



Published in final edited form as:

Psychol Addict Behav. 2009 March ; 23(1): 36–46. doi:10.1037/a0014839.

A Longitudinal Study of Social Competence Among Children of Alcoholic and Non-Alcoholic Parents: Role of Parental Psychopathology, Parental Warmth, and Self-Regulation

Rina D. Eiden, Craig Colder, Ellen P. Edwards, and Kenneth E. Leonard

University at Buffalo, State University of New York

Abstract

This study tested a conceptual model predicting children's social competence in kindergarten in a sample of children with alcoholic ($n = 130$ families) and non-alcoholic parents ($n = 97$ families). The model examined the role of parents' alcohol diagnoses, depression, and antisocial behavior at 12-18 months of child age in predicting parental warmth/sensitivity at 2 years of child age. Parental warmth/sensitivity at 2 years was hypothesized to predict children's self-regulation (effortful control and internalization of rules) and externalizing behavior problems at 3 years. Parental warmth/sensitivity, children's self-regulation, and behavior problems were expected to predict social competence in kindergarten. Structural Equations Modeling was largely supportive of this conceptual model. Fathers' alcohol diagnosis at 12-18 months was associated with lower maternal and paternal warmth/sensitivity at 2 years. Lower maternal warmth/sensitivity was predictive of lower child self-regulation at 3 years. Parenting, self-regulation, and externalizing behavior problems were predictive of social competence in kindergarten, although associations varied by reporter (parents or teacher). There was a direct association between fathers' alcohol diagnosis and father reports of social competence, and between fathers' depression and teacher reports of social competence. The study elucidates developmental processes in predicting social competence and the role of fathers' alcoholism and associated risk factors in this process.

Keywords

alcoholism; parenting; self-regulation; social competence; externalizing behavior problems

Introduction

Social competence is defined by the quality of peer relationships and social behavior in peer settings. Studies of the long-term consequences of poor social competence indicate that children who fail to acquire social skills early in development are more likely to experience a variety of negative social consequences in adolescence and adulthood (see Parker, Rubin, Price, & DeRosier, 1995). Children's social competence is one of the most salient predictors of developmental outcomes in adolescence and adulthood, including juvenile delinquency, adult crime, psychopathy, and mental illness (Parker et al., 1995). Children's ability to negotiate the transition to school and display socially competent behaviors in the school setting during

Correspondence concerning this article should be addressed to Rina D. Eiden, 1021 Main Street, Buffalo, NY 14203. eiden@ria.buffalo.edu.

Rina D. Eiden, Research Institute on Addictions and Department of Pediatrics, University at Buffalo, State University of New York; Craig Colder, Department of Psychology, University at Buffalo, State University of New York; Ellen P. Edwards, Research Institute on Addictions, University at Buffalo, State University of New York; Kenneth E. Leonard, Research Institute on Addictions and Departments of Psychology and Psychiatry, University at Buffalo, State University of New York.

kindergarten is likely to be predictive of their success in school at later ages. This study examined direct and indirect pathways explaining the role of fathers' alcoholism and associated risk factors in predicting children's social competence. These pathways included the role of risk factors associated with alcoholism, their predictive role in parenting quality, the role of parenting in predicting children's self-regulation and externalizing behavior problems, and the association between these aspects of children's functioning and social competence in kindergarten.

Children of alcoholics are at increased risk for a wide variety of negative outcomes such as higher rates of behavior problems, psychiatric disturbances, and early onset substance abuse (Chassin, Flora, & King, 2004; Jacob & Windle, 2000). Although prior research would suggest that children of alcoholics may have lower social competence due to a myriad of nested risk factors, only one prior longitudinal study has examined the development of social competence among children of alcoholics (Hussong et al., 2005). The authors examined developmental trajectories of social competence among children of alcoholic and non-alcoholic parents from 6 to 15 years of child ages. Results indicated different developmental trajectories of social competence as a function of reporter (self, teacher, or parent) and child gender. There were no differences as a function of fathers' alcoholism among boys, but girls with alcoholic fathers had lower social competence at age 6 according to self-report and teacher reports. The authors emphasize the need for studies examining developmentally linked mediating mechanisms that may explain heterogeneity in outcome among children of alcoholics.

Fathers' alcohol problems are generally nested within a high risk environment characterized by other parental psychopathology (Fitzgerald, Davies, & Zucker, 2002). Two aspects of parental psychopathology most commonly associated with alcoholism are depression and antisocial behavior (Zucker, Ellis, Bingham, & Fitzgerald, 1996). When studies have examined both maternal and paternal depression, fathers' depression and other psychiatric status are more consistently associated with children's social competence, while maternal depression is predictive of child psychopathology (Lewinsohn et al., 2005). Antisocial behavior is of interest not only because of the close association with alcoholism, but also because of potential genetic linkages between parent antisocial behavior and children's externalizing behavior problems, and the role of externalizing behaviors as a predictor of poor social functioning (Blazei, Iacono, & McGue, 2008; Conger, Neppl, Kim, & Scaramella, 2003). Social learning theory would suggest that parents' depression and antisocial behavior may have a direct role in predicting child outcomes through modeling of inappropriate behaviors.

The results from several studies indicate that alcoholic fathers are at high risk for poor quality of parenting beginning in early childhood (Eiden, Leonard, Hoyle, & Chavez, 2004; Jacob, Haber, Leonard, & Rushe, 2000). Alcoholic fathers display lower warmth and higher negative affect during interactions with their infants (Eiden, Chavez, & Leonard, 1999) and toddlers (Eiden et al., 2004). Mothers with alcoholic partners also displayed lower warmth and sensitivity during mother-toddler interactions (Eiden et al., 2004). Similarly, others have noted lower problem solving and higher rates of negativity during parent-adolescent interactions among alcoholic families (Jacob, Krahn, & Leonard, 1991).

In some of the research linking alcoholism and poor parenting, these associations were mediated by other parental psychopathology such as depression (Eiden et al., 1999), although alcoholism accounted for unique variance in parenting even when these other risk factors were included in the model. Studies have noted that depression and antisocial behavior are associated with each other, and both depression and antisocial behavior increase the risk for poor parenting (Martinez et al., 1996). While alcoholism may be uniquely predictive of social development, it may also be that alcoholism, depression, and antisocial behavior have a similar impact on the family. For example, all three of these disorders may be associated with increased social

isolation through a common mediating pathway of negative parenting and higher levels of child externalizing behavior problems.

The etiological pathways in the development of social competence have been the focus of much research. Howes (1987) described the development of social skills in early childhood and implicated the quality of parent-infant relationship and socialization experiences as critical etiological factors in this development. Positive aspects of parenting such as warmth have been consistently predictive of higher social competence in children (Raver, Gershoff, & Aber, 2007), while more power assertive (authoritarian) parenting is predictive of lower social competence (Chen, Dong, & Zhou, 1997). In addition to direct associations between parenting and social competence, parenting is also predictive of children's self-regulation (Eisenberg et al., 2003). Self-regulation is defined as the process of modulating behavior and affect given contextual demands (Posner & Rothbart, 2000). Children with warm, sensitive parents are more likely to be able to regulate their arousal and focus attention on salient developmental demands. As a result, these children are more likely to be able to process parental directives, benefit from parental guidance, internalize parental rules, and inhibit inappropriate behavior.

