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Running head: PARENTING AND YOUTH BEHAVIOR BY CALLOUS-UNEMOTIONAL
TRAITS

Parental Monitoring and Youth Behavior Problems: Moderation by Callous-Unemotional
Traits Over Time

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Abstract

Background and Objectives: Prior research suggests that parents' monitoring behaviors are related to the conduct problems of children but not to the conduct problems of children with callous-unemotional traits. However, these studies have been cross-sectional. The present short-term longitudinal study investigates the bidirectional influences of parental monitoring and youth problem behaviors, while also examining the potential moderating influence of callous-unemotional traits.

Methods: We assessed adolescents (M=14.5 years) and parents at two time points. Youths reported their callous-unemotional traits and delinquency, while parents reported their child's conduct problems, and their parenting behaviors to track and control their child's activities.

Results: We found support for a child-driven change in parents' monitoring behaviors over time. Specifically, children with high callous-unemotional traits had parents who reduced their monitoring behaviors over time, and their monitoring behaviors were not synchronous with other monitoring behaviors over time. Also, parents of youths with high callous-unemotional traits showed a trend toward not being stable in their surveillance efforts over time. Moreover, greater behavioral control for youths high on callous-unemotional traits did not lead to parents' greater knowledge about their youths. In fact, having less knowledge was related to decreases in parental control, when youths were high on callous-unemotional traits.

Conclusions: The present study supports the importance of personality in shaping how parents actively monitor their children.

Keywords: Parenting; Callous-unemotional traits; Delinquency; Problem behaviors

Parental Monitoring and Youth Behavior Problems: Moderation by Callous-Unemotional Traits Over Time

Problem behaviors may be influenced by parental efforts to know where their children are, but this may be truer for some youths than others. For example, problem behaviors have been less strongly related to parenting when they co-occur with callous-unemotional (CU) traits [1-4]. The suggestion has been that youths with CU traits (i.e., lack of guilt; low empathy; constricted emotions) have high levels of conduct problems, regardless of their parents' monitoring [4,2]. Thus, etiological factors separate from parental monitoring seem to play a role in the development of conduct problems for these youths [4].

However, research has made a distinction between monitoring efforts and knowledge, and many of the assessments being used assess what parents know about their children (i.e., knowledge) rather than actions (i.e., monitoring) to gain knowledge [5-6]. Indeed, much parental monitoring research has simply assessed whether parents know their children's whereabouts and peer activities. For example, questions included in the Wootton and colleagues [4] study asked about whether the child hung out with peers that were unknown to the parent. However, this question does not assess why. Children may be unsupervised, because they sneak out, disobey their parents' demands, or because parents have been lax; the former two are part of the child's behavior. Other items ask about the child telling the parent where she/he is going, which measures the *child's* willingness to disclose information and not what the *parent* does [5-6]. Thus, to truly understand the associations between parental monitoring efforts and child behavior problems, it is important to assess parents' knowledge separate from monitoring (e.g., using behavioral control and soliciting youths for information). Treatment implications often rely on research showing that parents' actions (i.e., what parents do) affect behavior; moreover, this is particularly important when a possibility exists that this differs for youths with high levels of CU traits.

Further, research supports the contention that parental behavior is often a reaction to problem behaviors in the child, as much as it is a cause of behavior problems [7-8]. Longitudinal research has shown that conduct problems often lead to parents loosening control over their children [8,7,9-12]. For example, greater delinquency has been found to lead to parents being less controlling and less supportive [8]. Therefore, youth behaviors may affect the way parents react. However, parents' reactions to children with CU traits have rarely been studied, and not longitudinally. Thus, the direction of effect is unclear from these studies.

Based on the research showing that problem behaviors can affect parenting, we argue

for another possibility other than simply conceptualizing parents as the contributors to problem behaviors, depending on the level of CU traits. Thus, it is possible that youth behaviors may change parents' monitoring, and this may depend of the level of CU traits. When children are cold and emotionally closed, parents may have less knowledge and monitor less often [12]. Also, other studies have shown that youths' manipulative and secretive actions at home were predictive of parents' reactions [8]. The combination of coldness, manipulativeness, and delinquency may increase the reaction parents have. Indeed, children high on CU traits have parents who report a high level of distress over these traits [13]. Thus, prior cross-sectional findings can be re-conceptualized as showing that problem behaviors could contribute to poor parental monitoring, and this could vary depending on the level of CU traits.

