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Predicting overt and covert antisocial behaviors: parents, peers, and homelessness

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Abstract

Parental deviance, parental monitoring, and deviant peers were examined as predictors of overt and covert antisocial behaviors. Homeless ($N=231$) and housed ($N=143$) adolescents were assessed in adolescence and again in early adulthood. Homelessness predicted both types of antisocial behaviors, and effects persisted in young adulthood. Parental deviance predicted only overt antisocial behaviors in adolescence, and was fully mediated by parental monitoring. Parental monitoring predicted both types of antisocial behaviors in adolescence, and was partially mediated by peer deviance. Parenting and peer influences did not consistently predict antisocial behaviors in adulthood.

The societal costs of antisocial behavior are high, and efforts to understand how to predict and prevent criminal acts are among the most important activities of research scientists. Children and adolescents with conduct problems are more often arrested as adults, are more likely to use illegal substances, fail to graduate high school or enter higher education, or fail to attain and keep employment, and are more likely to experience depressive symptoms as adults (Capaldi & Stoolmiller, 1999). Family, peer, neighborhood, and individual psychological risk factors have all been explored in predicting the development of antisocial behavior (for a review, see Loeber & Hay, 1997). There is evidence that adolescents who experience poverty or homelessness are also more at risk for antisocial behaviors (Larzelere & Patterson, 1990; Whitbeck & Hoyt, 1999). Complicating the analysis of diverse risk factors is evidence that antisocial behavior is itself diverse, with different predictors proving to be of differential utility in predicting sub-types of antisocial behavior (Brendgen, Vitaro & Bukowski, 2000; Snyder et al., 2005; Hinshaw, Zupan, Simmel, Nigg & Mednick, 1997; Gorman-Smith & Loeber, 2005). Also, different risk factors may become more relevant at different stages of development, with some factors being strongly associated with antisocial behavior in childhood and others predicting the persistence of antisocial behavior into adulthood. Ongoing efforts to explain or predict antisocial behaviors require attention to special circumstances that may moderate established patterns of risk, as well as a closer examination of the types of antisocial behaviors being predicted.

Risk for developing antisocial behaviors is often tied to family or parenting factors. Children of deviant parents are at significantly higher risk for developing antisocial behaviors themselves (Farrington, 2000). Parents may transmit their antisocial tendencies via heredity, modeling, or even reinforcement of antisocial behaviors (Cadoret, Yates, Troughton, Woodworth & Stewart, 1995; Dishion, Owen & Bullock, 2004). Parental deviance may also

predict antisocial behavior through the mediating variable of parental monitoring, as parents who engage in antisocial behaviors may be less able to appropriately monitor their teens' whereabouts or appropriately enforce rules for behavior (Ary, Duncan, Duncan & Hops, 1999; Patterson, DeBaryshe, & Ramsey, 1989). Adolescents who are poorly monitored may have more opportunities to engage in antisocial behaviors (Anderson & Bushman, 2002; Eamon, 2001).

Parental monitoring has also been linked to antisocial behavior via its influence on involvement with deviant peers. Patterson suggests that poor parental monitoring leads to impaired development of normal social skills and increased opportunity for involvement with deviant peers (Patterson, 1982). This model has been supported by research with younger children (Patterson, 1982) as well as adolescents (Ary, et al., 1999; Snyder, Dishion & Patterson, 1986). Some researchers suggest that parental monitoring may become more important as children age, as adolescents have greater opportunities to interact without adult supervision and opportunities for deviant peer association increase (Snyder, Dishion & Patterson, 1986; Kim, Hetherington & Reiss, 1999).

The influence of deviant peers has been identified as possibly the strongest and most direct risk factor for adolescent antisocial behavior (Werner & Silbereisen, 2003). During adolescence peer relationships take on a greater importance, and juvenile crime is often committed in a group of peers (Brendgen, Vitaro & Bukowski, 2000; Shortt, Capaldi, Dishion, Bank & Owen, 2003). Deviant peer networks may increase antisocial behaviors among their members via modeling, or by directly reinforcing antisocial behaviors through praise or other antisocial talk (Anderson & Bushman, 2002; Dishion, Spracklen, Andrews, & Patterson, 1996). Together, peer and parental influences explain much of the variance in antisocial behaviors, even as the mechanisms by which they do so remain to be explored.