Although regulatory processes begin to develop in the prenatal period, regulation evolves into a complex and relatively stable self-initiated process by the preschool period (see Calkins & Fox, 2002; Campbell, 2002). Recently, two related but distinct aspects of self-regulation have been delineated, effortful control and internalized conduct. Effortful control has been defined as the ability to suppress inappropriate behavior and perform required or appropriate behavior in response to environmental demands. Effortful control becomes increasingly important beyond the second year of life, has considerable longitudinal stability, and predicts externalizing behavior problems at later ages (Eisenberg et al., 2005; Kochanska & Knaack, 2003). Internalization of rules of conduct is another dimension of self-regulation and has been defined as regulated or appropriate behavior in response to contextual demands even in the absence of surveillance (e.g., Kochanska & Aksan, 1995; Kopp, 1982; Maccoby & Martin, 1983). The attainment of these self-regulatory skills sets the stage for successful adaptation during the transition to school and peer settings (Calkins & Fox, 2002).

Several developmental theories provide persuasive explanations for the link between self-regulation in the infant/toddler period and disruptive behavior in later childhood and highlight the importance of parenting behavior as a salient predictor of self-regulation (Bradley, 2000; Calkins & Fox, 2002). Moreover, there is empirical evidence that the association between parenting and externalizing behavior problems and social competence is mediated through the child's development of effective self-regulation (e.g., Lengua et al., 2007). For instance, children with higher effortful control exhibit greater empathy (Spinrad et al., 2007) and higher social competence (Eisenberg et al., 2003), while impulsive behavior was predictive of lower social competence (NICHD Early Child Care Research Network, 2003).

In summary, organizational theories about the emergence of psychopathology suggest that the quality of adaptation in resolving earlier stage-salient developmental issues (e.g., formation of a positive relationship with a primary caregiver, emergence of self-regulation, etc.) continues to affect negotiation of challenges of later developmental periods. The establishment of social competence in kindergarten constitutes a critical developmental challenge of the school age years. Overall, the study was guided by a multiple risk factor model (Rutter & Quinton, 1984) and a probabilistic developmental framework. The purpose of this study was to test a conceptual model predicting children's social competence in kindergarten based on this literature. This model is displayed in Figure 1 and incorporates the following hypotheses. First, we hypothesized that parents' alcohol diagnoses over the 12-18 month period would be associated with higher parental depression and antisocial behavior. Alcohol diagnoses, higher symptoms of depression, and higher antisocial behavior would be predictive of lower parental warmth or

sensitivity during parent-child interactions at 2 years of child age. Lower parental warmth would be predictive of lower self-regulation and externalizing behavior problems in the preschool years (3 years of child age). Finally, lower parental warmth, lower self-regulation, and higher externalizing behavior problems in the toddler to preschool years would be predictive of lower social competence in kindergarten. The model also includes gender as a covariate because boys have lower self-regulation (Kochanska, Murray, & Harlan, 2000) and higher externalizing behavior problems compared with girls (for a review, see Ehrensaft, 2005), and different trajectories for social competence as a function of parental risk (Hussong et al., 2005). Finally, we tested a model that also included direct paths from relevant parental risk factors (alcoholism diagnoses, depression, antisocial behavior) to children's social competence.

The study is unique in its design beginning in infancy, as most studies of alcoholic families begin in early adolescence, with the exception of the Michigan Longitudinal Study, beginning at 3-5 years of age. The study is also unique in its inclusion of multiple indicators of children's behavior, its heavy emphasis on observational paradigms for many constructs such as parenting and self-regulation, and the inclusion of parenting behavior as a key etiological construct. Moreover, only one previous longitudinal study has examined adaptive behavior such as social competence among children of alcoholics (Hussong et al., 2005), as all of the other previous studies have focused on maladaptive behavior. However, to our knowledge, no previous study has examined predictors of social competence among children of alcoholics beginning in infancy.

Method

Participants

The sample consists of 227 families with 12 month old infants at recruitment (111 girls and 116 boys). Families were classified as being in one of two major groups: the group consisting of parents with no or few current alcohol problems or the NA group ($n = 97$), and the group of families with one parent with alcohol problems or the FA group ($n = 130$). Within the FA group, 96 families had one parent (in 94% of families, this was the father) who met criteria for alcohol abuse or dependence, while the other parent was light drinking or abstaining. In the remaining 34 families, fathers met criteria for alcohol abuse or dependence and mothers either met similar criteria (60% of the 34 families) or were heavy drinking, but did not acknowledge any alcohol problems. These classifications were based on parental responses at 2 time points: 12 and 18 months of child age. Thus, parents who met diagnostic criteria either of the two time points were classified as being in the alcohol group. Families were assessed when the children were 12, 18, 24, 36, and 48 months, and during kindergarten.

The majority of the parents in the study were Caucasian (94% of mothers and 87% of fathers) with a smaller percentage of African-Americans (5% of mothers, 7% of fathers). Although parental education ranged from less than high school degree to Master's degree, about half the mothers (57%) and fathers (55%) had received some post-high school education or had a college degree. Annual family income ranged from \$4,000 to \$95,000 ($M = \$41,824$, $SD = \$19,423$). At the first assessment, mothers were residing with the biological father of the infant in the study. Most of the parents were married to each other (88%). At recruitment, mothers' age ranged from 19 to 40 ($M = 30.4$, $SD = 4.58$). Fathers' age ranged from 21 to 58 ($M = 32.9$, $SD = 6.06$).

Procedure

The names and addresses of these families were obtained from the New York State birth records for Erie County. Parents who indicated an interest in the study were screened by telephone

with regard to sociodemographic characteristics and eligibility criteria (see Eiden et al., 2007 for procedural details). Parents were primary caregivers and cohabiting since the infant's birth, and women who reported drinking moderate to heavy amounts of alcohol during pregnancy were excluded from the study in order to control for potential fetal alcohol effects. During the phone screen, mothers were administered the Family History Research Diagnostic Criteria for alcoholism with regard to their partners' drinking (RDC; Andreasen, Rice, Endicott, Reich, & Coryell, 1986) and fathers were screened with regard to their alcohol use. Because we had a large pool of families potentially eligible for the non-alcoholic group, alcoholic and non-alcoholic families were matched on race/ethnicity, maternal education, child gender, parity, and marital status.

Families visited the Institute at five different child ages (12, 18, 24, 36 months, and upon entry into kindergarten), with three visits at each age. A parent questionnaire assessment was also conducted at 48 months. Informed written consents were obtained from both parents and extensive observational assessments with both parents and children were conducted at each age. This paper focuses on the 12, 18, 24, 36, 48 month and kindergarten questionnaires, interviews, and observational assessments. At each assessment age (with the exception of 48 months), mother-child observations were conducted at the first visit, followed by a developmental assessment at the second visit. Father-child observations were conducted at the third visit. There was a 4-6 week lag between the mother-child and father-child visits at each age. Families were compensated for their time in the form of gift cards, toys, and monetary compensation. Teachers were contacted in the spring of the kindergarten year for completion of teacher reports for monetary compensation.

Measures

Parental alcohol use—The UM-CIDI interview adapted to a self-report questionnaire (Anthony et al., 1994) was used to assess alcohol abuse and dependence at 12 and 18 months. In addition to the screening criteria, DSM-IV criteria for alcohol abuse and dependence diagnoses for current alcohol problems (in the past year at 12 months and past 6 months at the 18 month assessment) were used to assign final diagnostic group status. Parents who met diagnostic criteria at either time point were assigned to the FA group. Following Aiken and West (1991), two dummy coded variables were created for model testing, father alcoholic only (coded 1) vs. rest (coded 0), and both alcoholic (coded 1) vs. rest (coded 0). The correlation between these two dummy coded variables was $r = -.34, p < .01$.

