed that responses from both parents were required to participate in the study. Parents were allowed two weeks to complete the questionnaires, and after the two week period they received a reminder letter. All written communication between the parents and the researchers was via the participating students. No incentives or rewards were given to parents or

children participating in the study.

Measures

    Callous-unemotional traits were assessed using the 24-item parent-report Inventory for Callous Unemotional traits (ICU) [25]. ICU items, such as "Shows no remorse when he/she has done something wrong," are rated on a four-point Likert scale from 0 (Not at all true) to 3 (Definitely true), with higher scores indicating greater CU traits. The construct validity of the ICU is supported in community, clinic-referred, and incarcerated samples of youth in Cyprus, Belgium, Germany, and U.S. [e.g., 26-29]. For example, the ICU total score showed predicted associations with aggression, delinquency, personality traits, psychophysiology and psychosocial impairment [26-29]. The total score for both mother and father reports demonstrated good internal consistency (α ranged from .86 to .88 across time) in the present study.

    Conduct problems were measured with the Checkmate plus Child Symptom Inventory for Parents-4 (CSI-4) [30], which assesses conduct disorder (CD; 15 items; e.g., "Has stolen things from others using physical force") and oppositional defiant disorder (ODD; 8 items; e.g., "Argues with adults") symptoms. CSI-4 is based on the diagnostic criteria specified in the 1994 edition of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* [31]. The CSI-4 was administered at two-time points, and parents indicated the frequency that their child engaged in CD and ODD symptoms on a four-point scale (ranging from 0 = "never" to 3 = "very often"). The correlations between ODD and CD ranged from .57 to .65, and consistent with prior work that investigated the association between CP and CU traits, items from the ODD and CD subscales were combined to create an overall CP variable (e.g. 32, 33]. The Cronbach's alpha for the combined 23-item CP variable ranged from .86 to .87 across time and based on both mother and father reports. Previous research has provided evidence for

the validity of the parent-reported ODD and CD symptoms measured with the CSI-4 in community and clinical samples in Cyprus and U.S. [34, 30].

Parental distress was measured via self-report using the Parenting Stress Index-Short Form (PSI-SF) [35], at baseline and one year later. The PSI-SF is a 36-item questionnaire, and consists of three subscales: Parental Distress, Parent-Child Dysfunctional Interaction, and Difficult Child. Prior work using exploratory factor analysis provided evidence for two different factors [36]. The first factor is composed of items from the Parenting Distress subscale and represents the parents' characteristics domain. The second factor, representing the child characteristics domain, is composed with items from the Parent-Child Dysfunctional Interaction and Difficult Child subscales. Because we were interested specifically to measure parental characteristics only the 12-item parental distress subscale was used (i.e., "Feel that I cannot handle things"; "Gave up my life for children's needs") in the current study. Mothers and fathers rated each item from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores indicating greater levels of distress. The Parental Distress subscale reflects a parent's perception of child-rearing competence, social support, and stresses associated with the restrictions placed on other life roles due to the demands of child-rearing. The subscale also reflects levels of distress resulting from conflict with a partner or depression. Cronbach's alpha for maternal and paternal distress ranged from .85-.89 across time.

Parental involvement at Time 1 and Time 2 was measured with the Alabama Parenting Questionnaire (APQ) [37] which is a 42-item questionnaire that assesses parenting constructs associated with CP (i.e., parental involvement, positive parenting, poor monitoring/ supervision, inconsistent discipline, and corporal punishment). For the current study only the 10-item parental involvement subscale was used (i.e., "You have a friendly talk with your child"; "You talk to

your child about his/her friends") to measure positive aspects of parenting practices. Mothers and

fathers rated each item from 1 (*never*) to 5 (*always*), with higher scores indicating greater levels

of parental involvement. Cronbach's alpha for maternal and paternal involvement ranged from

.78-.86 across time.

Plan of Analysis

Latent profile analysis (LPA), which is an extension of Latent Class Analysis that

accommodates continuous indicators, was used to identify distinct groups of children based on

maternal and paternal reports of their child's callous-unemotional traits during Time 1 and Time

2. This was carried out using Mplus 6.1 [38]. LPA identifies heterogeneous latent classes by

decomposing the covariance matrix to highlight relationships among individuals, and clusters

individuals into latent classes [39]. Separate LPA models that differ in the number of classes are

specified, which allows for the identification of the optimal number of groups. The Bayesian

information criterion (BIC), the Lo, Mendel, Rubin (LMR) statistic, and the entropy value were

used as statistical criteria for the model comparisons [40]. The model with lower BIC is

preferred. The LMR statistic tests $k-1$ classes against k classes, and a non-significant chi-square

value ($p > .05$) suggests that a model with one fewer class is preferred [41]. Entropy can range

from zero to one, and a higher entropy value, greater than .70, is preferred [42]. To compare the

identified groups on maternal and paternal reported conduct problems, distress and involvement,

separate Analyses of Variance (ANOVA) were conducted.

After identifying the different CU subgroups, a multi-group Structural Equation Model (SEM)

in Mplus 6.1 [38] was conducted, which took into account maternal and paternal-reported

conduct problems, distress and involvement. This model aimed to identify any differences in the

bidirectional associations under study between mothers and fathers, in order to determine

whether we could combine models for mothers and fathers. In addition, the longitudinal

reciprocal association among the variables was under investigation, such that the effect of CP on

parenting distress and involvement was expected to be greater for those high on CU traits.

However, first we examined the model without the moderation of CU traits to determine cross-

lagged effects in a main-effects model.

Multi-group models were computed following Little's [43] statistical guidelines. To examine

moderation of the structural paths, a structural model that constrained the cross-lag paths to be

invariant was compared to a structural model with structural paths freely estimated with the use

of the chi-square difference test. Three standard fit indices were used in addition to the Chi-

square statistic to evaluate model fit of the SEM models: The Root Mean-square Error of

Approximation (RMSEA), Standardized Root Mean Residual (SRMR), and the Comparative Fit

Index (CFI). Cut-off values close to .06 for RMSEA, .08 for SRMR, and .95 for CFI were

considered a good fit [44]. The Full Information Maximum Likelihood Estimator in Mplus 6.1,

which accommodates missing data by estimating the full model using all available information

from all participants, was utilized for all analyses.

