Published in final edited form as:

J Res Adolesc. 2012 March ; 22(1): 65–79. doi:10.1111/j.1532-7795.2011.00757.x.

The Drift toward Problem Behavior during the Transition to Adolescence: The Contributions of Youth Disclosure, Parenting, and Older Siblings

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Abstract

Prospective associations of mothers' parenting processes, youth disclosure and youth problem behavior were examined in a longitudinal design following 244 adolescent sibling dyads over a three year period. For both siblings, authoritative parenting was positively associated with youth disclosure and negatively related to problem behavior, and coercive parenting was negatively associated with youth disclosure and positively related to problem behavior. When the influence of older sibling problem behavior on younger sibling problem behavior was modeled, younger sibling disclosure accounted for the relationship of maternal parenting processes to problem behavior. Findings indicate the important role of sibling influence in the development of problem behavior, contextualizing the relative roles of maternal parenting and youth disclosure in the transmission of risk.

Keywords

Monitoring; Adolescent Development; Sibling Relations; Parent-Child Relationship; Problem Behavior

Epidemiological and longitudinal data indicate that the transition to adolescence is associated with a rapid increase in the incidence and prevalence of antisocial behavior, drug use and other risky behaviors (Steinberg et al., 2006). Many of these problem behaviors occur in groups in which peers facilitate, model, co-participate, and encourage delinquent and risky behaviors (Patterson et al., 2000; Prinstein & Dodge, 2008). However, research also indicates the risk associated with increasing peer influence (as well as with a number of other converging risk factors associated with pubertal onset; Dahl & Spear, 2004) at the transition to adolescence can be mitigated by effective parenting, especially monitoring (Dishion, Capaldi, Spracklen, & Li, 1995; Dishion, Nelson, & Kavanaugh, 2003; Eddy & Chamberlain, 2000).

In the context of this empirical foundation, several issues related to monitoring have not been adequately addressed: the unique contribution of parent solicitation and youth disclosure to effective monitoring and in turn, problematic behavior; the facilitating role of other parent-youth relationship processes in effective monitoring and their complementary

contribution to youth adjustment; and the degree to which older siblings may mitigate or amplify the contribution of parent-child relationship processes to risk for problem behavior.

Monitoring as a Social Process

Of the various dimensions of parenting, use of appropriate *behavioral control* strategies has been one of the most salient and robust protective factors for adolescents' problem behavior (Cernkovich & Giordano, 1987; Sampson & Laub, 1994) and affiliation with deviant friends (Dishion, Capaldi, Spracklen & Li, 1995). One specific facet of control, parent's ability to monitor children's activities and environment (i.e., parental monitoring), is foundational to the social learning model of externalizing behavior (Dishion & McMahon, 1998). According to this model, poor parental monitoring results in a greater risk for deviant peer affiliation which further reinforces and escalates such behavior.

The role and importance of various social processes involved in effective monitoring, however, are still in question. Many original formulations conceptualized monitoring primarily as a parent behavior which involves explicitly *soliciting* information from youth to obtain knowledge about the youth's activities, associates, and whereabouts when outside the home (Snyder & Patterson, 1987). The knowledge resulting from solicitation then enables the parent to set rules and limits, and to provide consequences for adherence to those rules and limits. More recent formulations and data have emphasized the bilateral properties of monitoring, grounding monitoring in broader parent-youth communication processes (Crouter & Mead, 2002; Laird, Pettit, Dodge, & Bates, 2003). Such a reformulation has spawned research suggesting that monitoring may be more child-driven insofar that spontaneous disclosure, open dialogue and communication (relational processes) may be the more essential aspect of behavioral control. Child disclosure may not only be the strongest source of parental knowledge, but it is also the foundation of parent-child trust (a higher-order characteristic), which appears to be an important (albeit understudied) protective factor for engagement in delinquent behavior (Kerr, Stattin, & Trost, 1999). One goal of this report is to examine the role of youth disclosure as a key element in risk for problem behavior at the transition to adolescence. That is, we hope to better specify the salience of disclosure by isolating the active maternal and child contributions to monitoring.

Although effective monitoring and parental knowledge derived from solicitation and youth disclosure may be necessary conditions for mitigating delinquent behavior, they are not sufficient. Monitoring, as newly conceptualized, operates in the broader context of parenting and parent-child relationship processes which ultimately promote or inhibit communication. Effective monitoring may be enabled by affection, support, problem solving, and instrumental assistance which promote youths' willingness to accurately disclose information (Kerns, Aspelmeier, Gentzler, & Gabrill, 2001), either spontaneously or in response to parent solicitation (Crouter, Bumpus, Davis, & McHale, 2005). In contrast, coercive exchange and punitive approaches to disciplinary control may result in diminished youth disclosure, resistance to parental solicitation, and consequently to less effective monitoring (Dishion & McMahon, 1998). Fletcher, Steinberg, and Williams-Wheeler (2004) nicely demonstrated that parenting style has a unique and important role in predicting parental monitoring knowledge, which in turn was associated with diminished delinquent behavior. Although they did not explicitly model self-disclosure, Fletcher et al. (2004) inferred the importance of identifying other dimensions of parenting that may be directly or indirectly associated with problem behavior through the promotion of youth self-disclosure.