Parents' depression—Parents' depression symptoms were assessed at 12 and 18 months with the Center for Epidemiological Studies Depression Inventory (CESD; Radloff, 1977), a scale designed to measure depressive symptoms in community populations. Scores of 16 or higher on the CESD are considered to be in the clinically significant range (e.g., Ritchey, LaGory, Fitzpatrick, & Mullis, 1990). Only 12% of mothers and 10% of fathers had scores at or above 16 in this sample. In order to create an index of maternal and paternal depression over the second year of the child's life, the CESD scores at 12 and 18 months were averaged and a composite index of depression was created for each parent. The internal consistency of the scale ranged from .88 for fathers to .91 for mothers in this sample. The depression scores for both mothers and fathers were quite skewed and were transformed using square-root transformations.

Parents' Antisocial Behavior—A 28-item version of the Antisocial Behavior Checklist (ASB; Ham, Zucker, & Fitzgerald, 1993) was used in this study at 12 months of child age. The measure was not re-administered at 18 months because it is a measure of lifetime antisocial behavior, and we did not anticipate change over a 6 month period. The internal consistency of the 28-item measure in the current sample was quite high for both parents ($\alpha = .90$ for fathers

and .82 for mothers). The antisocial behavior scores for both mothers and fathers were quite skewed and were transformed using square root transformations.

Parenting Quality—Mothers and fathers were asked to interact with their children as they normally would at home for 10 minutes in a room filled with toys at 24 months of child age. Mother-child and father-child interactions were conducted separately about 4-6 weeks apart. These interactions were coded using the Parent Child Early Relational Assessment (Clark et al., 1999), a collection of global 5-point ratings scales. Composite measures of maternal and paternal sensitivity, negative affect, and warmth were derived from these scales, yielding three composite scales for mothers and three for fathers. Higher scores on these scales indicated high sensitivity, low negative affect, and high warmth. Two sets of coders rated the play interactions. All coders were trained on the Clark scales by the first author and were unaware of group membership and all other data. Inter-rater reliability was calculated for 17% of the sample ($n = 38$) and was high for all six sub-scales, with Intra-class correlation coefficients ranging from .81 to .92.

Confirmatory factor analyses were conducted on the six composite scales in order to examine the fit of the two measurement models, one for each parent. Confirmatory factor analyses (one for mothers' parenting and one for fathers' parenting) indicated that the three parenting behavior scales for fathers loaded on one factor reflecting fathers' warmth/sensitivity (high warmth, low negative affect, and high sensitive responding with standardized factor loadings $> .80$). Similarly, the three parenting behavior scales for mothers loaded on one factor reflecting maternal warmth/sensitivity (with standardized factor loadings $> .80$).

Self-Regulation—The self-regulation measures at 2 and 3 years were identical and included an effortful control battery, an observational measure of internalization of maternal rules, and an observational measure of internalization of fathers' rules. The effortful control battery consisted of a battery of three tasks developed by Kochanska et al. (1996) and Kochanska and Knaack (2003): a snack delay, whisper, and lab gift (see Eiden, Edwards, & Leonard, 2007; Kochanska et al., 1996 for details). The scores on all three tasks were standardized and a final effortful control score was computed by taking the average of all the scores. The internal consistency of this scale at 3 years was $\alpha = .79$.

Observations of child internalization were conducted according to the paradigm developed by Kochanska and her colleagues (Kochanska & Aksan, 1995; Kochanska et al., 1996). Children's internalization of the parental directive to not touch the objects on a prohibited shelf was assessed during a 12 minute observational paradigm (Kochanska & Aksan, 1995). The child's behavior was coded for every 15-second interval averaged across the entire 12 minutes so that high scores reflected high behavioral internalization. Internalization was coded by two independent coders blind to group status and other information about the families. Inter-rater reliability based on 20 cases (640 15-second coded segments) was $\kappa = .98$. The percent agreement for the categories ranged from 90% for gentle touch to 100% for deviation.

Effortful control, internalization of maternal rules, and internalization of paternal rules were used as measured indicators of the latent construct reflecting children's self-regulation at 3 years. Confirmatory factor analyses indicated that the three scales loaded on one factor reflecting high self-regulation, with standardized factor loadings $> .45$. These three indicators were significantly correlated with each other at 2 years of child age, but yielded relatively weak factor loadings in a confirmatory factor analysis. Thus, a composite variable was computed by taking the average of the two internalization variables and summing with the effortful control composite at 2 years. The internal consistency of this scale was *Cronbach's alpha* = .56.

Externalizing Behavior Problems—Maternal and paternal ratings of externalizing behavior problems were obtained using the externalizing behavior subscale of the Child Behavior Checklist (CBCL; Achenbach, 1992). An average of maternal and paternal ratings was used to create composite externalizing behavior scales at 2 years and at 3 years.

Social Competence—Teacher rating of social competence was measured using the Social Competence and Behavior Evaluation Scales (SCBE-30; LaFreniere & Dumas, 1996; LaFreniere, Dumas, Capuano, & Dubeau, 1992). The social competence scale is the average of eight scales reflecting socially competent behaviors in the classroom: joyful, secure, tolerant, integrated, calm, prosocial, cooperative, and autonomous. This scale has been validated for children ranging in age from 3-6 and has been used in a variety of settings and cultural contexts. High scores on this scale indicate higher social competence.

Maternal and paternal ratings of social competence were computed by taking the average of four items: “How well does your child get along with classmates;” “How easy is it for your child to make new friends;” “Does your child have a special or close friend;” and a reverse coded item from the CBCL “Not liked by other kids.” The first two items were rated on a scale of 1 to 5, with higher scores indicating higher social competence, the third item was dichotomous, and the last item taken from the CBCL was rated on a 3 point scale that was reverse coded so that high scores were more optimal. Two composite measures reflecting maternal and paternal ratings of social competence were obtained from these items with moderate internal consistency, *Cronbach’s alpha* = .53 for maternal ratings and .50 for paternal ratings. These two measures were highly correlated ($r = .65$), and accordingly were combined into a single composite by taking the average to represent parental rating of social competence.

Results

Missing Data and Data Analytic Approach

As would be expected of longitudinal studies involving multiple family members, there were incomplete data for some participants at one or more of the five assessment points included in this study. Of the 227 families included in analyses, all provided data at 12 and 18 months, 222 mothers and 218 fathers provided data at 24 months, 205 mothers and 193 fathers provided data at 36 months, and 185 mothers, 174 fathers, and 148 teachers provided data at kindergarten. Among the NA group families, 83% of families had maternal report data, 80% had paternal report data, and 67% had teacher report data. Among the FA group families, 80% had maternal report data, 73% had paternal report data, and 64% had teacher report data. There were no group differences between families with missing versus complete data on any of the alcohol variables, depression, or parenting. There were also no differences between the two groups of families (complete versus missing data) on any of the child outcome variables. However, families with missing data had mothers who reported higher antisocial behavior ($M = 41.96$ and 39.25 , $SD = 10.01$ and 8.54) compared to those with complete data. In order to take advantage of all data provided by all participants, we used full information maximum likelihood (FIML) to estimate parameters in our models (Arbuckle, 1996).

Structural equation modeling (SEM) was used to test the conceptual model depicted in Figure 1. All SEM analyses were conducted using Mplus, Version 4.0 (Muthen & Muthen, 1998-2006). The indirect effects for the hypothesized association between parents’ alcohol diagnoses and children’s social competence were tested using the bias corrected bootstrap method as suggested by MacKinnon, Lockwood, Hoffman, West, and Sheets (2002).