Results

Descriptive statistics

Table 1 shows the means and standard deviations of each of the variables under investigation,

separately for mother and father reports. Maternal, $t(831) = 3.67$, $p < .001$, Cohen's $d = .18$, and

paternal, $t(831) = 3.81$, $p < .001$, $d = .19$, distress decreased from Time 1 to Time 2. Similarly,

mother reported CU traits, $t(831) = 7.65$, $p < .001$, $d = .38$, and father reported CU traits, $t(831) =$

6.89, $p < .001$, $d = .34$, decreased across time. CP and parental involvement did not show any

significant change from Time 1 to Time 2. No significant age differences were identified for CP,

parental distress and involvement, and age was not included as a covariate in the models under investigation. On average, mothers reported higher CP than fathers at Time 1, t(903) = 4.77, p< .001, d = .23, and Time 2, t(831) = 5.06, p< .001, d = .25. Mothers also reported higher levels of distress compared to fathers at both Times 1, t(903) = 6.08, p< .001, d = .30, and 2, t(831) = 5.59, p< .001, d = .27, and higher levels of involvement at Times 1, t(903) = 15.74, p< .001, d = .77, and 2, t(831) = 13.38, p< .001, d = .66.

Latent profile analysis

Five separate LPA models were estimated, comparing models with one to five groups. As shown in Table 2, the BIC statistic increased from class 4 to class 5 and the LMR statistic fell out of significance for the five class model, suggesting that the four-class model better fit the data. Furthermore, the mean probability scores for the four identified classes ranged from .80 to .91 and the entropy value was .73, suggesting that the identified classes were well separated. The final four groups are shown in Figure 1, which shows the groups' scores on CU traits separately based on mother and father reports and across time. Children in group-1 (n = 525; 58.1%), the low CU group, scored low on CU traits based on both mother and father reports. Children in group-2 (n = 56; 6.2%) scored high on CU traits at Time 1 and exhibited decreases in CU traits from Time 1 to Time 2. Children in group-3 (n = 228; 25.2%), the moderate CU group, scored at moderate levels of CU traits across time, and children in group-4 (n = 95; 10.5%) exhibited high and continuous levels of CU traits. According to χ^2 analyses, girls were overrepresented in the low CU (58% girls) and the decreasing (58.8% girls) groups, boys were overrepresented in the high CU group (55% boys) although gender ratio was more comparable for the moderate CU group (51.8% boys), $\chi^2_{(3, N=904)}$ = 17.62, p< .001).

Table 3 shows the results of the ANOVA conducted with the four identified groups on

parenting distress, parental involvement, and CP across Time (T). Standardized mean difference effect sizes (Cohen's *d*) are also reported in text. Compared to the low (Mothers: T1 *d* = 1.20, T2 *d* = 1.37; Fathers: T1 *d* = 1.19, T2 *d* = 1.30), decreasing (Mothers: T1 *d* = .60, T2 *d* = 1.08; Fathers: T1 *d* = .77, T2 *d* = 1.06) and moderate (Mothers: T1 *d* = .59, T2 *d* = .56; Fathers: T1 *d* = .53, T2 *d* = .58) groups, the high CU group showed higher levels of CP across time based on both mother and father reports. Children in the moderate (Mothers: *d* = .64; Fathers: *d* = .66) and decreasing (Mothers: *d* = .63; Fathers: *d* = .43) groups scored higher on CP than the low CU group at T1, although the moderate group scored higher on CP compared to both the decreasing (Mothers: *d* = .51; Fathers: *d* = .48) and low CU (Mothers: *d* = .81; Fathers: *d* = .71) groups at T2. Additionally, parents of children high on CU traits reported higher levels of distress compared to the low (Mothers: T1 *d* = .94, T2 *d* = 1.15; Fathers: T1 *d* = .94, T2 *d* = 1.16), decreasing (Mothers: T1 *d* = .35, T2 *d* = .76; Fathers: T1 *d* = .43, T2 *d* = .74), and moderate (Mothers: T1 *d* = .41, T2 *d* = .56; Fathers: T1 *d* = .38, T2 *d* = .55) CU groups, and lower levels of involvement compared to the low (Mothers: T1 *d* = .77, T2 *d* = .74, Fathers: T1 *d* = .53, T2 *d* = .58), decreasing (Mothers: T1 *d* = .40, T2 *d* = .51; Fathers: T2 *d* = .50), and moderate (Mothers: T1 *d* = .34) CU groups. Parents of children in the decreasing (Mothers: T1 *d* = .60; T2 *d* = .39; Fathers: T1 *d* = .51; T2 *d* = .42) and moderate CU (Mothers: T1 *d* = .53, T2 *d* = .58; Fathers: T1 *d* = .56; T2 *d* = .62) groups reported higher distress levels compared to the low CU group across time. Mothers of children in the decreasing group (*d* = .36) reported lower involvement at Time 1 compared to low risk youth, and parents of children in the moderate CU group (Mothers: T1 *d* = .43, T2 *d* = .46; Fathers: T1 *d* = .34; T2 *d* = .36) reported lower involvement compared to low risk youth across time.

Multi-group path model comparing mother and father reports

To investigate whether the bidirectional association among CP, involvement, and distress differed between mothers and fathers, we employed a multi-group path model. To examine moderation of the structural paths, a structural model that constrained the regression paths to be invariant was compared to a structural model with structural paths freely estimated with the use of the chi-square difference test. In the first stage of the analysis, we ran a model that freely estimated (i.e., unconstrained model) the structural paths separately for mothers and fathers, $\chi^2_{(6, N = 904)} = 13.39$, $RMSEA = .03$(RMSEA CI: .01|.05), $SRMR = .02$, $CFI = .99$. The constrained model, with autoregressive and cross-lag paths constrained to be equal, $\Delta\chi^2_{(9, n = 904)} = 14.74$, $p = .09$, fit the data equally well as the unconstrained model suggesting no differences in the structural paths between mother and father reports. Therefore, we proceeded with the model shown in Figure 2.