Soenens and colleagues (2006) more explicitly examined links among parenting processes, youth self-disclosure, parental knowledge, and youth problem behavior. They reported three different dimensions of parenting, behavioral and psychological control and responsiveness,

were linked to parental knowledge, in part via youth self-disclosure. After accounting for parent knowledge and youth self-disclosure, parenting processes were not directly associated with problem behavior. This suggests the need to place youth self-disclosure into a broader parent-youth relational context, and validates the importance of relational as well as regulational aspects of parenting. To this end, the current study will assess how coercive and authoritative (i.e., support and solicitation) maternal-youth relationship processes are related to youth disclosure and in turn, problem behavior. We use the term “authoritative” recognizing that it is not fully congruent with Baumrind’s operationalization, which proposes a broader conceptualization of parental control/demandingness strategies (Baumrind, 1973).

Further, previous research suggests that the relationship between monitoring (as reflected in solicitation, disclosure, or knowledge) and problem behavior is likely to be reciprocal (Laird et al., 2003), and potentially amplified when incorporating sibling influence. Earlier delinquent behaviors may diminish or undermine subsequent efforts of monitoring (Bullock & Dishion, 2002) well before the transition to adolescence (Patrick, Snyder, Schrepferman, & Snyder, 2005). As such, these transactional influences need to be assessed in longitudinal models which allow us to disentangle the unique effect of parenting and disclosure on later youth problem behavior.

The Role of Siblings

Most empirical findings on the relative contribution of youth disclosure, parent solicitation, and other parent-youth relationship processes on delinquency are based on incomplete family models, failing to include and account for the potent influence of siblings. There is clear evidence that siblings powerfully influence problem behavior of youth, even in the context of parent-child relationship. Previous research finds both additive and synergistic effects of siblings and parents on deviant peer association and problem behavior during early adolescence (Bank, Burraston, & Snyder, 2004). Other research indicates that the relationship of parenting processes to delinquent peer affiliation and problem behavior diminishes significantly when sibling influence is simultaneously considered (Snyder et al., 2005).

The strong influence of siblings during adolescence is not surprising given that they spend more time with one another than with parents (McHale & Crouter, 1996) and that parents’ supervision of sibling relationships diminishes rapidly during this developmental period (Larson & Richards, 1991). This provides increasing opportunity for sibling collusion and co-participation in delinquent activities (Bullock & Dishion, 2002; Shortt, Capaldi, Dishion, Bank, & Owen, 2003). A second goal of this report is to understand how older sibling influence conditions the effects of youth disclosure and maternal-youth relationship quality on problem behavior.

As with parent-child relations, there is expected to be some mutual shaping (i.e., transactional influence) between siblings. However, we consider older siblings to serve more of a “reference individual” function (Merton, 1957) and therefore have a stronger role in shaping younger siblings’ behavior than vice versa. There are several reasons why this assumption of asymmetry is valid. First, because of the age difference, older siblings are exposed to and have the opportunity to engage in more problematic behaviors prior to younger siblings. Second, these developmental differences contribute to an inherent power imbalance between older and younger siblings (Bryant & Litman, 1987), which fosters the view of older siblings as “role models,” especially when they are of proximal age (Boyle, Sanford, Szatmari, Merikangas, & Offord, 2001; Whiteman & Christiansen, 2008). In support of this notion, studies have found that younger siblings place more value on

interactions with older siblings, imitate them more, and report greater admiration for their older siblings (Furman & Burhmester, 1992; Pepler, Abramovitch & Corter, 1981). The sex composition of the older-younger sibling dyad has been found to moderate sibling influence, with same-sex siblings showing more resemblance in deviant behavior (Slomkowski et al., 2001), perhaps because same-sex dyads spend more time together (Updegraff et al., 2005). Others have found younger female siblings (as opposed to males) are more susceptible to older male influence (Snyder, Bank & Burraston, 2005); thus, there is some inconsistency in our understanding of the extent to which sex composition conditions sibling influence.

Current Paper

The current paper has three aims. The first is to assess the role of youth disclosure as a key element in risk for problem behavior in the context of a broader range of maternal-youth social processes. The second is to examine how older sibling behavior influences the contribution of maternal-youth relationship processes and youth disclosure to the development of younger siblings' problem behavior. The third aim is to assess the unique contribution of maternal parenting processes and youth disclosure to problem behavior using a longitudinal model to ascertain developmental changes in family relationships from late childhood to older adolescence (see Figure 1). Separate models were run for coercive and authoritative parenting processes in order to allow for more measurement specificity, and ultimately, more precise implications for intervention.

We expected maternal parenting, disclosure and youth problem behavior to all be related when examined at the concurrent, bivariate level. When examined longitudinally, we anticipated that disclosure would be relatively more important early in development as monitoring is being actively established, but during later development disclosure may be of less import in the context of other previously established relationship processes and increased youth independence. At the same time, the influence of older sibling problem behavior might be expected to diminish the role of parenting for younger siblings. Therefore, we anticipated that both coercive and authoritative parenting would indirectly influence younger siblings' problem behavior through disclosure, but have a direct association for older siblings.