Demographic and Descriptive Information

We first examined demographic and descriptive information regarding the families in the two groups. Approximately, 11% of parents were not living together by the kindergarten assessment. Of these, 13% were in the FA group and 8% were in the NA group. Chi-square analyses indicated that this difference was not significant, $\chi^2(1) = 1.32, p > .05$. Only 2% of the children who completed assessments at kindergarten had no contact with their biological father. The remaining children had regular contact with their fathers (at least once a week) for at least 15 hours per week. Overall, 20 fathers (9%) had been in substance abuse treatment at some point since recruitment and the kindergarten assessment, and 18 (8%) had been in treatment for psychological problems. By kindergarten, 14 (6%) mothers had been in substance abuse treatment, and 27 (12%) had been in treatment for psychological problems¹.

An ANOVA with child gender and the individual social competence measures as the dependent measures indicated a significant gender difference on teacher reports, $F(1, 146) = 4.25, p < .05$. Teachers reported girls as displaying higher social competence compared to boys ($M = 16.83$ and $15.35, SD = 4.37$ and 4.33 for girls and boys respectively). However, there were no interaction effects of gender and group status. Therefore, child gender was used as a covariate in model testing.

Descriptive information regarding group differences on parents' education and other variables in the study is presented in Table 1. At the level of correlations, there were consistent associations between parental risk factors such as alcohol diagnosis, depression, and antisocial behavior and the parenting variables (see Table 2). Parents' depression and antisocial behavior were also consistently associated with externalizing behavior problems at 2 and 3 years. Maternal parenting variables were consistently associated with both children's self-regulation variables and parent ratings of social competence. Fathers' parenting variables were sporadically associated with self-regulation variables and more consistently associated with teacher ratings of social competence. Lower self-regulation was associated with higher externalizing behavior problems at 3 years, but not at 2 years. Higher self-regulation at 2 years and child internalization of parental rules at 3 years were associated with higher teacher rated social competence. Finally, higher externalizing behavior at 3 years was associated with lower parent rated social competence.

Testing the Conceptual Model

The conceptual model tested included the dummy coded variables for father alcoholism and both parents' alcoholism (dummy coded so that NA group = 0), maternal and paternal warmth/sensitivity during parent-toddler interactions at 2 years, children's self-regulation and externalizing behavior problems at 2 and at 3 years, and parents' depression, and antisocial behavior (see Figure 1). The model included covariances between exogenous predictors (alcohol diagnosis, depression, and antisocial behavior), paths from exogenous predictors to paternal and maternal warmth/sensitivity, self-regulation, and externalizing behavior problems at 2 years, paths from the 2 year variables to the latent construct for self-regulation and externalizing behavior problems at 3 years. Also included were paths from parenting, self-regulation at 3 years, and externalizing behavior at 3 years to the two measures of social competence in kindergarten. Finally, the model included a covariance between the residuals of the parental warmth/sensitivity, self-regulation, and externalizing behavior problems at 2 years, and a covariance between self-regulation and externalizing behavior problems at 3 years.

¹A number of exogenous variables were considered in model testing, but not included in the final model. These were parents' age, fathers' education, treatment for alcohol problems or psychological problems for either parent by the kindergarten assessment (dummy coded variable of treatment vs. no treatment), and a dummy coded variable for biological father living out of the household by kindergarten versus in the household, and number of waking hours father spends with the child according to maternal report at kindergarten. None of these variables were associated with any of the child outcome variables.

Finally, child gender was included in the model, with paths to children's self-regulation, externalizing behavior problems, and social competence variables. Results indicated that this conceptual model fit the data adequately, $\chi^2(127) = 188.88, p = .00, CFI = .96, RMSEA = .05$. This model indicated that the within time covariance between the residuals of the latent constructs for maternal and paternal warmth was significant and positive, as were the covariances between maternal warmth and self-regulation, and paternal warmth and externalizing behavior problems at 2 years. Higher maternal warmth was moderately associated with higher paternal warmth and higher child self-regulation at 2 years of child age. Higher paternal warmth was associated with higher externalizing behavior problems at 2 years. In addition, the parental risk factors (alcohol, depression, and antisocial behavior) were generally associated with each other as discussed above under correlational analyses. The structural paths indicated that after controlling for parents' depression and antisocial behavior, fathers' alcohol diagnosis was predictive of lower maternal and paternal warmth. Higher maternal and lower paternal antisocial behavior were associated with lower self-regulation at 2 years. Higher maternal and paternal depression was associated with higher externalizing behavior problems at 2 years. Lower maternal warmth was longitudinally predictive of lower self-regulation at 3 years. Higher paternal warmth and higher self-regulation were predictive of higher teacher ratings of social competence. Boys had lower self-regulation at 2 and 3 years than girls. Higher maternal warmth and lower externalizing behavior problems were predictive of higher parent ratings of social competence.

We next tested a model that included direct paths from paternal and maternal risk factors to social competence, based on previous studies and the patterns of correlations between risk factors and social competence measures in order to exclude spurious associations, especially since most of the risk factors were correlated with each other. The pattern of correlations suggested a potential direct association between mothers' antisocial behavior and parent ratings of social competence, of parents' antisocial behavior with externalizing behavior problems, and fathers' depression with teacher reports of social competence. The addition of these four paths resulted in a significant improvement in fit, $\Delta\chi^2 = 11.78, p < .05, df = 4$. This model is displayed in Figure 2, and fit the data well, $\chi^2(123) = 177.10, p = .00, CFI = .96, RMSEA = .04$. The results were similar to the previous model except that fathers' depression was a direct, significant predictor of teacher reports of social competence in addition to self-regulation at 3 years. The path from fathers' warmth/sensitivity to teacher reported social competence became non-significant with the addition of this direct path. As before, higher maternal warmth/sensitivity and lower externalizing behavior problems were predictive of higher parent ratings of social competence. The indirect effect linking fathers' alcohol diagnosis to parent reports of social competence via maternal warmth/sensitivity was statistically significant, $B = -.07, 95\% CI = -.18, -.01$. The indirect effect linking fathers' alcohol diagnosis to teacher reports of social competence was also statistically significant, $B = -.19, 95\% CI = -.68, -.03$.

Discussion

The results of this study indicate that children of alcoholic fathers may have lower social competence in kindergarten via indirect pathways such as parenting and self-regulation. Results implicate these variables assessed in the toddler to preschool period as being key processes linking fathers' alcoholism to children's social competence in kindergarten. As noted previously, only one longitudinal study has examined the association between parents' alcoholism and children's social competence.

One key mediator of the indirect association between fathers' alcoholism and parent reports of social competence was maternal warmth/sensitivity in the toddler period. Mothers with alcoholic partners were less warm and sensitive during play interactions with their toddlers, and lower maternal warmth/sensitivity was predictive of lower social competence in

kindergarten. Although much of the research literature does not address the processes that link parental alcoholism and child functioning, this finding raises the possibility that the stresses associated with having an alcoholic partner may have a spillover effect on to maternal interactions with the child and interfere with mothers' ability to be consistently warm and supportive toward their children (Eiden et al., 2004; Jacob et al., 2000). Alternatively, it is plausible that women who marry alcoholic partners may be less warm and supportive generally. Nevertheless, the results also lend further support to a number of previous studies linking warm/supportive parenting to higher social competence in kindergarten (e.g., Raver et al., 2007), and older school age children (Lengua et al., 2007). These findings also suggest an additional avenue for prevention beyond treating the alcoholic, specifically providing parent training and coping skills to women with alcoholic partners.