Bidirectional associations

After identifying invariance between mother and father reports, we examined the model without the moderation of CU trait groups to determine cross-lagged effects in a main-effects model. Data from the two raters were combined to create latent factors of CP, parental distress and involvement at Times 1 and 2.

Measurement model. The measurement model consisted of three latent constructs: CP (based on mother and father reports), parental distress (maternal and paternal distress) and parental involvement (maternal and paternal involvement) at each of the two waves of measurement. The variables under investigation were all inter-correlated to investigate the fit of the measurement model. The measurement model showed acceptable fit, $\chi^2_{(39, N = 904)} = 239.62$, $RMSEA = .05$(RMSEA CI: .04|.06), $SRMR = .03$, $CFI = .96$. As shown in Table 4, all the constructs under investigation were significantly inter-correlated in the expected direction. That

is, CP was positively associated with parental distress and negatively associated with parental involvement. Parental involvement and parental distress were also negatively correlated. Figure 2 reports the factor loading of the observed indicators on the different latent factors. All the loadings were higher than .65.

   Main effect model. The hypothesized model was based on a two-wave Cross-Lag Model and is illustrated in Figure 2. We also included cross lag paths between parental distress and involvement in order to control for their potential associations over time. This model differed from the measurement model in that unidirectional paths were specified across waves. However, an equal number of parameters were estimated, so the goodness of fit and the chi square statistic remained the same as the measurement model, $\chi^2_{(39, N = 904)} = 239.62$, $RMSEA = .05$(RMSEA CI: .04|.06), $SRMR = .03$, $CFI = .96$. The autoregressive paths between Time 1 and Time 2 CP, parental distress, and parental involvement were all significant. As illustrated in Figure 2, greater CP at Time 1 was associated with increases in parental distress and with decreases in parental involvement at Time 2. In turn, greater parental distress was associated with increases in CP at Time 2 and greater parental involvement was associated with decreases in CP at Time 2. Therefore, the results suggest bidirectional associations among CP, parental distress and involvement. A negative bidirectional association between parental distress and involvement was also identified.

Moderation by CU traits

   Finally, we included the multi-group SEM that took into account the identified CU subgroups. In the first stage of the analysis, we ran a model that freely estimated the structural paths separately within each group, $\chi^2_{(210, N = 904)} = 422.99$, $RMSEA = .05$(RMSEA CI: .04|.06), $SRMR = .06$, $CFI = .95$. The unconstrained model fit the data better than the constrained model, with

autoregressive and cross-lag paths constrained to be equal, $\Delta\chi^2_{(27, n = 904)} = 70.04$, $p < .001$, suggesting cross-group differences in the structural paths. The difference in models was accounted for by three associations. The effect from CP at Time 1 to parental distress at Time 2 was only significant for children scoring high on CU traits, $\beta = .37$, $SE = .09$, $p < .001$, but not for children scoring low, $\beta = .02$, $SE = .06$, $p = .74$, decreasing , $\beta = .09$, $SE = .10$, $p = .36$, or moderate, $\beta = .10$, $SE = .08$, $p = .16$, on CU traits ($\Delta\chi^2_{(3, n = 904)} = 16.81$, $p < .001$). On the other hand, the effect from parental distress at Time 1 to CP at Time 2 was significant for children with low, $\beta = .33$, $SE = .11$, $p < .01$, or decreasing CU traits, $\beta = .23$, $SE = .08$, $p < .001$, but not for children with moderate, $\beta = .01$, $SE = .06$, $p = .89$, or high, $\beta = .03$, $SE = .07$, $p = .69$, CU traits ($\Delta\chi^2_{(3, n = 904)} = 11.24$, $p < .001$).

Discussion

The present short-term longitudinal study extends prior cross-sectional research [1]; that is, parents showed increases in parenting distress in response to CP behaviors, particularly when they were accompanied by high CU traits. Controlling for prior parenting-related distress, CP predicted increases in parenting distress among those with children high on CU traits (compared to the low, decreasing and moderate CU groups). We conversely examined the effects of parenting distress on CP. In this case, parenting-related distress predicted increases in CP for children in the low and decreasing CU groups, as compared to those moderate or high on CU traits. Together, these findings suggest there are child-driven effects that depend on the degree of concern children show while displaying CP. Further, the findings dovetail with research suggesting reduced parent-driven effects for those high on CU traits [3, 4].

The present study focused on parents' emotions as well as parenting behaviors of involvement [45-48]. Indeed, parenting behaviors are sometimes suggested to be secondary to

emotions in planning treatment targets [7]. The present study showed parents reported more

parenting distress (i.e., more dissatisfied with their role as a parent and in their parenting

performance) in parenting a child with CP when the child was callous and emotionless (and

possibly unbothered by their behavior) [49]. CP that is accompanied by a fairly unemotional

expressiveness may be perceived by parents as particularly distressing. That is, research shows

that children high on CU traits failed to look at their parents' eyes in communicating with them

[13]. Therefore, it is possible that parents of children high on CU traits are affected by their

child's failure to maintain eye contact and to form a secure attachment with them [50]. With

greater CP and CU traits, parents may respond to this extreme externalizing symptomatology by

feeling more distressed with their role as a parent, as severe externalizing symptoms have been

shown to relate to parenting strain [10]. The present study is the first known to show that CU

traits moderate the relation between externalizing symptoms and parenting-related distress.