Prior cross-sectional studies [4,1,3] have suggested parental monitoring is more strongly associated with behavior problems in children low on CU traits. Longitudinal research is needed to support this suggestion. Moreover, these researchers have not considered the opposite direction of effect (i.e., child behaviors affecting monitoring) as an explanation for their findings [4,1,3]. That is, it may be that children's behavior affects parenting in a different manner for children high and low on CU traits. Further, prior research has not assessed parents' monitoring actions, such as solicitation of information and behavioral control, when they have CU traits. We focused on these parenting behaviors, because a recent meta-analysis has found a strong effect for poor monitoring on adolescent's antisocial behavior [14].

To address these limitations, we assessed delinquent and conduct problem behaviors and parental monitoring and knowledge at two time points (with one year lag) using both parent and youth reports. Rather than relying on cross-sectional data [2,4], the cross-lagged design used in the present study allowed us to test the effect of problem behavior on parental monitoring and parental knowledge over time, using some of the same measures that have been used before (i.e., the Alabama Parenting Questionnaire) [2,4] as well as newer measures of monitoring. Also, we could test the effect of monitoring and knowledge on problem behavior over time. Finally, the moderation of these effects by CU traits was tested.

Two structural equation models were tested: one with delinquency and one with conduct problems. These analyses tested two main hypotheses. First, we tested whether changes in parenting were predicted by the problem behaviors of youths who were high versus low in CU traits, which would indicate a reduction in parental monitoring due to a combination of problem behavior and a lack of caring and remorse over these actions. Thus,

parents were expected to react to a closed, antisocial child with less solicitation and control over time. Second, parenting behaviors were expected to have a stronger effect on problem behaviors, but this was predicted to be only in those low on CU traits.

Method

Participants

A two-step stratified random sampling procedure was employed to recruit participants. In the first step, approximately 4,000 parents of children in the 3rd, 4th, 6th, and 7th grades of two school systems in a moderate sized city in the southeastern United States received announcements about the study. The two school systems were chosen because one served the immediate urban area and the second served the surrounding region that was predominantly suburban and rural. Those parents who agreed to have their child participate in the study completed informed consent forms and screening questionnaires used to assess the presence of DSM-IV symptoms [15] and CU traits [16, see 17 for a detailed description of the sample].

The sample of 1,136 children, who were assessed, was divided into four groups based on combined parent and teacher ratings of conduct problem symptoms and callous-unemotional (CU) traits [18]. Next, 25 children out of each of four groups (high and low on conduct problems and high and low on CU traits) were selected based on cut-offs. Parents and children were then recruited to participate in the longitudinal portion of the study, ensuring that about half of each group came from the younger and older cohorts. These four groups were first blocked according to gender, ethnicity, and socioeconomic status and participants were selected through a stratified random sampling procedure to ensure that the four groups matched the group from which they were sampled on the three stratification variables.

This sample of 100 children and their parents were reassessed at approximately yearly intervals for the next four years as part of a larger study of children at risk for antisocial and aggressive behavior [19-20]. For the present study, all data were from the final two waves of assessment, and we did not regard the original cut-offs for the present study since the cut-offs were done two years prior to the current assessment. As reported in Muñoz and Frick [17], there was no selective attrition over the study. Also, attrition did not differ by psychopathic traits or antisocial behavior [17]. Our decision to use the final two waves was due to our need to include questionnaires about monitoring, which were included at these two waves only. The average length of time between these two waves was 13.38 (SD= 2.82) months. Of the 100 children, 91 children (47 boys and 44 girls) participated in at least one of the waves of data collection reported in this paper. Our final sample included 75 parents and 81 children

providing data at both waves. The mean age of the sample at the first wave reported in the current manuscript (when the children were in the 6th, 7th, 9th, and 10th grades) was 14.5 (SD= 1.8) years.

Callous-Unemotional Traits. The callous-unemotional dimension of the Antisocial Process Screening Device [16] was used. Each of the six items were scored either 0 (Not at all true), 1 (Sometimes true), or 2 (Definitely true). The self-report version of the APSD has been shown to designate a more severe, chronic, and violent juvenile offender [21-22], and the CU dimension has shown acceptable stability over time [17]. As has been reported before [17], the internal consistency for the CU dimension 0.61 and 0.53 at Times 1 and 2, respectively. Despite the low internal consistency, the self-report of CU has shown moderate contemporaneous and predictive correlations with parent-report over two years. Also, self-report of CU has been shown to correlate with parent-reports of antisocial behavior two year later [17]. Thus, the validity of the scale, which is limited by its low reliability, performs quite well regardless.