Children's self-regulation, fathers' depression, and fathers' warmth/sensitivity were all predictors of teacher reported social competence, although the association between fathers' warmth/sensitivity and teacher reported social competence became non-significant once the direct association between fathers' depression and social competence was included in the model. Thus, this association seems to be partially explained by fathers' depression. It is important to recognize that this is depression in the context of an alcohol disorder and that it may represent affective impact of drinking and alcohol problems. In addition, few of the fathers had scores in the range of clinical depression. Nonetheless, parental depression, even in this range, may have predicted lower social competence due to a number of different factors. According to social learning theory, depression could be associated with poor social competence because depressed parents are poor role models for healthy social relationships and may have more restricted affect. Depressed parents may also be less supportive of children's interactions outside the home. Finally, children of depressed parents are more likely to exhibit social withdrawal rather than social competence due to genetic liability or because of higher levels of parent withdrawal and/or irritability. Fathers' depression may be particularly predictive because fathers may serve as playmates more often than mothers, and fathers may play an important role in helping children create and maintain relationships outside the family. The ability of depressed fathers to provide such guidance may be impaired.

The association between self-regulation and social competence is supportive of previous literature indicating that aspects of self-regulation such as effortful control are predictive of social competence (Spinrad et al., 2007) and other aspects of social functioning such as sympathy (Eisenberg et al., 2007). Thus, children who learn to regulate or manage their own behavior in response to environmental demands by preschool age are also more adept at peer interactions and social behavior in the classroom. It is worth noting that unlike the parent reports of social competence, the measure of teacher report of social competence is broader, including autonomy, security, positive affect, tolerance, and prosocial behavior. The lack of association between self-regulation and parent reports of social competence may be attributed to the narrow focus of the items comprising those measures and also a different context for parents in contrast to the teachers.

Although fathers' alcoholism was predictive of both maternal and paternal warmth/sensitivity at 2 years of child age, after controlling for the association between maternal and paternal parenting, only maternal parenting accounted for unique variance in self-regulation at 3 years. The association between maternal parenting and children's self-regulation has been reported in previous studies (Eiden et al., 2007; Eisenberg et al., 2003; Kochanska et al., 2000; Lengua et al., 2007). The current results regarding this association is supportive of these studies indicating that maternal warmth/sensitivity plays a critical role in predicting aspects of children's self-regulation such as effortful control and internalization of parental rules.

As expected, boys had lower self-regulation compared to girls. This is supportive of previous studies indicating that preschool boys have lower effortful control compared to girls, and have lower levels of internalized conduct compared to girls (e.g., Kochanska & Knaack, 2003; Zahn-Waxler et al., 2005). However, contrary to expectations, the paths from child gender to externalizing behavior problems and social competence were non-significant. One interpretation of these findings is that gender differences in externalizing behavior problems and social competence reported in this and in previous studies may be explained by gender differences in the development of self-regulation. Indeed, researchers have speculated that gender differences in the development of empathy, guilt, and internalization leading to different levels of self-regulation may explain gender differences in behavior problems (e.g., Zahn-Waxler et al., 2005). Future studies with larger sample sizes may well examine if associations between parental risk factors, parenting, self-regulation, and children's externalizing behavior problems vary by child gender.

Children of parents with higher depressive symptoms and higher antisocial behavior had higher externalizing behavior problems at 2 years, although only depression accounted for unique variance at the level of model testing when both depression and antisocial behavior were included in the model. These results are generally supportive of previous studies indicating higher levels of externalizing behavior problems among children of depressed parents, and associations between parents' depression and children's externalizing behavior problems among children of alcoholics (e.g., Loukas et al., 2000).

Although the findings from our study fill an important gap in the literature, there are several significant limitations as well. First, the response rate to our open letter of recruitment was slightly above 25%. This raises the possibility that respondents to our recruitment may not have been representative of families with 12 month old infants. Our comparison of respondents with the entire population of birth records suggested that the differences were small with respect to the variables that we could examine. However, there could have been more significant differences in variables that we could not assess. Thus, although generating our sample from birth records has important advantages over newspaper or clinic-based samples, generalizability of results may be limited to the population of higher functioning families who may be more likely to respond to open letters of recruitment about participation in research. Second, given the nature of the design, the role of maternal alcohol problems cannot be examined independent of fathers' alcohol problems. Not only was this sample restricted with regard to maternal alcohol consumption because one exclusion criteria was maternal alcohol consumption during pregnancy, but it was also limited because the number of mothers with postnatal alcohol problems was relatively small. However, it is important to note that in the majority of families with alcohol problems, maternal alcohol problems exist in the context of paternal alcohol problems. In other words, women with alcohol problems are more likely to have partners with alcohol problems than vice versa (Roberts & Leonard, 1997). Third, in this conceptual model, we hypothesized that parents' warmth and sensitivity at 2 years would predict children's self-regulation at 3 years. It is possible that children who had higher self-regulation were more likely to elicit higher warmth and sensitivity from their parents and vice versa. Future studies may well examine this possibility of bidirectional associations between parenting and children's self-regulation. The model also does not account for concurrent associations between social competence and predictors, and this limits conclusions about temporal precedence for the outcome of interest. Future studies with longitudinal measures of social competence will be better able to address this issue. Fourth, given the limitations of sample size, and the complexity of the model, we were unable to test separate models for boys vs. girls or alcoholic vs. non-alcoholic families. This is an important area of investigation for future studies with larger sample sizes. Finally, the results may not be generalizable to single mother families who separated or never lived with an alcoholic partner. One eligibility requirement at the time of recruitment when the child was 12 months old was that biological

parents had been living together since the child's birth. This was important in order to examine the effects fathers' alcoholism on family functioning, parenting, and child development. However, this also limits generalizability to families who were intact when the child was a year old.

In spite of these limitations, the current study is unique within the children of alcoholics literature in its use of a longitudinal design beginning in infancy, examination of developmental processes, use of multiple indicators for most constructs, use of observational paradigms, and attention to issues regarding method variance. The finding that observational and laboratory measures of parenting, self-regulation, and externalizing behavior problems are predictive of parent and teacher reports of children's social competence is not only important conceptually, but also represents a significant methodological advance in this area of research. Another strength of the study is the inclusion of both maternal and paternal parenting behavior as potential mediators of child outcomes, instead of focusing exclusively on maternal behavior.

It is clear that the roots of children's social competence are firmly grounded in child experiences in the early years of life. Early parent-child interactions lay the groundwork for child socialization and the may profoundly affect the social success of children in the early school years. The nested nature of risk factors in alcoholic families may thus jeopardize the ability of these mothers and fathers of adequately parent their children and provide strong models of pro-social behavior in the toddler years. Results highlight the role of parenting and the development of self-regulation as key mediating processes in the development of early social skills. Findings also highlight the unique role of fathers' alcoholism, even in the context of other symptoms of psychopathology, in the development of maladaptive child social skills. These results emphasize the importance of focusing on multiple predictors of child risk and the crucial role that fathers play in the development of social competence. Further, interventions aimed at improving parental warmth and sensitivity and children's self-regulation in alcoholic families may be most beneficial in the toddler or preschool period.

Acknowledgments

This study was made possible by National Institute on Alcohol Abuse and Alcoholism Grant RO1 AA 10042. We thank parents and children who participated in this study and the research staff who were responsible for conducting and coding numerous assessments with these families. Special thanks go to Grazyna Kochanska for the self-regulation assessments.