Parenting distress may increase in response to the CP of youths high on CU traits,

because children high on CU traits may show a lack of concern over punishment for misbehavior

[2]. For example, in a parent-training intervention for children who were four to eight years old

with CP and with or without co-occurring CU traits, children with CU traits and high levels of

CP more often were described by parents as unaffected by punishment attempts, such as time-

out, when compared to those with high levels of CP but without CU traits [51]. Thus, CU traits

may make children relatively insensitive to punishment, possibly due to their fearless

temperament [52, 2]. Parents of children high on CU traits and CP may subsequently feel that

their usual parenting efforts are not working. Notably, parents' feelings of ambivalence in their

parenting-role may lead to the implementation of inconsistent discipline strategies [35]. Indeed,

prior research shows parents of youths high on CU traits became less consistent in their

parenting strategies over time [5, 6]. Thus, the present study suggests that parenting distress could be a mechanism by which mothers specifically turn to ineffective parenting strategies over time. Indeed, the findings in the main model show high levels of parenting-related distress predict decreases in parental involvement over time. Further, this effect from distress to withdrawal of involvement occurred in all CU groups without significant differences between them.

The moderation effect by CU traits was shown bidirectionally; children high on CU traits seemed to increase their CP due to their own propensity to engage in aggressive and oppositional behaviors rather than because of their parents' experience of parental distress. Similar to that of prior research both with community and clinic-referred samples [53, 4], the present findings suggest a child-driven effect for those high on CU traits. These findings also dovetail with findings of a strong genetic (or at least a strong genetically-mediated) basis to CU and CP behavior [17]. In contrast, parenting-related distress was associated with increased CP only for children scoring low and decreasing CU traits.

An alternative explanation that was not tested here is the possible shared CU traits between parents and children [17]. For example, prior research suggests fathers (but not mothers) share in the emotional deficits that CU children show [13, 14]. However, fathers were similar to mothers in reporting greater parenting-related distress when their children were high on CP, which might suggest that fathers, like mothers, experience stress. Moreover, prior research finds the warm and coercive behaviors exhibited by fathers were similarly related as mothers' behavior to CP in relation to CU traits [21]. Therefore, mothers and fathers act/react similarly to CP behaviors regardless of CU traits.

Importantly, while parents tend to withdraw their involvement when their children exhibit CP, maintenance of high parental involvement was associated with decreases in CP for all children in the sample. Therefore, parental behaviors seem to play a key role in protecting youth, with or without CU traits, from developing further CP. Although punitive discipline techniques do not seem to work for children scoring high on CU, high levels of parenting warmth and involvement was found to be negatively associated with the development of CU traits and CP symptoms [54]. Socialization practices capitalizing on the affective quality of the parent-child relationship, such as parental responsiveness and warmth, are more likely to have positive effects on children's moral development even for fearless and underaroused children [55]. Parental warmth and involvement promotes children's emotional responding and allows for the internalization of parental moral and rule-based values, which protects against the development of antisocial behavior. Thus, parenting warmth and involvement might foster empathic concern and protect children from developing CP. Our findings support this as a way to intervene with children with CU traits.

We expected mothers to show parenting-related distress changes in relation to CP. In many families, mothers spend more time with their young children than fathers do [12]. Thus, the socialization context between mother and child was expected to be stronger than for the father-child relationship [15], making mothers more distressed. However, no differences in the bidirectional associations under investigation were identified, suggesting that the identified associations can be applied to both mothers and fathers. Therefore, the present study extends these finding to fathers, who have rarely been included in longitudinal studies [56], in that both maternal and paternal distress and involvement influence similarly children's CP.

Of note, a group showing decreases in their levels of CU traits was identified, which is consistent with prior longitudinal work [57, 32]. For example, Fontaine et al. [57] used group-based trajectory modeling among a large sample of twins and identified a sub-group of children following a decreasing trajectory of CU traits from age 7 to age 12. Similar to our findings, children showing decreases in CU traits over time were at lower risk to exhibit CP and experienced higher positive parenting, including parental involvement, compared to youth exhibiting high and continuous CU traits [57, 32]. Our findings add to this work in that the CP of children showing decreases in CU traits were more likely to be affected by parenting distress compared to children showing high and stable CU traits. Thus, the higher parental involvement experienced by children in the decreasing CU group along with the ability to understand and be affected by their parents' emotions might drive the decreases in their levels of CP, and possibly CU traits.

The present findings should be interpreted in light of some limitations, such as the reliance on parent-reports for children's CP; these were assessed only on the basis of questionnaires. Future research should investigate how parents' distress relates to observational assessments of children's behavior to reduce the influence of shared-method variance. Also, longitudinal studies are one way to show causality, but the processes that are involved in the reciprocal transactions among parents and children may unfold over time [58]. In addition, there may be sensitive periods when parenting distress or involvement may be most potent; thus, longer-term studies are needed [e.g., 59]. Further, studies should focus on the preschool and early school years to examine the generalizability across developmental periods. One notable strength of the present study is the inclusion of both mother and father reports which were combined in latent models. The large sample of the current study, collected from a representative

sample of the population in Cyprus, and the longitudinal design enabled the use of Latent Profile

Analysis that identified different groups of children based on maternal and paternal reports of

CU traits over time and the use of a cross-lag structural equation model to investigate

bidirectional effects among parenting and child measures. The multi-group SEM models further

allowed us to test differences across groups (i.e., mothers versus fathers; CU subgroups), while

controlling for stability in the constructs over time.

Assessment of the emotional climate and parents' feelings about parenting his or her

child may be useful in implementing parenting interventions. The findings suggest interventions

that target parents' feelings about the effectiveness of parenting could be useful in decreasing

child CP. Indeed, prior research shows parents who positively reframed their difficulties reported

more satisfaction with their parenting role [10]. However, this would seem to work for possibly

decreasing the CP of children with low or decreasing CU traits, but not for the CP of children

high on CU traits.