Method

Sample

Participants were 244 sibling pairs (122 brother pairs and 122 sister pairs) in families with same-sex biological children recruited from public schools located in a medium-sized metropolitan area in the Pacific Northwest. Families identified by area school districts as having (a) one child in public middle school, (b) a younger same-sex child in public elementary school, and (c) a mother residing in the home. Families meeting these criteria were sent an introduction letter about the study with an option to receive no further contact. The families on the contact list were screened for biological relatedness (i.e., whether the siblings shared the same mother and father) to confirm eligibility and invited to participate in a home visit to explain the study. Of the 364 families eligible to participate, 244 (67%) of the eligible families completed assessments at Time 1 (T1). At Time 2 (T2), approximately 3 years after the initial assessment 215 families (111 boys and 104 girls) completed assessments at T2 for a retention rate of 88%. Mothers reported the siblings' race as 83% Euro-American; 16% mixed race including African American heritage, and 1% Native American or Asian American/Pacific Islander. Mothers also reported that 7% of the siblings were of Hispanic ethnicity. At T1 and T2, the majority (74%) of the siblings lived with both biological parents in the same household. In 24% of families, mothers were divorced or separated from the siblings' fathers, and in 2%, the siblings' fathers had died. Twenty-one

percent of the mothers had a high school education or less, 58% attended college, and 21% had pursued graduate or advanced professional training. The median household before tax incomes of the families, including child support and assistance was \$50,000–\$59,999 at T1 and T2.

Procedure

At T1, when younger siblings were on average 10.87 years old ($SD = .59$), and older siblings were 13.33 years old ($SD = .45$), the siblings participated in laboratory visits with their mothers and siblings that included completion of questionnaires. At T2, when younger siblings were on average 13.59 years old ($SD = .79$), and older siblings were on average 16.57 years old ($SD = .43$), a similar laboratory visit was conducted. Teachers completed questionnaires about the problem behavior of younger and older siblings at T1 and T2. All data collection occurred after obtaining approval from the Institutional Review Board of Oregon Social Learning Center, and all procedures were consistent with standards for treatment of human subjects. Participants were compensated for their time related to all assessments.

Measures

Latent constructs were formed by first identifying potential indicators from the questionnaire data based on face validity and prior theoretical definitions. Guided by the construct building strategy developed by Patterson and Bank (Patterson and Bank, 1986; 1989), scale items were checked for internal consistency before calculating the scale by taking the mean or sum of items. Scales or indicators were then examined for convergence with other indicators for the same construct. Indicators were also standardized before combining into construct scores. Constructs and measures information including example items, number of items, and range of scale reliability across informants can be found in Table 1.

Parenting Processes

Coercive parenting: Two indicators were used to define a coercive parenting construct, separately for younger and older siblings. The first indicator was the mean of mothers' and youths' reports of inconsistent and ineffective discipline and staff ratings of whether mother was in good control of the adolescent. The second indicator was the mean of mothers' and youths' reports of punitive discipline adapted from maternal psychological and physical aggression to adolescent scales. Coercive parenting: The correlation between mother and youth reports for mother inconsistent discipline was .28, $p < .001$ for older siblings and .13, $p < .05$ for younger siblings, and for mother aggression was .57, $p < .001$ for older siblings and .40, $p < .001$ for younger siblings.

Authoritative parenting: Two indicators were used to define an authoritative parenting construct, separately for older and younger siblings. The first was the mean of mothers' and youths' reports of support in the mother-youth relationship. The second indicator was the mean of mothers' and youths' reports of active parental solicitation of information about youths' activities. The correlation between mother and youth reports for support was .37, $p < .001$ for older siblings and .24, $p < .001$ for younger siblings, and for mother solicitation was .36, $p < .001$ for older siblings and .25, $p < .01$ for younger siblings.

Youth Disclosure: A composite variable for youth disclosure was derived from the mean of mothers' and youths' reports of youth self-disclosure to mother, separately for older and younger siblings. The correlation between mother and youth report for disclosure was .42, $p < .001$ for older siblings and .19, $p < .01$ for younger siblings.

Youth Problem Behavior: Externalizing Problem Behavior and Negative Peer

Affiliation: A construct for youth problem behavior at T1 and T2 was defined by two indicators, externalizing behavior problems and negative peer affiliation. The externalizing behavior problem indicator consisted of (a) the mean (raw score) of mothers' and teachers' reports on the broad-band externalizing scale comprised of rule-breaking and aggressive behavior and (b) the mean (raw score) of mothers' and youths' reports on the self-report delinquency scale. The negative peer affiliation indicator consisted of the mean of mothers', youths', and teachers' reports on association with adolescents that get in trouble. The correlations among the mother, youth, and teacher reports for problem behavior at T1 and T2 ranged from .31, $p < .001$ to .54, $p < .001$ for older siblings and .27, $p < .001$ to .42, $p < .001$ for younger siblings. The correlation among mother, youth, and teacher reports for delinquent peer affiliation at T1 and T2 ranged from .32, $p < .001$ to .48, $p < .001$ for older siblings and .34, $p < .001$ to .42, $p < .001$ for younger siblings.

