**Supplemental Material 1**

Interactions between irritability and parental lifetime anxiety and substance use disorders

**Methods**

At the age 3 and 9 assessments, children’s biological parents were interviewed using the non-patient Structured Clinical Interview for DSM-IV (SCID; First et al., 2002) to assess parent’s lifetime history of any anxiety and substance use disorders. Kappas for interrater reliability were based on 30 audio recordings at age 3 and 74 at age 9 assessments. Inter-rater reliability of lifetime diagnoses were excellent for lifetime anxiety (age 3 kappa=.91; age 9 kappa=.73) and substance use disorders (age 3 kappa=1.00; age 9 kappa=.90). Two hundred and sixty six (46.6%) had at least one parent with a lifetime anxiety disorder (206 mothers and 111 fathers) and 284 children (50.1%) had at least one parent with a substance use disorder (SUD; 126 mothers and 215 fathers).

**Results**

Parental anxiety did not moderate any relations between irritability and symptoms. Parent lifetime substance use disorder moderated the association between within-person irritability and concurrent depressive symptoms (*b*=1.00, *SE*=.48, *t*=2.09, *p*=.038, 95% *CI* [.07, 3.38]). The association between within-person irritability and depression was weaker when children had a parent with a substance use disorder (*b*=1.02, *SE*=.33, *t*=3.09, *p*=.002, 95% *CI* [.37, 1.67]) than when children did not (*b*=2.02, *SE*=.37, *t*=5.46, *p*<.001, 95% *CI* [1.29, 1.74]). Parent lifetime substance use disorder also moderated the between-person association between irritability and ADHD symptoms (*b*=1.55, *SE*=.59, *t*=2.65, *p*=.008, 95% *CI* [.40, 2.70]). Between-person irritability was associated with fewer ADHD symptoms for children whose parent did not have a substance use disorder (*b*=-1.95, *SE*=.56, *t*=-3.48, *p*=.001, 95% *CI* [-3.05, -.85]), whereas the association was not significant for children whose parent did (*b*=-.40, *SE*=.55, *t*=-.73, *p*=.463, 95% *CI* [-1.47, .67]).

**Supplemental Material 2**

**Attrition analyses**

We conducted attrition analyses examining whether youth with missing data differed on demographic characteristics. At ages 6 and 9, there were no significant differences in attrition based on child sex, race, or parental education (all p’s >.44). At age 12, there was a significant difference in attrition based on parental education, with greater attrition in families without a 4 year college degree (chi square=8.8, df=1, p=.003). At age 15, there was a significant difference in attrition based on child sex, with greater attrition for males than females (chi square=4.42, df=1, p=.036) and parental education, with greater attrition in families without a 4 year college degree (chi square=10.24, df=1, p<.001). There were no differences based on child race at any wave. Given this, we controlled for child sex and parental education in all analyses.