References

- Achenbach, TM. Manual for the child behavior checklist/2-3 and 1992 profile. University of Vermont Department of Psychiatry; Burlington, VT: 1992. Unpublished work
- Aiken, LS.; West, SG. Interactions between continuous predictors in multiple regression. In: Aiken, LS.; West, SG., editors. Multiple regression: Testing and interpreting interactions. Sage; Newbury Park, CA: 1991. p. 9-27.
- Andreasen NC, Rice J, Endicott J, Reich T, Coryell W. The family history approach to diagnosis: How useful is it? *Archives of General Psychiatry* 1986;43:421-429. [PubMed: 3964020]
- Anthony JC, Warner LA, Kessler RC. Comparative epidemiology of dependence on tobacco, alcohol, controlled substances, and inhalants: Basic findings from the National Comorbidity Survey. *Experimental & Clinical Psychopharmacology* 1994;2:244-268.
- Blazei RW, Iacono WG, McGue M. Father-child transmission of antisocial behavior: The moderating role of father's presence in the home. *Journal of American Academy of Child and Adolescent Psychiatry* 2008;47:406-415.
- Bradley, SJ. Affect regulation and the development of psychopathology. Guilford Press; New York: 2000.

- Calkins SD, Fox N. Self-regulatory processes in early personality development: A multilevel approach to the study of childhood social withdrawal and aggression. *Development & Psychopathology* 2002;14:477–498. [PubMed: 12349870]
- Campbell, SB. Behavior problems in preschool children: Clinical and developmental issues. 2nd Ed. Guilford Press; New York: 2002.
- Chassin L, Flora DB, King KM. Trajectories of alcohol and drug use and dependence from adolescence to adulthood: The effects of familial alcoholism and personality. *Journal of Abnormal Psychology* 2004;113:483–498. [PubMed: 15535782]
- Chen X, Dong Q, Zhou H. Authoritative and authoritarian parenting practices and social and school performance in Chinese children. *International Journal of Behavioral Development* 1997;21:855–873.
- Clark R. The parent-child early relational assessment: A factorial validity study. *Educational & Psychological Measurement* 1999;59:821–846.
- Conger RD, Neppl T, Kim KJ, Scaramella L. Angry and aggressive behavior across three generations: A prospective, longitudinal study of parents and children. *Journal of Abnormal Child Psychology* 2003;31:143–160. [PubMed: 12735397]
- Ehrensaft MK. Interpersonal relationships and sex differences in the development of conduct problems. *Clinical Child & Family Psychology Review* 2005;8:39–63. [PubMed: 15898304]
- Eiden RD, Chavez F, Leonard KE. Parent-infant interactions in alcoholic and control families. *Development & Psychopathology* 1999;11:745–762. [PubMed: 10624724]
- Eiden RD, Edwards EP, Leonard KE. A conceptual model for the development of externalizing behavior problems among kindergarten children of alcoholic families: Role of parenting and children's self-regulation. *Developmental Psychology* 2007;43:1187–1201. [PubMed: 17723044]
- Eiden RD, Leonard KE, Hoyle RH, Chavez F. A transactional model of parent-infant interactions in alcoholic families. *Psychology of Addictive Behaviors* 2004;18:350–361. [PubMed: 15631607]
- Eisenberg N, Zhou Q, Losoya SH, Fabes RA, Shepard SA, Murphy BC, et al. The relations of parenting, effortful control, and ego control to children's emotional expressivity. *Child Development* 2003;74:875–895. [PubMed: 12795395]
- Eisenberg N, Zhou Q, Spinrad TL, Valiente C, Fabes RA, Liew J. Relations among positive parenting, children's effortful control, and externalizing problems: A three-wave longitudinal study. *Child Development* 2005;76:1055–1071. [PubMed: 16150002]
- Eisenberg N, Michalik N, Spinrad TL, Hofer C, Kupfer A, Valiente C, et al. The relations of effortful control and impulsivity to children's sympathy: A longitudinal study. *Cognitive Development* 2007;22:544–567. [PubMed: 18836516]
- Fitzgerald, HE.; Davies, WH.; Zucker, RA. Growing up in an alcoholic family: Structuring pathways for risk aggregation and theory-driven intervention. In: McMahon, RJ.; Peters, RD., editors. *The effects of parental dysfunction on children*. Kluwer Academic/Plenum Publishers; New York: 2002. p. 127-146.
- Henricsson L, Rydell A. Elementary school children with behavior problems: Teacher-child relations and self-perceptions. *Merrill-Palmer Quarterly* 2004;50:111–138.
- Ham, HP.; Zucker, RA.; Fitzgerald, HE. Assessing antisociality with the Antisocial Behavior Checklist: Reliability and validity studies; Poster presented at the annual meetings of the American Psychological Society; Chicago, IL. 1993.
- Howes, C. Quality indicators in infant and toddler care: The Los Angeles study. In: Phillips, DA., editor. *Quality in child care: What does research tell us?*. National Association for the Education of Young Children; Washington, DC: 1987. p. 81-88.
- Hussong AM, Galloway CA, Feagans LA. Drinking motives moderate daily mood-drinking covariation. *Journal of Studies on Alcohol* 2005;66:344–353. [PubMed: 16047523]
- Jacob T, Haber RH, Leonard KE, Rushe R. Home interactions of high and low antisocial male alcoholics and their families. *Journal of Studies on Alcohol* 2000;61:72–80. [PubMed: 10627099]
- Jacob T, Krahn GL, Leonard KE. Parent-child interactions in families with alcoholic fathers. *Journal of Consulting & Clinical Psychology* 1991;59:176–181. [PubMed: 2002135]
- Jacob T, Windle M. Young adult children of alcoholic, depressed and non-distressed parents. *Journal of Studies on Alcohol* 2000;61:836–844. [PubMed: 11188489]