Statistical Methods

Modeling analyses were conducted to determine the association of the distal predictors (maternal parenting processes) at T1 with disclosure, and in turn, the association of the distal maternal parenting processes and disclosure with the problem behavior. Indirect paths were formally tested for significance using the Sobel test (Preacher & Hayes, 2004). For each model, the prospective relationships of maternal parenting processes, younger sibling disclosure and younger siblings' problem behavior were estimated with and without the linkage between the older siblings' problem behavior and that of the younger sibling. All structural equation models were estimated using full information maximum likelihood and included participants with partial data (AMOS 16; Arbuckle, 1999). Missing data were assumed to be missing at random (MAR) conditional on covariates included in the model. Model based likelihood methods that assume MAR are the recommended standard (Schafer & Graham, 2002; Wothke, 2000). Missingness by variable ranged from 0% to 18% and was highest for the teacher-report measures at T2.

Goodness of fit for each model was assessed by examining the comparative fit index (CFI), root mean square error of approximation (RMSEA) and χ^2/df ; according to conventional guidelines, a CFI of .95 and an RMSEA of .08 or less are considered to indicate a reasonable fit (Browne & Cudeck, 1993; Hu & Bentler, 1999). According to Arbuckle and Wothke (1999), a χ^2/df ratio between 1 and 3 indicates a good fit. Error covariances among common measures for siblings were specified as free parameters.

Results

Sibling Differences

To determine sibling differences, older and younger siblings were compared on the predictor variables by subjecting the indicators to repeated-measures analysis of variance with a within-subjects factor of sibling status (older versus younger). Means and standard deviations are provided in Table 2. Significant sibling differences were found for maternal solicitation, $F(1, 243) = 5.24$, $p = .023$, and youth disclosure, $F(1, 243) = 35.00$, $p < .001$. Mothers were reported to engage in more solicitation with younger than with older siblings, and younger siblings were more disclosing than older siblings. No significant sibling differences were found in mothers' inconsistent parenting, punitive parenting, and supportive parenting.

Older and younger siblings were also compared on problem behavior by subjecting the indicators to repeated-measures analysis of variance (ANOVA) with within-subjects factors of sibling status (older versus younger) and time (T1 versus T2). Significant sibling status-

by- time interactions were followed by repeated-measures ANOVA with a within-subjects factor of time (T1 versus T2) for each sibling. Means and standard deviations are provided in Table 3. For externalizing behavior problems using the Child Behavior Checklist (CBCL), while the sibling status effect was not significant, the time effect, $F(1, 211) = 6.55$, $p = .011$, and the sibling status by time interaction, $F(1, 211) = 4.20$, $p = .042$ were. Subsequent ANOVAs indicated that the time effect was significant for younger siblings, $F(1, 212) = 12.32$, $p < .001$ but not older siblings. Younger siblings' externalizing behavior problems increased from T1 to T2. For the self-report delinquency scale, while the time effect and sibling status by time interaction were not significant, there was a significant sibling status effect, $F(1, 211) = 32.60$, $p < .001$, which indicated higher levels of delinquency for older siblings compared to younger siblings. Regarding negative peer affiliation and the peer network interview, while the sibling status effect was not significant, the time effect, $F(1, 195) = 9.06$, $p = .003$ and the sibling status by time interaction, $F(1, 195) = 11.49$, $p < .001$ were. Subsequent ANOVAs indicated that the time effect was significant for older siblings, $F(1, 198) = 24.92$, $p < .001$ but not younger siblings. Older siblings reported a significant decrease in the number of negative peers from T1 to T2. For the youth questionnaire Describing Peers, while the sibling status by time interaction was not significant, the sibling status, $F(1, 205) = 68.47$, $p < .001$ and time, $F(1, 205) = 93.27$, $p < .001$, effects were significant. Similarly, for the mother questionnaire Peer Relations, while the sibling status by time interaction was not significant, the sibling status, $F(1, 193) = 8.31$, $p = .004$ and time, $F(1, 193) = 40.47$, $p < .001$, effects were significant. Older siblings were reported as having more association with negative peers compared to younger siblings, and older and younger siblings increased their association with negative peers from T1 to T2. For the mother and teacher CBCL item, while the sibling status effect was not significant, the time effect, $F(1, 211) = 13.72$, $p < .001$, and the sibling by time interaction, $F(1, 211) = 5.07$, $p = .025$ were significant. Subsequent ANOVAs indicated that the time effect was significant for younger siblings, $F(1, 212) = 15.20$, $p < .001$, but not for older siblings. Similarly, for the teacher questionnaire Peer Involvement and Social Skills, while the sibling status effect was not significant, the time effect, $F(1, 194) = 6.67$, $p = .011$, and the sibling status by time interaction, $F(1, 193) = 4.44$, $p = .036$, were significant. Subsequent ANOVAs indicated that the time effect was significant for younger siblings, $F(1, 202) = 11.24$, $p < .001$, but not for older siblings. Younger siblings increased their association with negative peers from T1 to T2. In sum, for younger siblings, there was an increase in externalizing problem behavior and association with negative peers from T1 to T2, which suggests a drift toward delinquent behavior during the transition to adolescence.

Measurement Model

Before testing the hypothesized structural model, we assessed the measurement model for factor loadings (i.e., construct specification) and correlations among construct indicators. All factor loadings on indicators for their respective constructs were significant, and ranged from .52 to .89. Table 4 provides the correlations between maternal parenting processes and youth disclosure at Time 1 with problem behavior at Time 1 and 2 for younger and older siblings. Correlations between the disclosure and problem behavior indices for older and younger siblings are shown in Table 5. Correlations among the indicators supported the hypothesized model.