Youth-Reported Delinquency. The Self-Report of Delinquency Scale [23] assesses the child's self-report of 36 illegal juvenile acts. Consistent with past uses of the scale [24], a composite measure was created by summing the number of delinquent acts committed (with a possible range of 0 to 33). Youth-reported delinquency was used since parents may be unaware of behaviors that occur outside the home. This composite had coefficient alpha's of 0.83 and 0.85 at the two assessment points.

Parent-Reported Conduct Problems. The Behavioral Assessment System for Children-Parent Rating Scale [25] is a standardized measure of child adjustment based on parent report that has normative data for children ages 4 to 18. Behaviors are rated on a four-point scale of frequency from Never to Always. The Conduct Problems scale includes behaviors, such as cheats in school and gets into trouble; thus, parents report on problem behaviors that they would be able to observe in the home or obtain knowledge about from the school. In a nationwide normative sample, coefficient alpha reliabilities for the Conduct Problems scale ranged from 0.64 to 0.75 [25]. The internal consistency for this scale ($\alpha = .66$ at Time 1 and $\alpha = .76$ at Time 2).

Parental Knowledge. The Alabama Parenting Questionnaire [26] includes 42 items which assess five parenting constructs. For this study, we used the 10 parent-reported items assessing Monitoring/Supervision (e.g., "Your child goes out without a set time to be home" and "Your child is out with friends you do not know"), which we call knowledge. Items on the global report form are rated on a 5-point frequency scale indicating (1) "never" to (5)

“always”. This scale has shown differential relations with children’s conduct problems based on high and low CU traits [2,4]. The internal consistency for this scale ($\alpha = .74$ at Time 1 and $\alpha = .78$ at Time 2). This scale was reversed to indicate greater knowledge.

Parental Monitoring. Research shows that monitoring should be based on parents’ actions[6,5]. The parenting questionnaire created by Stattin and Kerr includes scales regarding parents’ solicitation, parental control, and child’s disclosure. These measures have been validated in Swedish and US samples [e.g.,6,5,27]. The measures included were regarding parents monitoring attempts, such as control and solicitation. Items asked parents to rate, on a five-point frequency scale, indicating (1) “yes, always” to (5) “no, never”. Parental control and solicitation were each comprised of five items such as, “Does your child have to ask you first, before he/ she can make Saturday night plans with friends?” (indicating control) and “Do you usually ask your child to tell you about what happens during free time? (who he/ she meets out on the town, leisure activities, etc)” (indicating solicitation). The internal consistency for control ($\alpha = .72$ at Time 1 and $\alpha = .78$ at Time 2) and solicitation ($\alpha = .62$ at Time 1 and $\alpha = .67$ at Time 2) were acceptable. These scales were reversed to indicate greater control and solicitation.

Data Analysis

To examine relations between parents’ behaviors and youth behavior, we tested cross-lagged panel design model with Mplus 5.0 [28]. For analyses we used full information maximum likelihood (FIML) because we used raw data as the input file for the program and some of the data were missing. The full information maximum likelihood techniques provide less biased estimates than listwise or pairwise deletion [29], and are used even when data are not missing at random [30]. Proportions of missing data are examined by a covariance “coverage” provided by Mplus. The minimum coverage is recommended at .10 [28]. In this study, the coverage in the models ranged from .74 to .93.

Cross-lagged panel design models were tested in this study and the conceptual model is presented in Figure 1. We tested two models: one model included delinquency and parenting, while another model included conduct problems (instead of delinquency) and parenting. In both models, all the variables measured at the same time were correlated (see Table 1 for descriptives and zero-order correlations). We used multiple group analyses to examine the possible moderating effects of CU traits. A median split on the youths’ report of CU traits was performed to investigate the effects at low and high levels of CU traits. The median split resulted in relatively equal numbers of boys and girls in the two groups, and no differences in age were evident.

Results

Full Sample

In the full sample, we tested whether youth problem behaviors, such as youth reported delinquency or parents' reported conduct problems, predicted parent-reported parenting, after controlling for the stability of parenting over time. We also tested the reverse: whether parenting predicted youth problem behavior after controlling for the stability of problem behavior. The directions of effects were tested in the cross-lagged panel design model presented in Figure 1. Table 1 notes the correlations among the main study variables. First, we tested the model using youth self reported delinquency as youth problem behavior. This model is a fully saturated model. Standardized estimates of all cross-paths are presented in Table 2. Second, we tested the effect of parent-reported youth conduct problems as youth problem behavior. This second model is also a fully saturated model. Standardized estimates of all cross-paths are presented in the second column of Table 2.