- Kochanska G, Aksan N. Mother-child mutually positive affect, the quality of child compliance to requests and prohibitions, and maternal control as correlates of early internalization. *Child Development* 1995;66:236–254.
- Kochanska G, Knaack A. Effortful control as a personality characteristic of young children: Antecedents, correlates, and consequences. *Journal of Personality* 2003;71:1087–1112. [PubMed: 14633059]
- Kochanska G, Murray KT, Harlan E. Effortful control in early childhood: Continuity and change, antecedents, and implications for social development. *Developmental Psychology* 2000;36:220–232. [PubMed: 10749079]
- Kochanska G, Murray KT, Jacques TY, Koenig AL, Vandegest KA. Inhibitory control in young children and its role in emerging internalization. *Child Development* 1996;67:490–507. [PubMed: 8625724]
- Kopp CB. Antecedents of self-regulation: A developmental perspective. *Developmental Psychology* 1982;18:199–214.
- La Freniere P, Dumas JE. Social competence and behavior evaluation in children ages 3 to 6 years: The short form (SCBE-30). *Psychological Assessment* 1996;8:369–377.
- La Freniere P, Dumas JE, Capuano F, Dubeau D. Development and validation of the preschool socioaffective profile. *Psychological Assessment* 1992;4:442–450.
- Lengua LJ, Honorado E, Bush NR. Contextual risk and parenting as predictors of effortful control and social competence in preschool children. *Journal of Applied Developmental Psychology* 2007;28:40–55.
- Lewinsohn PM, Olino TM, Klein DN. Psychological impairment in offspring of depressed parents. *Psychological Medicine* 2005;35:1493–1503. [PubMed: 16164773]
- Low SM, Stocker C. Family functioning and children's adjustment: Associations among parents' depressed mood, marital hostility, parent-child hostility, and children's adjustment. *Journal of Family Psychology* 2005;19:394–403. [PubMed: 16221020]
- Maccoby, EE.; Martin, JA. Socialization in the context of the family: Parent-child interaction. In: Hetherington, EM., editor. *Handbook of child psychology: Socialization, personality, and social development*. 4th ed. Wiley; New York: 1983. p. 1-101.
- Martinez A, Malphurs J, Field T, Pickens J, Yando R, Bendell D, et al. Depressed mothers' and their infants' interactions with nondepressed partners. *Infant Mental Health Journal* 1996;17:74–80.
- MacKinnon DP, Lockwood CM, Hoffman JM, West SG, Sheets V. A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods* 2002;7:83–104. [PubMed: 11928892]
- Muthen, LK.; Muthen, BO. *Mplus User's Guide* (1998-2006). Muthen & Muthen; Los Angeles, CA: 2006.
- NICHD Early Child Care Research Network. Do children's attention processes mediate the link between family predictors and school readiness? *Developmental Psychology* 2003;39:581–593. [PubMed: 12760525]
- Parker, JG.; Rubin, KH.; Price, J.; DeRosier, ME. Peer relationships, child development, and adjustment: A developmental psychopathology perspective. In: Cicchetti, D.; Cohen, DJ., editors. *Developmental psychopathology*. Vol. Vol. 2: Risk, disorder, and adaptation. University of Michigan; Ann Arbor, MI: 1995. p. 96-161.
- Posner MI, Rothbart MK. Developing mechanisms of self-regulation. *Development & Psychopathology* 2000;12:427–441. [PubMed: 11014746]
- Radloff LS. The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement* 1977;1:385–401.
- Raver CC, Gershoff ET, Aber JL. Testing equivalence of mediating models of income, parenting, and school readiness for White, Black, and Hispanic children in a national sample. *Child Development* 2007;78:96–115. [PubMed: 17328695]
- Ritchey FJ, La Gory M, Fitzpatrick KM, Mullis J. A comparison of homeless, community-wide, and selected distressed samples on the CES-Depression Scale. *American Journal of Public Health* 1990;80:1384–1386. [PubMed: 2240314]
- Roberts, LJ.; Leonard, KE. Gender differences and similarities in the alcohol and marriage relationship. In: Wilsnack, RW.; Wilsnack, SC., et al., editors. *Gender and alcohol: Individual and social perspectives*. Rutgers Center of Alcohol Studies; New Brunswick, NJ: 1997. p. 289-311.

- Sobel, ME. Asymptotic confidence intervals for indirect effects in structural equation models. In: Leinhardt, S., editor. *Sociological methodology*. American Sociological Association; Washington, DC: 1982. p. 290-312.
- Spinrad TL, Eisenberg N, Gaertner B, Popp T, Smith C, Kupfer A. Relations of maternal socialization and toddlers' effortful control to children's adjustment and social competence. *Developmental Psychology* 2007;43:1170–1186. [PubMed: 17723043]
- Zahn-Waxler, C.; Usher, B.; Suomi, SJ.; Cole, PM. Intersections of biology and behavior in young children's antisocial patterns: The role of development, gender and socialization. In: Stoff, DM.; Susman, EJ., editors. *Developmental psychobiology of aggression*. Cambridge University Press; New York: 2005. p. 141-160.
- Zucker RA, Ellis L, Bingham CR, Fitzgerald HE. The development of alcoholic subtypes: Risk variation among alcoholic families during the early childhood years. *Alcohol Health & Research World* 1996;20:46–55.