Longitudinal Structural Model of Coercive Parenting

The longitudinal model provided a good fit to the data ($\chi^2/df = 1.95$, CFI=.98, RMSEA=.06 (90% CI: .04-.08)) and accounted for a sizable proportion of variance in youth problem behavior at T2 ($R^2 = .59$ for older and younger siblings; see Figure 2). For older siblings, coercive parenting at age 13 years had a significant direct association with youth problem behavior at age 16 years that was not explained by youth disclosure, even though coercive

parenting was negatively related to youth disclosure. For younger siblings, the association of coercive parenting at age 10 with youth problem behavior at age 13 was indirect ($p < .04$) through adolescent disclosure, with no direct relation between coercive parenting and problem behavior. Older siblings' problem behavior at age 16 was associated with younger siblings' problem behavior at age 13. Coercive parenting experienced by younger and older siblings at Time 1 was also significantly correlated.

In order to understand better how older sibling influence may affect the prospective association between coercive parenting experienced by younger siblings at age 10 and younger siblings' problem behavior at age 13, the path between older and younger sibling problem behavior at Time 2 was constrained to zero. This alternate model assesses the association of coercive discipline on youth behavior when sibling influence is discounted as a means to further examine sibling influence. With this path constraint, the association between coercive parenting and younger siblings' problem behavior was significant ($\beta = .69, p < .001$) and the association between younger siblings' disclosure and problem behavior at Time 2 was non-significant ($\beta = -.02$). The path from coercive parenting to older sibling problem behavior was unchanged when the path from younger to older sibling problem behavior was constrained to zero.

Longitudinal Structural Model of Authoritative Parenting

The longitudinal model provided a good fit to the data ($\chi^2/df = 1.54$, CFI=.98, RMSEA=.06, (90% CI: .04-.09)) and accounted for a sizable proportion of variance in youth problem behavior at T2 ($R^2 = .54$ for older and .57 for younger siblings; see Figure 3). For older siblings, authoritative parenting at age 13 was negatively associated with problem behavior at age 16, and disclosure did not account for this association, even though authoritative parenting was powerfully related to disclosure. For younger siblings, authoritative parenting was negatively associated with problem behavior at age 16 indirectly ($p < .05$) through youth disclosure and there was a significant association of older sibling (age 16) to younger sibling problem behavior at age 13.

In order to better understand how older sibling influence affects the prospective association between authoritative parenting experienced by younger siblings at age 10 and younger siblings' problem behavior at age 13, the path between older siblings' problem behavior at age 16 and younger siblings' problem behavior at age 13 was constrained to zero. This alternate model assesses the relation between authoritative discipline and youth problem behavior when sibling influence is ignored, providing the means to further examine sibling influence. With this path constraint, the association between authoritative parenting at age 10 and younger sibling's problem behavior at age 13 was significant ($\beta = -.30, p < .01$), and the association between younger siblings' disclosure and their behavior at age 13 was non-significant ($\beta = -.06$). The path from authoritative parenting to older sibling problem behavior was unchanged when the path from younger to older sibling delinquency was constrained to zero (Cross-lagged paths were tested between parenting T1 for older/younger sibling with T2 older/younger sibling problem behavior. None were significant, nor was the cross-lagged path between older sibling problem behavior T1 and younger sibling problem behavior at T2.)

Gender effects

Although we did not make any a priori predictions regarding different mechanisms for males and females, we nonetheless checked whether the model pathways were conditioned (i.e., moderated) by gender using the multi-group comparison procedures from AMOS 16. For these analyses, we assessed for the $\Delta\chi^2/\Delta df$ difference of a baseline (i.e., unconstrained) with a two-group (i.e., gender) model in which we imposed equality constraints on all

structural pathways. The difference was nonsignificant for both the supportive ($\Delta\chi^2/\Delta df=80/47=1.70$; $p>.05$) and punitive parenting models ($\Delta\chi^2/\Delta df=85/47=1.81$; $p>.05$), suggesting gender did not moderate the effects (i.e., structural invariance).

Discussion

This study examined the role of youth disclosure in the drift toward problem behavior at the transition to adolescence, and focused on the relative importance and role of disclosure in the context of other maternal-youth relational and regulatory processes. At a simple bivariate level, both older and young siblings' disclosure at ages 10 and 13 years old, respectively, was significantly associated with lower levels in problem behavior three years later. At the same bivariate level, maternal solicitation at adolescent ages 10 and 13 years old was significantly but modestly associated with lower levels of problem behavior for both younger and older siblings three years later. Moreover, maternal solicitation was significantly and substantially correlated with disclosure by younger and older siblings. These bivariate findings are consistent with previous evidence indicating that spontaneous disclosure by youth of their activities, whereabouts and peer associates has a strong influence on problem behavior, complementing parents' active attempts at monitoring (Kerr & Stattin, 2000; Soenens, et al., 2006; Stattin & Kerr, 2000).