First, across both models youth problem behavior (standardized autoregressive coefficients of .73 and .80 for delinquency and conduct problems, respectively) showed relatively high rates of stability, whereas parenting (coefficients ranging from .49 to .71) showed moderate to high rates of stability. Second, the only predictive relationship between parenting dimensions as indicated by significant cross-paths suggest that higher parental control predicted more parental knowledge over time. This significant cross path was found for the model using delinquency and the model using conduct problems as the measure of youth problem behavior.

The cross-paths predicting problem behaviors from parenting and predicting parenting from problem behaviors are the ones most directly related to the main study questions. For parenting predicting later youth problem behavior (controlling for initial levels of problem behavior), parental solicitation predicted decreases in conduct problems one year later and parental knowledge predicted decreases in delinquency one year later. In the prediction of parenting, youth delinquent behaviors predicted a decrease in parents' control over time.

Testing the Effect of Youth Characteristics on the Two Models

The next set of study questions focused on the potential moderating role of CU traits on the bidirectional effects between parenting and behavior problems. These questions were addressed using a multigroup analysis. There are two common ways to approach multigroup analyses. First, one can constrain all paths to be equal and compare the differences in chi-square and then free one path at a time. Second, one can specify all the paths on the model to be free and then constrain one path at a time to be equal between groups. One then evaluates

the effect of the equality constraint by examining the chi-square difference test (i.e., chi-square of the new model minus the old-saturated model). The latter approach was used in these analyses. We tested the effect of having equality constraints on all the paths (one at a time) for both groups in both initial models. χ^2 difference tests suggest some similarities between youth with low and high CU traits; however, there are also several significant differences. Results from the multigroup analyses are presented in Table 3.

χ^2 difference tests suggest that delinquency was significantly more stable over time for youth with low CU traits than for youth with high CU traits ($\Delta\chi = 8.79$, $\Delta df = 1$). There was a trend for parental control to show more stability over time for youths low on CU traits than for youths high on these traits in the model with youth delinquency only ($\Delta\chi = 2.96$, $\Delta df = 1$). Also, higher parental control predicted increases in knowledge ($\Delta\chi = 6.37$, $\Delta df = 1$ in the model with youth delinquency; $\Delta\chi = 5.46$, $\Delta df = 1$ in the model with youth conduct problems) and parents' solicitation predicted increases in parental control over time ($\Delta\chi = 3.74$, $\Delta df = 1$ in the model with youth delinquency; $\Delta\chi = 4.57$, $\Delta df = 1$ in the model with youth conduct problems), but these associations were only found for youth low on CU traits in both models. Thus, for children low on CU traits, parents who demand to know where their children are and give children set times to be home acquire more knowledge over time. Also for children low on CU traits, using one form of monitoring (i.e., solicitation) was related to increases in another form of monitoring (i.e., control). Interestingly, there was a very different association between parental knowledge and parental control for those low and high on CU traits ($\Delta\chi = 6.11$, $\Delta df = 1$ in the model with youth delinquency; $\Delta\chi = 8.66$, $\Delta df = 1$ in the model with youth conduct problems). Specifically, having less knowledge led to increases in control over time for youths low on CU, while having less knowledge led to decreases in control for youths high on CU traits.

There was no coefficient that reached significance for parenting predicting youth problem behavior. Further, there was only a tendency for delinquency to predict decreases in parental control for youths high on CU traits only in the model with youth delinquency ($\Delta\chi = 3.09$, $\Delta df = 1$). Thus, parents might respond to youth delinquency by reducing their control and this was limited to those youths who are most likely to engage in delinquency.

Discussion

This study is unique in looking at the moderating effects of CU traits on parental monitoring over time. Results indicated that youth behaviors influenced parents' reactions, and this was moderated by CU traits. The results of the present study suggest that parents

may respond differently when their children's behaviors are accompanied by a lack of remorse. Children with high CU traits had parents who reduced their monitoring and supervision behaviors over time, and their behaviors were less linked to other monitoring and supervision efforts over time. Prior cross-sectional studies did not allow for the testing of bidirectional associations between parental monitoring behaviors and behavior problems for youths low and high on CU traits. Thus, whereas parenting has been more strongly related to conduct problems based on CU traits, this study is unique in prospectively testing whether the opposite effects (i.e., child-driven effects on parenting behaviors) may be stronger or weaker based on CU traits [31].