Research is converging on the usefulness of parental warmth/involvement in decreasing

CP. Cross-sectional research suggests parental warmth/involvement relates to low levels of CP,

particularly for those children high on CU traits [21]. Indeed, children who appear unresponsive

to punishment and discipline techniques have been shown to benefit from a close relationship

with their parents [20]. Thus, parental involvement/warmth should be encouraged during

childhood. Yet, in a socialization context, the parenting-related strains of managing frustration

and maintaining self-identity for parents of children who are high on CU traits and CP could be

substantial. Since children high on CU traits and high CP experience deficits in attending to

others' emotional displays of distress [e.g., 60], it may be that parents' distress increases because

of the children's lack of response. Thus, intervention at a family level may be most needed where

the child has high levels of CP and CU.

Findings also suggested that youth with high and continuous levels of CU traits are at higher risk for CP, and are more likely to face contextual adversity compared to youth with low, decreasing or moderate CU traits, providing evidence that children with high CU traits might constitute a pathological group [61]. Replication of these findings by different studies, with the use of different informants, and for different age groups demonstrate the usefulness of sub-typing CD symptoms based on CU traits for the forthcoming fifth edition of the *Diagnostic and Statistical Manual* (*DSM*-5) [62].

Summary

In sum, assessment of the emotional climate in which parenting occurs is suggested to be useful because this climate is created by children's actions. Child CP behavior was associated with increases in parental-related stress/strain and this depended on the child's CU traits. Thus, over time, parents expressed feeling more dissatisfied with their role as parents and less confident in their parenting abilities when children highest on CU traits showed high levels of CP. Also, the results suggest a negative bidirectional association between CP and parental involvement, suggesting that high parental involvement is a protective factor for youth high or low on CU traits. Finally, the current findings support the association between CU traits with CP in a cultural group that has not been the focus of research on these traits. CU traits among youth have been the focus of many studies taking place in the United States, and this is among the first studies being conducted in Cyprus. As such, it supports the contention that these traits are important for understanding the development of CP across cultures.

References

1. Fite PJ, Greening L, Stoppelbein L (2008) Relation between parenting stress and psychopathic traits among children. Behav Sci Law 26:239-248

2. Pardini DA, Byrd AL (2012) Perceptions of aggressive conflicts and others' distress in children with callous-unemotional traits: "I'll show you who's boss, even if you suffer and I get in trouble." Child Psychol Psychiatry 53:283-291

3. Edens JF, Skopp NA, Cahill MA (2008) Psychopathic features moderate the relationship between harsh and inconsistent parental discipline and adolescent antisocial behavior. J Clin Child Adolesc Psychol 37:472-476

4. Wootton JM, Frick PJ, Shelton KK, Silverthorn P (1997) Ineffective parenting and childhood conduct problems: the moderating role of callous-unemotional traits. J Consult Clin Psychol 65:301-308

5. Hawes DJ, Dadds MR, Frost AD, Hasking PA (2011) Do childhood callous-unemotional traits drive change in parenting practices? J Clin Child Adolesc Psychol 40:507-518

6. Muñoz LC, Pakalniskiene V, Frick PJ (2011) Parental monitoring and youth behavior problems: moderation by callous-unemotional traits over time. Eur Child Adolesc Psychiatry 20:261-269

7. Scott S, Dadds MR (2009) Practitioner Review: When parent training doesn't work: theory-driven clinical strategies. J Child Psychol Psychiatry 50:1441-1450

8. Pelham WE, Lang AR (1999) Can your children drive you to drink? Alcohol Res Health 23:292-298

9. Graziano PA, McNamara JP, Geffken GR, Reid A (2011) Severity of children's ADHD symptoms and parenting stress: A multiple mediation model of self-regulation. J Abnorm

Child Psychol 39:1073-1083

10. Podolski CL, Nigg JT (2001) Parent stress and coping in relation to child hyperactivity severity and associated child disruptive behavior problems. J Clin Child Psychol 30:501-511

11. Shaw DS, Owens EB, Giovannelli J, Winslow EB (2001) Infant and toddler pathways leading to early externalizing disorders. J Am Acad Child Adolesc Psychiatry 40:36-43

12. Parke RD, Buriel R (2006) Socialization in the family: Ethnic and ecological perspectives. In: Willaim D, Eisenberg N (eds) Handbook of child psychology: Vol. 3, Social, emotional, and personality development, 6th edn. Wiley, New York, pp 429–504

13. Dadds MR, Jambrak J, Pasalich D, Hawes DJ, Brennan J (2011) Impaired attention to the eyes of attachment figures and the developmental origins of psychopathy. J Child Psychol Psychiatry 52:238-245

14. Pasalich DS, Dadds MR, Vincent LC, Cooper FA, Hawes DJ, Brennan J (2012) Emotional Communication in Families of Conduct Problem Children With High Versus Low Callous-Unemotional Traits. J Clin Child Adolesc Psychol 41:302-313

15. Kochanska G, Aksan N, Prisco TR, Adams EE (2008) Mother-child and father-child mutually responsive orientation in the first 2 years and children's outcomes at preschool age: Mechanisms of influence. Child Dev 79:30-44

16. Bezdjian S, Raine A, Baker LA, Lynam DR (2011) Psychopathic personality in children: Genetic and environmental contributions. Psychol Med 41:589-600

17. Viding E, Blair RJ, Moffitt TE, Plomin R (2005) Evidence for substantial genetic risk for psychopathy in 7-year-olds. J Child Psychol Psychiatry 46:592-597

18. Barker ED, Oliver BR, Viding E, Salekin RT, Maughan B (2011) The impact of prenatal

maternal risk, fearless temperament and early parenting on adolescent callous-unemotional traits: a 14-year longitudinal investigation. J Child Psychol Psychiatry 52:878-888

19. Marsh AA, Finger EC, Schechter JC, Jurkowitz IT, Reid ME, Blair RJR (2011) Adolescents with psychopathic traits report reductions in physiological responses to fear. J Child Psychol Psychiatry 52:834-841

20. Kochanska G (1993) Toward a synthesis of parental socialization and child temperament in early development of conscience. Child Dev 64:325-347