Given the key role postulated for youth disclosure, there is surprisingly scant literature and no longitudinal investigations which examine the role of youth self-disclosure in a more comprehensive framework of social relational processes involving both mother-youth and sibling dyads. Results from the current study support the importance of addressing self-disclosure in a comprehensive "family" framework that includes multiple parenting processes and youths' relationships with siblings as well as with mothers, and in a manner that incorporates framework for developmental timing. When one excludes older sibling influence, coercive mother-youth relationship processes and discipline were prospectively associated with higher levels of problem behavior of younger siblings at age 13 years and of older siblings age 16 years, even after controlling for their earlier problem behavior. In a complementary fashion, authoritative parenting (including support and solicitation) was prospectively associated with lower levels of problem behavior for younger siblings at age 13 years and of older siblings age 16 years. These results are consistent with a large body of previous research indicating the importance of parental support, effective discipline and monitoring (as assessed by parental solicitation) in reducing risk for antisocial behavior during late childhood and early adolescence (for a review, see Dishion & Patterson, 2006).

The analyses in this report indicate that such coercive maternal-youth regulatory processes correspond with less spontaneous disclosure by youth concerning their activities and associates outside of the home. However, after accounting for the prospective association of coercive processes, youth disclosure did not additively alter risk for later problem behavior during early (for younger siblings) or middle (for older siblings) adolescence. Strong authoritarian, punitive attempts at behavioral control by parents during the adolescent period of increasing autonomy and independence may not only "turn off" youth self disclosure, but these inept and heavy handed attempts at limit setting and disciplinary control may also be sufficiently alienating and destructive of trust (Steinberg, Blatt-Eisengart, & Cauffman, 2006) that youth disclosure is redundant or perhaps even irrelevant in an ensuing drift toward premature autonomy (Dishion, Poulin, & Medici-Skaggs, 2000).

The second model tested in this report indicates that youth disclosure was associated with active maternal solicitation of information when such solicitation occurred in the context of maternal warmth and support. For younger siblings, the primary association of maternal solicitation, warmth and support at youth age 10 with negative peer association and

externalizing problems at age 13 was direct. Even though maternal solicitation, warmth and support facilitated youth disclosure, youth disclosure did not serve as an indirect mechanism by which these positive maternal parenting processes were associated with risk for later delinquent behavior. This appears to also be true for both older siblings as well. The facilitating role of a positive maternal-youth relationship on youth disclosure replicates previous research (Crouter et al., 2005; Kerns et al., 2001), but the lack of a relation of disclosure to problem behavior does not. These data suggest that maternal solicitation, when associated with a warm and supportive relationship, provide the necessary guidance and instrumental assistance to reduce risk for problem behavior. These models, albeit not fully specified, imply that disclosure (as a critical process in reducing risk for maladjustment) may not be as strong as previously hypothesized when its role is assessed in a broader range of carefully measured maternal-youth social relationship processes.

In a more unique contribution, this study examined how the influence of mother-youth relationship processes on younger siblings' drift toward problem behavior is contextualized by older siblings' influence. As widely substantiated in previous research, delinquent peer association (Bullock & Dishion, 2002), externalizing behavior (Rowe, Rodgers, & Meseck-Bushey, 1992) drug use and risky sexual behavior (East & Khoo, 2005) of younger and older siblings were strongly inter-related. In the model of coercive maternal-youth relationships, the contribution of the older siblings' influence changed the risk accruing to the maternal parenting processes and younger siblings' disclosure in substantive ways. It diminished to non-significance the contribution of mothers' coercive parenting for the younger sibling at age 13, and significantly but modestly incremented the relative importance of younger siblings' disclosure. Similarly, in the authoritative parenting model, adding the contribution of older siblings' problem behavior at age 16 to younger siblings' problem behavior at age 13 reduced the direct protective influence of constructive, authoritative parenting processes and increased the role of youth disclosure.

At a basic level, this suggests the important and powerful role of sibling influence during the transition to adolescence, even in the context of parental influence (McHale & Crouter, 1996). Several other studies measuring both parent and sibling influence have found that older siblings exert a unique influence on younger siblings over and above parenting influence on delinquency, delinquent peer affiliation, and drug use (Brook, Whitman, Gordon, & Brook, 1990; Snyder et al., 2005). Older sibling influence needs to be incorporated to adequately estimate the relative influence of youth disclosure, maternal solicitation and other maternal-youth relationship processes on risk for younger siblings' problem behavior during the transition to adolescence. In both the coercive and authoritative parenting models, incorporation of older sibling influence reduced the importance of maternal parenting processes and incremented the role of disclosure, which served as a conduit for the role of maternal parenting processes on younger siblings' behavior problems.

Two explanations may be offered for the shift from direct maternal influence to influence via younger siblings' disclosure. First, given the significant overlap in maternal parenting practices among siblings (i.e., shared parenting), some of the influence of parenting processes on younger siblings' adjustment may be transmitted through older sibling influence. Given that younger and older siblings experience similar parenting, younger siblings experience the consequences of that parenting twice, once directly and once through older siblings' behavior. As a result, parent-driven influence may become relatively less salient, and older sibling influence may become relatively stronger. Second, youth disclosure may become increasingly important to effective behavior management as all children mature and spend increasing amounts of time outside the direct control of parents. For families with siblings, disclosure may provide an important means by which parents manage the modeling, collusion and collaboration in delinquent behavior that can occur in

the sibling relationship (Pomeroy, Gibbons, et al. 2005). Therefore, disclosure would be especially important insofar as the older sibling engages in externalizing behavior, and increasingly exposes the younger sibling to opportunities for co-participation in delinquent acts (Snyder et al., 2005). The important role of sibling influence on development is readily apparent in that 80% of individuals in the United States have at least one sibling, and are more likely to grow up with their siblings than with their fathers (Noller, 2005).