We could not support the suggestion that youths low on CU traits increase their problem behavior in response to poor parental control or solicitation, while youths high on CU traits show problem behavior irrespective of the level of control or solicitation [4]. Albeit of short duration, the present study used a longitudinal design, and we found more support for child-driven effects on parenting than the other way around.

Although parenting was not more strongly related to problem behavior in youths low on CU traits, parenting was more stable and predicted other parenting behaviors more strongly in youths low on CU traits. For parents with youths who were low on CU traits, their behavioral control informed them of their child's activities (i.e., was related to increases in knowledge) over time, which is consistent with prior research on youths in general [e.g., 32]. While parenting efforts have been found to lead to knowledge in prior research [32], other research suggests that only the child's self-disclosure predicts knowledge and parenting efforts make little contribution to knowledge [6]. Considering CU traits as a moderator may account for these differences in findings. That is, parents may be more successful in gaining knowledge from youths with low CU traits who are willing to answer parents' questions. For youths high on CU traits, parents may have to rely more on what the youth feels like disclosing. Indeed, youths with CU traits are possibly least likely to freely give information to their parents [33], and parents might be responding to this closed behavior by reducing their monitoring attempts.

Moreover, our findings suggest that for parents of youths who were low on CU traits, knowledge was negatively related to control over time. It may be that the more parents know, the less they need to control their child. Further, their monitoring activities seem to work in concert, with solicitation and control being used together more often and control techniques being used more consistently over time. Alternatively, for youths high on CU traits, parents who have poor knowledge of their child's activities attempt to control them even less. Thus,

these parents reduce control when they do not have information. Youths with CU traits are possibly least likely to freely give information to their parents, and parents might respond to this closed behavior by reducing their monitoring attempts with their growing experience with a cold child and adolescent. Thus, a child that is closed off from parents may elicit the same from their parents. Indeed, children who are warm and open tend to be monitored more over time, while the reverse is true for children who are cold and closed [12]. Also, parents may notice that what they do to gain knowledge is ineffective and may respond by backing off. This would seem to come to be consistent with reactions parents may have to children who seem to be resistant to punishment efforts by parents [34]. There was a trend for parents to control less over time when their children displayed high levels of CU traits. Parents have been found to disengage in their parenting efforts over time when their children display problem behaviors [e.g., 35,11,8]. Thus, parents may recognize when their youths are resistant to discipline and surveillance; they may then respond by limiting their control attempts.

The present findings must be interpreted in light of several limitations. We had a small sample and the children were selected to overrepresent those with conduct problems and delinquency. For this reason, these results need replication in a larger sample of unselected youth to assess whether these findings generalize to a general sample. Indeed, our limited sample size prevented us from examining gender differences over the one-year period. Also, the present study included only one follow-up assessment, and further research should look at these processes over longer periods of time. With relation to parenting, the knowledge measure we used was originally designed to measure monitoring and supervision, but included many items reflecting knowledge rather than parents' behaviors. Thus, we included it as it has been used in other research and we included newer measures which focus on parenting actions to supervise their children. However, in the future, it may be fruitful to examine the relation between scales of the Alabama Parenting Questionnaire (and the revised version) and other parenting measures. Finally, since we do not have a measure of parents' CU traits, we cannot test whether the behavior of parents with children with high levels of CU traits is a result of their own traits. However, the results of the present study are not inconsistent with the idea of a gene-environment correlation, whereby aversive child predispositions elicit poor parenting behaviors that in turn lead to delinquency or conduct problems [31]. Indeed, we found a trend toward delinquency reducing parental control when children were high on CU traits.

The present findings are useful in considering interventions for severe problem behaviors that occur with CU traits. The present study and other recent findings support the greater importance of personality than knowledge or active monitoring [36]. Cold, closed, and antisocial personalities expressed by youths may underlie poor knowledge and parents appear to set limits and supervise their children less in response. Prevention efforts may need to target the early intimate relationship between parent and child [37], where youth self-disclosure is encouraged.

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Table 1. Descriptives and concurrent correlations among study measures.