21. Pasalich DS, Dadds MR, Hawes DJ, Brennan J (2011) Do callous-unemotional traits moderate the relative importance of parental coercion versus warmth in child conduct problems? An observational study. J Child Psychol Psychiatry 52:1308-1315

22. Combs-Ronto LA, Olson SL, Lunkenheimer ES, Sameroff AJ (2009) Interactions between maternal parenting and children's early disruptive behavior: Bidirectional associations across the transition from preschool to school entry. J Abnorm Child Psychol 37:1151-1163

23. Campbell SB, Cummings ME, Davies PT (2002) Developmental Psychopathology and Family Process: Theory, Research, and Clinical Implications. Guilford Press, New York

24. Bartels M, Boomsma DI, Hudziak JJ, Van Beijsterveldt TCEM, Van den Oord EJCG (2007) Twins and the study of rater (dis) agreement. Psychol Methods 12:451-466

25. Frick PJ (2004) The inventory of callous-unemotional traits. University of New Orleans, New Orleans. (Unpublished rating scale)

26. Essau CA, Sasagawa S, Frick PJ (2006) Callous-unemotional traits in a community sample of adolescents. Assess 13:454-469

27. Fanti KA, Frick PJ, Georgiou S (2009) Linking callous-unemotional traits to instrumental and non-instrumental forms of aggression. J Psychopathol Behav Assess 31:285-298

28. Kimonis ER, Frick PJ, Skeem JL, Marsee MA, Cruise K, Munoz LC et al (2008) Assessing callous-unemotional traits in adolescent offenders: Validation of the Inventory of Callous-Unemotional Traits. Int J Law Psychiatry 31:241-252

29. Roose A, Bijttebier P, Decoene S, Claes L, Frick PJ (2010) Assessing the affective features of psychopathy in adolescence: a further validation of the inventory of callous and unemotional traits. Assess 17:44–57

30. Gadow KD, Sprafkin J (2002) Child Symptom Inventory–4 screening and norms manual. Checkmate Plus, Stony Brook, New York

31. American Psychiatric Association (1994) Diagnostic and statistical manual of mental disorders, 4th edn. American Psychiatric Association, Washington, DC

32. Frick PJ, Kimonis ER, Dandreaux DM, Farell JM (2003) The 4 year stability of psychopathic traits in non-referred youth. Behav Sci Law 21:713–736

33. Pardini DA, Loeber R (2008) Interpersonal callousness trajectories across adolescence early social influences and adult outcomes. Crim Justice Behav 35:173-196

34. Fanti KA (2011) The association of Callous-unemotional traits to Oppositional Defiant disorder and Attention Deficit Hyperactivity Disorder: Taking resilience into account. Proceedings of the 15th European conference on developmental psychology, Medimond International Proceedings, 551-557

35. Abidin RR (1990) Parenting Stress Index (PSI). Pediatric Psychology Press

36. Haskett ME, Ahern LS, Ward CS, Allaire JC (2006) Factor structure and validity of the parenting stress index-short form. J Clin Child Adolesc Psychol 35:302–312

37. Frick PJ (1991) The Alabama parenting questionnaire. University of Alabama, Alabama. (Unpublished rating scale)

38. Muthén LK, Muthén BO (2010) Mplus User's Guide. Muthén & Muthén, Los Angeles, CA

39. Bauer DJ, Curran PJ (2004) The integration of continuous and discrete latent variable
    models: Potential problems and promising opportunities. Psychol Methods 9:3-29

40. Nylund KL, Asparouhov T, Muthén BO (2007) Deciding on the number of classes in latent
    class analysis and growth mixture modeling. A Monte Carlo simulation study. Struct Equ
    Modeling 14:535-569

41. Lo Y, Mendell NR, Rubin DB (2001) Testing the number of components in a normal
    mixture. Biometrika 88:767-778

42. Fanti KA, Henrich CC (2010) Trajectories of pure and co-occurring internalizing and
    externalizing problems from age 2 to age 12: Findings from the NICHD Study of Early
    Child Care. Dev Psychol 46:1159-1175

43. Little TD (1997) Mean and covariance structures (MACS) analyses of cross-cultural data:
    Practical and theoretical issues. Multivariate Behav Res 32:53-76

44. Bollen KA (1989) Structural equations with latent variables. Wiley, New York

45. Burke JD, Pardini DA, Loeber R (2008) Reciprocal relationships between parenting behavior
    and disruptive psychopathology from childhood through adolescence. J Abnorm Child
    Psychol 36:679-692

46. Fanti KA, Henrich CC, Brookmeyer KA, Kuperminc GP (2008) Toward a transactional
    model of parent-adolescent relationship quality and adolescent psychological adjustment. J
    Early Adolesc 28:252-276

47. Kerr M, Stattin H (2003) Parenting of adolescents: action or reaction? In: Crouter AC, Booth
    A (ed) Children's influence on family dynamics: The neglected side of family relationships.
    Lawrence Erlbaum Associates Publishers, Mahwah, NJ, pp 121-151

48. Larsson H, Viding E, Rijsdijk FV, Plomin R (2008) Relationships between parental negativity and childhood antisocial behavior over time: A bidirectional effects model in a longitudinal genetically informative design. J Abnorm Child Psychol 36:633-645

49. Pardini DA, Fite PJ, Burke J (2008) Bidirectional associations between parenting practices and conduct problems in boys from childhood to adolescence: The moderating effect of age and African-American ethnicity. J Abnorm Child Psychol 36:647-662

50. Pasalich DS, Dadds MR, Hawes DJ, Brennan J (2012). Attachment and callous-unemotional traits in children with early-onset conduct problems. J Child Psychol Psychiatry 53:838-845

51. Hawes DJ, Dadds MR (2005) The treatment of conduct problems in children with callous-unemotional traits. J Consult Clin Psychol 73:737-741