The importance of disclosure relative to other parent-youth regulatory and relationship processes may also change with age. In the models tested in this report, disclosure of information about activities and peer associates appeared to play a significant role for younger siblings at the transition to adolescence as they increasingly moved out of the direct control of parents. Mothers and youth were also more strongly involved in monitoring processes during the transition to adolescence, as reflected by higher levels of both parental solicitation and youth disclosure. For older siblings, disclosure did not appear to be as important. During later adolescence, a history of reliable communication and a supportive relationship with parents may have already unfolded across the transition to adolescence, and a pattern of predictable high-order relationship factors such as trust become increasingly important (Kerr, Stattin, & Trost, 1999).

Interpretation of the results of this study needs to be tempered by several methodological limitations. First, maternal-youth relationship processes and youth disclosure were both measured at the same time point of data collection which diminishes the clarity with which the indirect role of youth disclosure can be asserted. Second, this study was limited to same-sex sibling dyad composition. Strength of influence between siblings may differ depending on the sex composition (see Snyder, Bank & Burraston, 2005), though this could not be ascertained given the size of the sample in this study. Third, the youth in this study were primarily middle class Euro-American, and evidenced modest levels of externalizing behavior problems. As such, the degree to which the findings reported in this paper generalize to youth and families with other characteristics needs to be examined. Finally, although the current paper is unique in the incorporation of siblings as an important familial subsystem, and incrementally moves us toward a more complete family model, it is arguably an incomplete framework without measuring paternal involvement, or other important family-level variables (e.g., marital dynamics).

This study is however, characterized by several methodological strengths. The data were collected using a longitudinal design, providing the means to at least partially examine the directional relations of maternal parenting processes and youth disclosure to youth adjustment in a sequence consistent with their postulated temporal ordering. Further, each of the constructs was defined by multiple indicators using several measurement methods, and the various constructs were defined by informants or methods that were somewhat different, reducing shared method variance as an alternate explanation of the observed relationships. Despite this strength, this sample involved predominantly intact families, and the absence of paternal report of parenting behavior or youth behavior precludes us from obtaining a valuable perspective (and more reliable sampling) of youth behavior.

The results of this study have several important implications in terms of whom, what and when. In terms of whom, it is clear that siblings have a very powerful influence. Research delineating risk and protective social processes in relation to development of problem behavior are incomplete in the absence of estimating sibling influence. This also suggests that the sibling relationship may be a powerful but under-utilized target in preventive and clinical interventions, either by promoting more constructive relationship processes (McHale & Crouter, 1996), or by mitigating such influence through enhanced monitoring of activities and whereabouts to include siblings as well as peers. In terms of what, it appears that

effective risk reduction involves good monitoring, as well as effective, non-punitive limit setting and discipline tactics (Dishion & McMahon, 1998). In terms of when, the role and power of monitoring in promoting youths' adjustment may shift with child age, perhaps serving as a lead protective process which needs to be established before youth encounter increasingly risky environments at the transition to adolescence. Once autonomy and independence are increasingly established in more or less constructive ways by later adolescence, monitoring or perhaps disclosure more specifically, diminish in importance.

Acknowledgments

The authors wish to thank the families for their participation, the collaborating Oregon school districts Eugene 4J, Springfield, and Bethel for their assistance in identifying families, Deborah Capaldi for her guidance throughout the project, Alice Holmes for coordinating the project, research staff and students for assessments, data management, and coding, Callie Brockman for editorial assistance. The project described was supported by Award Number R01 MH 58337 from the National Institute of Mental Health. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Mental Health or National Institutes of Health.

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Figure 1.
Theoretical longitudinal model

Figure 2.
Longitudinal model of coercive parenting, youth disclosure, and siblings' problem behavior.

Figure 3.
Longitudinal model of authoritative parenting, youth disclosure, and siblings' problem behavior.