	Time 1	Time 2						
	M (SD)	M (SD)	1	2	3	4	5	6
1. Callous-Unemotional Traits	3.05 (1.87)	3.01 (1.81)	-	.22*	.23*	-.11	-.24*	.10
2. Delinquency YR	1.20 (2.32)	1.48 (2.71)	.25*	-	.22*	-.34**	-.09	-.19
3. Conduct Problems PR	1.62 (2.57)	2.03 (3.00)	.26*	.23*	-	.00	.04	.10
4. Parental Knowledge	16.04 (4.42)	17.21 (4.91)	-.05	-.30**	-.04	-	.27*	.41***
5. Parental Solicitation	7.09 (2.72)	6.59 (2.67)	-.01	-.01	-.11	.46***	-	.34**
6. Parental Control	15.26 (4.53)	16.75 (5.21)	.02	-.34**	-.01	.52***	.39***	-

Note: * $p < .05$; ** $p < .01$; *** $p < .001$; Time 1 is listed above the diagonal and Time 2 is below.

Table 2. Standardized estimates of all the paths from both models for the full sample.

	<i>Model with</i>	
	Youth delinquency YR	Youth conduct problems PR
<i>Autoregressive Coefficients:</i>		
Youth problem behavior T1 → Youth problem behavior T2	.73***	.80***
Parents' solicitation T1 → Parents' solicitation T2	.50***	.49***
Parents' knowledge T1 → Parents' knowledge T2	.56***	.60***
Parents' control T1 → Parents' control T2	.68***	.71***
<i>Parenting Predicting Other Parenting:</i>		
Parents' solicitation T1 → Parents' knowledge T2	.09	.08
Parents' solicitation T1 → Parents' control T2	.07	.06
Parents' control T1 → Parents' solicitation T2	.15	.16
Parents' control T1 → Parents' knowledge T2	.26***	.27***
Parents' knowledge T1 → Parents' solicitation T2	.14	.14
Parents' knowledge T1 → Parents' control T2	-.02	.04
<i>Parenting Predicting Youth Problem Behavior:</i>		
Parents' solicitation T1 → Youth problem behavior T2	.13†	-.15*

Parents' control T1 → Youth problem behavior T2	-.01	-.03
Parents' knowledge T1 → Youth problem behavior T2	-.19*	-.04
<i>Youth Problem Behavior Predicting Parenting:</i>		
Youth problem behavior T1 → Parents' solicitation T2	-.01	-.06
Youth problem behavior T1 → Parents' knowledge T2	-.13	.01
Youth problem behavior T1 → Parents' control T2	-.26**	-.05

*** $p < .001$; ** $p < .01$; * $p < .05$; † $p < .10$

Note. YR: youth report; PR: parent report

Table 3. Standardized estimates of all the paths from both models for the adolescents who are low and high on callous-unemotional (CU) traits

	<i>Model with</i>			
	Youth delinquency YR		Youth conduct problems PR	
	Low CU traits	High CU traits	Low CU traits	High CU traits
<i>Autoregressive Coefficients:</i>				
Youth problem behavior T1 → Youth problem behavior T2	.89***	.41**	.73***	.87***
Parents' solicitation T1 → Parents' solicitation T2	.43***	.49***	.42***	.48***
Parents' knowledge T1 → Parents' knowledge T2	.54***	.76***	.55***	.81***
Parents' control T1 → Parents' control T2	.75***	.41**	.77***	.50***
<i>Parenting Predicting Other Parenting:</i>				
Parents' solicitation T1 → Parents' knowledge T2	.06	.11	.06	.07
Parents' solicitation T1 → Parents' control T2	.30***	.07	.30***	.06
Parents' control T1 → Parents' solicitation T2	.11	.22	.09	.23
Parents' control T1 → Parents' knowledge T2	.39***	-.05	.40***	-.01
Parents' knowledge T1 → Parents' solicitation T2	.17	.04	.17	.08
Parents' knowledge T1 → Parents' control T2	-.22*	.20	-.21*	.35*

<i>Parenting Predicting Youth Problem Behavior:</i>				
Parents' solicitation T1 → Youth problem behavior T2	.10	.20	-.20†	-.14
Parents' control T1 → Youth problem behavior T2	-.04	-.03	-.01	-.08
Parents' knowledge T1 → Youth problem behavior T2	-.13†	-.28*	.03	-.07
<i>Youth Problem Behavior Predicting Parenting:</i>				
Youth problem behavior T1 → Parents' solicitation T2	.19	-.11	.08	-.12
Youth problem behavior T1 → Parents' control T2	-.10	-.38**	-.04	-.12
Youth problem behavior T1 → Parents' knowledge T2	-.08	-.13	-.02	.04

*** $p < .001$; ** $p < .01$; * $p < .05$; † $p < .10$

Note. YR: youth report; PR: parent report.

Figure Captions

Figure 1. Conceptual model of parents' reactions and youths' problem behavior.