52. Blair RJR (1995) A cognitive developmental approach to morality: Investigating the psychopath. Cognition 57:1-29

53. Oxford M, Cavell TA, Hughes JN (2003) Callous/unemotional traits moderate the relation between ineffective parenting and child externalizing problems: A partial replication and extension. J Clin Child Adolesc Psychol 32:577-585

54. Pardini DA, Lochman JE, Powell N (2007) The development of callous-unemotional traits and antisocial behavior in children: Are there shared and/or unique predictors? J Clin Child Adolesc Psychol 36:319–333

55. Kochanska G (1997) Multiple pathways to conscience for children with different temperaments: From toddlerhood to age 5. Dev Psychol 33:228-240

56. Coley RL, Medeiros BL (2007) Reciprocal longitudinal relations between nonresident father involvement and adolescent delinquency. Child Dev 78:132-147

57. Fontaine NMG, Rijsdijk FV, McCrory EJP, Viding E (2010) Etiology of different developmental trajectories of callous-unemotional traits. J Am Acad Child Adolesc Psychiatry 49:656–664

58. Cairns BD, Cairns RB (1994) Lifelines and risks: Pathways of youth in our time. Cambridge University Press

59. Fanti KA, Panayiotou G, Fanti S (2012) Associating parental to child psychological symptoms: Investigating a transactional model of development. J Emot Behav Disord. (in press)

60. Kimonis ER, Frick PJ, Muñoz LC, Aucoin KJ (2007) Can a laboratory measure of emotional processing enhance the statistical prediction of aggression and delinquency in detained adolescents with callous-unemotional traits? J Abnorm Child Psychol 35:773-785

61. Fanti KA (2013) Individual, Social, and Behavioral Factors Associated with Co-Occurring Conduct Problems and Callous-Unemotional Traits. J Abnorm Child Psychol. (in press)

62. Frick PJ, Moffitt TE (2010) A proposal to the DSM-V childhood disorders and the ADHD and disruptive behavior disorders work groups to include a specifier to the diagnosis of conduct disorder based on the presence of callous-unemotional traits. American Psychiatric Association, Washington, DC

Table 1. *Mean and Standard Deviation (SD) Scores on each Measured Variable.*

Problem/symptom	Mother report		Father report	
	M	*SD*	*M*	*SD*
CP-Time 1	5.41	5.06	4.64	4.50
CP-Time 2	5.07	5.11	4.36	4.36
Parental distress-Time 1	24.02	7.89	22.53	7.09
Parental distress-Time 2	22.73	8.05	21.34	7.17
Involvement-Time 1	30.68	5.00	27.89	6.32
Involvement-Time 2	31.05	5.07	28.18	6.54
CU traits-Time 1	18.12	9.92	18.66	10.07
CU traits-Time 2	15.42	9.49	16.12	9.74

Table 2. *Model Fit Statistics for the Latent Profile Analysis*

Classes	BIC	AIC	Entropy	LMR
1	2866.47	28624.69	N/A	N/A
2	27496.86	27428.96	.78	$p < .001$
3	27281.61	27187.60	.73	$p < .001$
4	27172.91	27052.79	.73	$p < .01$
5	27207.43	27061.20	.71	$p = .16$

Table 3. *ANOVA results comparing children with low, decreasing, moderate, and high CU symptoms on parenting distress, parental involvement and CP.*

	Low CU	Decreasing CU	Moderate CU	High CU	*F*-value	*df*	η^2
Mother reports							
Distress (T1)	21.38(.31)^a	25.82(.84)^b	25.29(.38)^b	28.37(.50)^c	54.50**	3	.12
Distress (T2)	20.03(.37)^a	22.91(.81)^b	24.38(.47)^b	28.59(.71)^c	43.93**	3	.13
Involv. (T1)	32.03(.20)^c	30.30(.54)^b	29.97(.25)^b	28.35(.33)^a	35.21**	3	.08
Involv. (T2)	32.30(.24)^c	31.18(.53)^{bc}	30.05(.31)^{ab}	28.68(.47)^a	20.79**	3	.07
CP (T1)	3.44(.19)^a	6.21(.53)^b	6.26(.24)^b	9.03(.31)^c	82.83**	3	.17
CP (T2)	3.01(.23)^a	4.38(.50)^a	6.71(.29)^b	9.29(.44)^c	69.84**	3	.20
Father reports							
Distress (T1)	20.17(.31)^a	23.61(.86)^b	23.92(.37)^b	26.46(.53)^c	42.56**	3	.11
Distress (T2)	18.82(.79)^a	21.64(.79)^b	22.93(.44)^b	26.57(.69)^c	39.28**	3	.14
Involv. (T1)	29.18(.28)^b	27.38(.80)^{ab}	27.07(.34)^a	25.87(.49)^a	14.32**	3	.04
Involv. (T2)	29.40(.34)^c	28.87(.76)^{bc}	27.12(.42)^{ab}	25.71(.67)^a	11.03**	3	.04
CP (T1)	2.91(.19)^a	4.68(.53)^b	5.64(.23)^b	7.84(.33)^c	64.88**	3	.16
CP (T2)	2.74(.22)^a	3.69(.47)^a	5.58(.26)^b	7.90(.41)^c	50.70**	3	.17

Note: Estimated marginal means (SE)*;* T = Time; Different subscripts ($_{a,b,c}$) denote significant differences between groups in post hoc pairwise comparisons;*$p \le .05$; **$p \le .01$.