Table 1

Constructs and Measures

Measure	Respondent/#Items	Example Item	T1/T2 Reliability
T1 COERCIVE PARENTING			
<i>INCONSISTENT DISCIPLINE</i>			
Mother inconsistent discipline ¹	Youth 8	Mother gives up trying to get you to do something	.58–.69
Mother inconsistent discipline	Mother 11	Kind of punishment you give depends on your mood	.86–.87
<i>PUNITIVE DISCIPLINE</i>			
Mother physical/psychological aggression ²	Youth 7	Called you dumb or lazy or some other name	.77–.78
Mother physical/psychological aggression	Mother 7	Slapped or hit your adolescent	.77–.80
T1 AUTHORITATIVE PARENTING			
<i>SOLICITATION</i>			
Mother solicitation ³	Youth 5	Mother talks to your friends when they come to house	.73–.76
Mother solicitation	Mother 5	Talked to the parents of your adolescent's friends	.67–.73
<i>SUPPORT</i>			
Admiration, affection, nurturance, alliance, companionship, intimacy, instrumental help ⁴	Youth 3	Mother helps with things you can't do by yourself	.62–.89
Admiration, affection, nurturance, alliance, companionship, intimacy, instrumental help	Mother 3	You and your adolescent like or love each other	.63–.95
T1 YOUTH DISCLOSURE			
Youth self-disclosure ³	Youth 5	Keep secrets about what you do during free time	.68–.78
Youth self-disclosure	Mother 5	Does adolescent tell you what s/he has done	.76–.82
T1 and T2 YOUTH PROBLEM BEHAVIOR			
<i>EXTERNALIZING PROBLEM BEHAVIOR</i>			
Child behavior checklist ⁶	Mother 17/18	Gets in fights	.72–.90/.79–.89
Child behavior checklist	Teacher 12/20	Lies and cheats	.74–.94/.79–.92
Delinquency scale ⁵	Youth 27	Ran away from home	.81–.91/.83–.90
Delinquency scale	Mother 9	Stole money from parents	.59–.61/.58–.63
<i>NEGATIVE PEER AFFILIATION</i>			
Peer network interview ⁷	Youth 10	Number of friends who hang with a tough crowd	.81–.83/.72–.80
Describing friends ¹	Youth 21	How many friends skip classes without an excuse	.87–.94/.93–.94
Peer relations ¹	Mother 6	Hangs out with kids who smoke cigarettes	.71–.88/.88–.89
Child behavior checklist	Mother 1	Hangs around with kids who get in trouble	n/a
Child behavior checklist	Teacher 1	Hangs around with kids who get in trouble	n/a
Peer involvement and social skills ⁸	Teacher 4	Associates with students who get in fights	.81–.91/.85–.89

Note.

¹(Capaldi & Patterson, 1989);²(Straus, Hamby, Boney-McCoy, & Sugarman, 1996);

³(Kerr & Stattin, 2000);

⁴(Furman and Buhrmester, 1985);

⁵(Elliott, Huizinga, & Ageton, 1985);

⁶(Achenbach & Rescorla, 2001);

⁷(Dishion, Poulin, & Medici-Skaggs, 2000);

⁸(Walker & McConnell, 1988).

Table 2

Means and Standard Deviations for the Time 1 Predictor Variables by Indicator.

	Older siblings	Younger siblings
Coercive parenting		
Inconsistent discipline	2.26 (.49)	2.25 (.42)
Punitive discipline	0.99 (.86)	0.96 (.89)
Authoritative parenting		
Solicitation	3.63 (.65)	3.72 (.60)
Support	3.74 (.40)	3.90 (.33)
Youth disclosure	4.08 (.57)	4.31 (.45)

Table 3

Means and Standard Deviations for the Time 1 (T1) and Time 2 (T2) Youth Problem Behavior Variables by Indicator.

	Older siblings		Younger siblings	
	T1	T2	T1	T2
Externalizing problem behavior				
Delinquency scale	.45 (.45)	.43 (.53)	.33 (.34)	.30 (.37)
Child behavior checklist	4.63 (5.10)	4.72 (5.49)	4.28 (5.18)	5.25 (5.84)
Negative peer affiliation				
Peer network interview	1.31 (.88)	1.03 (.62)	1.19 (.84)	1.20 (.83)
Describing friends	1.46 (.50)	1.71 (.58)	1.20 (.23)	1.43 (.48)
Peer relations	1.23 (.37)	1.43 (.59)	1.16 (.24)	1.32 (.50)
Child behavior checklist	.17 (.33)	.19 (.33)	.16 (.33)	.27 (.41)
Peer involvement and social skills	1.59 (.67)	1.60 (.63)	1.52 (.55)	1.69 (.71)

Table 4

Correlations Among Model Variables at Time 1 (T1) and Time 2 (T2).

	1.	2.	3.	4.	5.	6.	7.	8.
1. Inconsistent	--							
2. Punitive	.48**/.43**	--						
3. Disclosure	-.36**/-.30**	-.25**/-.20**	--					
4. Support	-.35**/-.23**	-.26**/-.14*	.63**/.61**	--				
5. Solicitation	-.23**/-.22**	-.12/-.10	.52**/.56**	.47**/.43**	--			
6. Externalizing T1	.43**/.36**	.52**/.42**	-.38**/-.34**	-.33**/-.23**	-.15*/-.17**	--		
7. Negative Peer T1	.30**/.22**	.36**/.24**	-.38**/-.46**	-.17**/-.23**	-.09/-.14*	.71**/.76**	--	
8. Externalizing T2	.38**/.27**	.38**/.27**	-.27**/-.28**	-.24**/-.19**	-.14*/-.21**	.61**/.54**	.62**/.56**	--
9. Negative Peer T2	.32**/.21**	.33**/.17*	-.53**/-.37**	-.13/-.10	-.12/-.18**	.30**/.21**	.53**/.46**	.76**/.83**

Older siblings top number, Younger Siblings are lower number;

**
p<.01,

*
p<.05; T1= Time 1, T2=Time 2

Table 5

Correlations Among Model Variables for Younger and Older Siblings.

Younger Sibling:	Older Sibling				
	Disclosure	Externalizing T1	Negative peer T1	Externalizing T2	Negative Peer T2
Disclosure	.36**	-.27**	-.13*	-.14*	-.15*
Externalizing T1		.57**	.33**	.38**	.24**
Negative peer T1			.35**	.33**	.25**
Externalizing T2				.76**	.45**
Negative peer T2					.47**

* $p < .05$;

** $p < .01$; T1 = Time 1, T2 = Time 2