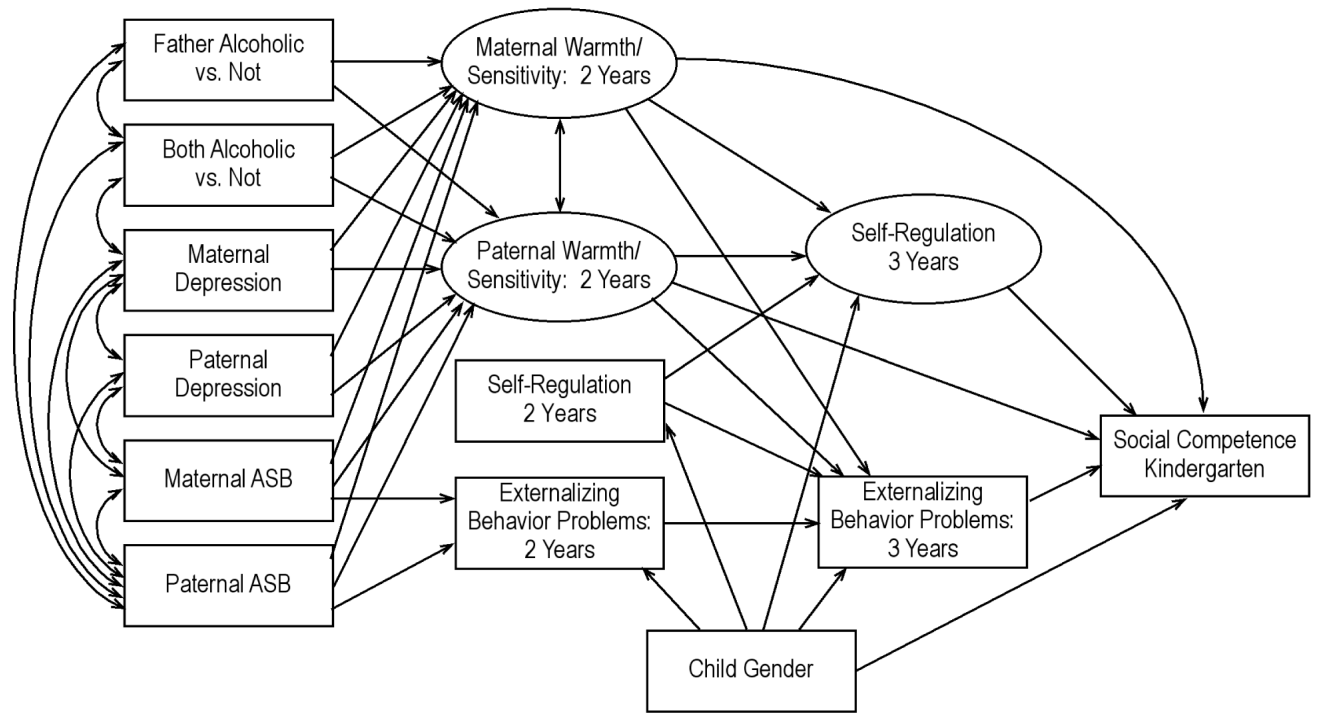


Figure 1.
Conceptual Model

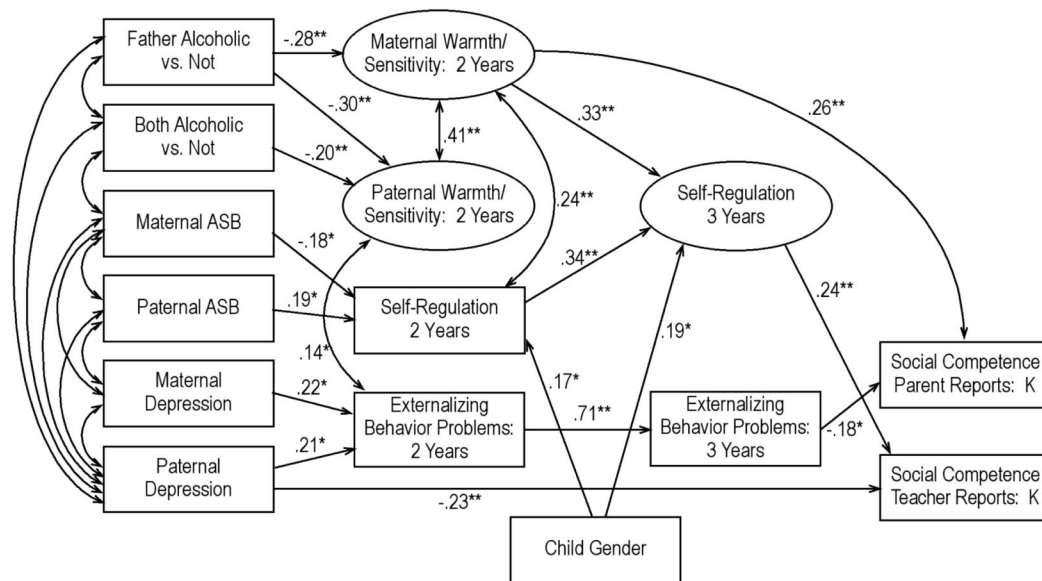


Figure 2.

The Final Direct and Indirect Effects Model. The numbers represent standardized path coefficients. Non-significant paths were not depicted in the model for ease of presentation. Covariances between exogenous variables are depicted in the figure but the coefficients are in Table 2. The paths from fathers' warmth/sensitivity to teacher reports of social competence became non-significant with the addition of the direct paths from fathers' depression to teacher reports of social competence. The factor loadings for the measured indicators for the latent variables are noted in the text and not depicted in the figure. The error terms for the measured indicators are not depicted in the figure. ASB: Antisocial Behavior.

* $p < .05$; ** $p < .01$.

Table 1

Descriptive information and effect size by group status.

Variables	FA Group											
	n = 96			n = 34			n = 97			Partial		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Eta ²	
Mother: Depression	7.15	6.35	8.42 ^a	6.83	7.28	5.90	5.92 ^b	5.85	5.85	5.85	.05	
ASB	39.86	8.94	42.08 ^a	8.41	45.12 ^a	11.63	35.96 ^b	6.42	6.42	6.42	.18	
Warmth	4.10	.86	3.83 ^a	.88	3.76 ^a	.94	4.46 ^b	.67	.67	.67	.14	
Sensitivity	4.46	.68	4.27 ^a	.67	4.27 ^a	.73	4.70 ^b	.59	.59	.59	.10	
Neg. Affect	4.65	.53	4.51 ^a	.61	4.64	.32	4.78 ^b	.48	.48	.48	.06	
Education	13.72	2.43	13.41 ^a	2.39	12.97 ^a	1.93	14.27 ^b	2.52	2.52	2.52	.04	
Father: Depression	7.83	6.70	8.72 ^a	7.53	9.47 ^a	6.80	6.43 ^b	5.54	5.54	5.54	.03	
ASB	35.85	5.40	42.08 ^a	8.41	45.12 ^c	11.63	35.96 ^b	6.42	6.42	6.42	.11	
Warmth	4.28	.73	4.03 ^a	.83	4.20	.59	4.54 ^b	.58	.58	.58	.11	
Sensitivity	4.61	.39	4.47 ^a	.60	4.64	.39	4.72 ^b	.45	.45	.45	.05	
Neg. Affect	4.74	.43	4.65 ^a	.53	4.75	.29	4.82 ^b	.36	.36	.36	.04	
Education	13.49	1.82	13.58	1.95	13.09	1.60	13.55	1.76	1.76	1.76	.01	
Social Comp: PR	3.03	.46	2.98	.49	2.95	.47	3.11	.41	.41	.41	.02	
Social Comp: TR	16.16	4.39	15.56	4.42	16.09	3.72	16.76	4.56	4.56	4.56	.02	
Self-Regulation 2Y	3.74	1.63	3.69	1.59	3.47	1.78	3.88	1.62	1.62	1.62	.01	
Externalizing 2Y	11.72	5.59	12.61	5.79	12.46	6.31	10.71	5.05	5.05	5.05	.03	
Effortful Control: 3Y	.03	.72	.00	.70	.10	.73	.03	.74	.74	.74	.002	
F Internalization: 3Y	4.45	.59	4.43	.61	4.51	.68	4.45	.54	.54	.54	.002	
M Internalization: 3Y	4.16	.89	4.12	.95	4.19	.84	4.19	.86	.86	.86	.001	
Externalizing 3Y	12.38	5.47	13.45 ^a	5.80	13.71 ^a	5.61	10.90 ^b	4.77	4.77	4.77	.06	

NOTE: Means with different superscripts were significantly different from each other. QFI: Quantity/Frequency Index; Binge: Frequency of binge drinking; ASB: Antisocial Behavior; Neg. Affect: Negative Affect; PR: parent report, TR: Teacher Report, 2Y: 2 Years, 3Y: 3 Years, F: father, M: mother. Higher scores on negative affect indicate lower negative affect.

Table 2

Correlations Among Variables in the Model

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
2. F Depression	.27																		
3. M Antisocial Beh.	.34	.22																	
4. F Antisocial Beh.	.31	.31	.44																
5. M Warmth	-.07	-.03	-.16	-.15															
6. M Sensitivity	-.05	.05	-.15	-.07	.72														
7. M Neg. Affect	-.07	.04	-.11	-.03	.70	.80													
8. F Warmth	-.22	-.14	-.27	-.23	.44	.39	.37												
9. F Sensitivity	-.19	-.11	-.24	-.18	.41	.47	.42	.85											
10. F Neg. Affect	-.21	-.09	-.19	-.13	.31	.36	.37	.74	.81										
11. Self-Reg. 2Y	-.08	-.09	-.12	.07	.24	.29	.22	.13	.10	.09									
12. Ext. Beh. 2Y	.35	.32	.25	.27	-.11	-.06	-.06	-.07	.00	-.09									
13. M Internalization	.01	.10	.03	.09	.21	.30	.28	.05	.12	.04	.29	-.16							
14. F Internalization	-.07	-.09	.00	-.15	.12	.22	.17	.09	.15	.04	.22	-.17	.55						
15. Effortful Control	-.04	-.04	-.10	.02	.25	.23	.27	.15	.17	.10	.40	-.19	.35	.23					
16. Ext. Beh. - 3 Yrs.	.30	.30	.18	.25	-.13	.00	-.04	-.08	-.01	-.03	-.09	.69	-.16	-.14	-.21				
17. P-Social Comp.	-.14	-.06	-.16	-.14	.27	.18	.22	.11	.12	.09	.08	-.14	.12	.03	.07	-.16			
18. T-Social Comp.	-.04	-.24	-.10	.02	.03	.06	.09	.14	.20	.24	.24	-.02	.17	.16	.11	.04	.15		
19. Child Gender	-.06	-.04	-.03	-.01	.03	.09	.10	.19	.23	.20	.21	-.05	.18	.21	.14	-.09	.02	.17	

Note. 1: Maternal Depression; Ext - Externalizing behavior problems; M: Mother; F: Father; T: Teacher; P: Parent; Neg: Negative; Comp: Competence. High scores on maternal and paternal negative affect indicate low negative affect. The control group = 0 for dummy codes of father alcoholic vs. not and mother alcoholic vs. not. Numbers in bold indicate statistically significant correlations $p < .05$.