Table 4. *Measurement model latent correlations.*

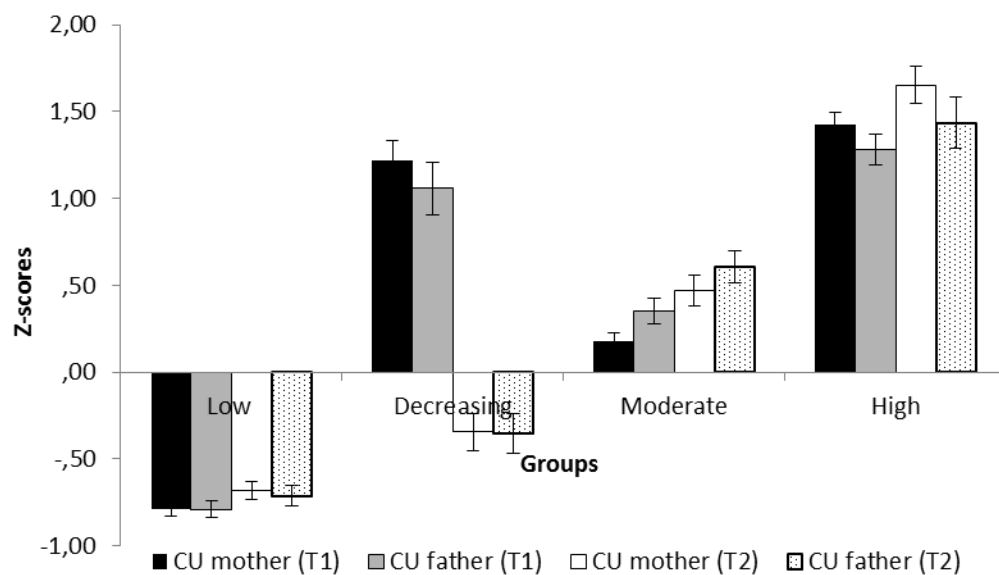|	CP Time 1	CP Time 2	Parental distress Time 1	Parental involvement Time 1	Parental distress Time 2
CP-Time 2	.82**				
Parental distress-Time 1	.46**	.42**			
Parental involvement-Time 1	-.40**	-.33**	-.55**		
Parental distress-Time 2	.46**	.55**	.74**	-.40**	
Parental involvement -Time 2	-.34**	-.36**	-.41**	.82**	-.43**

Note;*$p \leq .05$; **$p \leq .01$.

Figure 1. Z-scores and Confidence Intervals across Subgroups Identified using Latent Profile Analysis based on both mother and father reports across time. *Note:* T = Time.
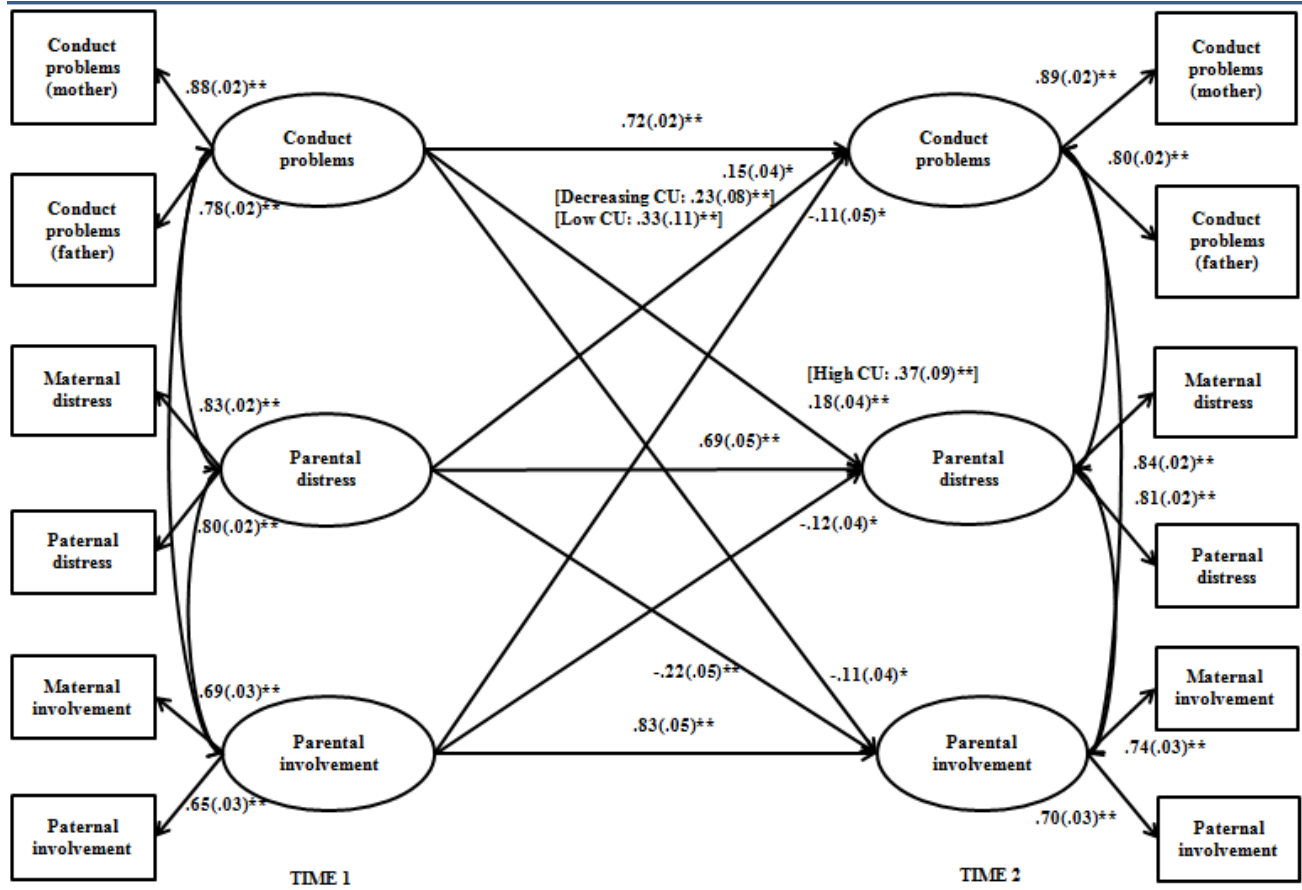
Figure 2. Cross-lag structural equation model.
Note: Standardized coefficients (SE); Significant findings from the moderation analysis are also reported. * p< .05, ** p< .01.