Some subpopulations of youth experience stressors that may significantly alter the pattern of predictors of antisocial behaviors. The role of poverty in determining antisocial behaviors has been studied extensively, particularly in the context of parental mediation of socioeconomic stressors (Larzelere & Patterson, 1990; Eamon, 2001). Homeless youth experience some of the same stressors as other youth in poor neighborhoods, but experience additional risk factors that might also lead to their higher rates of antisocial behaviors (Whitbeck, Johnson, Hoyt, & Cauce, 2004; Cauce et al., 1994). The experience of being homeless on their own may lead youth to engage in illegal "subsistence" behaviors such as stealing or drug dealing (Whitbeck & Hoyt, 1999). Youth that are homeless on their own are more likely to have parents who engage in deviant behaviors, and are more likely to affiliate with deviant peers (Paradise & Cauce, 2002; Whitbeck & Hoyt, 1999). When youth become homeless they experience a disruption of their social network, sometimes including estrangement from their parents and increased contact with deviant peers (Paradise & Cauce, 2002; Whitbeck & Hoyt, 1999). It seems likely that the experience of homelessness would moderate the association between established risk factors and antisocial behaviors, but little evidence exists to clarify this hypothesis. It is possible that homeless youth are more influenced by their peers, due to the disruption of family support (Whitbeck & Hoyt, 1999), or that the higher levels of family deviance experienced by homeless youth may more strongly relate to antisocial behavior. It seems equally possible that simply experiencing the stresses of being homeless supersedes other social influences on antisocial behaviors.

Complicating the prediction of antisocial behavior are the potential differences between subtypes of antisocial behavior. Loeber (1982) proposed two distinct types of antisocial behavior, distinguished by the degree of confrontation involved in each behavior. He defined "overt" antisocial behavior as confrontational, such as "aggression, excessive quarreling, disobedience and fighting", while "covert" antisocial behavior is enacted mostly

in a concealed manner, and includes “lying, stealing, conning, truancy, drug use, and vandalism” (Loeber, 1982, p.1439). Exploratory and confirmatory factor analytic studies support this distinction (Achenbach, 1978; Frick et al., 1993; Loeber & Schmaleng, 1985a). Longitudinal studies indicate that individuals tend to follow specific developmental trajectories characteristic of either overt or covert behaviors (Vaillancourt et al., 2003; Nagin & Tremblay, 1999), although it is possible for youth to engage in both. Possible differences in predictors of the two subtypes are less clear. Evidence suggests that deviant peers are more influential in the development of covert behavior than overt behavior, possibly because covert acts such as shoplifting and vandalism may be more likely to be committed in a group (Brendgen, Vitaro & Bukowski, 2000; Snyder et al., 2005). Some evidence suggests that parenting has more of an influence on overt than covert antisocial behavior, although the possible reasons for this differential effect are unclear (Hinshaw et al., 1997; Gorman-Smith & Loeber, 2005). It is likely that homeless youth report higher levels of both overt and covert antisocial behaviors, due to the combination of stressors associated with homelessness. However, subsistence behaviors learned while homeless may be more likely to be covert antisocial behaviors such as stealing, suggesting that homelessness may be more associated with a rise in covert than overt antisocial behaviors.

The current study separately examines predictors of overt and covert antisocial behavior, and explores the possible moderating effect of adolescent homelessness. This study also uses longitudinal data to explore the prediction of antisocial behavior in early adulthood using adolescent risk factors. It is common for antisocial behaviors to peak in adolescence, followed by a decrease in early adulthood (Farrington, 1986; Kosterman, Graham, Hawkins, Catalano & Herrenkohl, 2001). Despite this normative pattern, some adolescents persist in antisocial behaviors into young adulthood, and adolescents who engage in antisocial behaviors tend to report higher levels of antisocial behaviors as adults (Olweus, 1979; Simonoff et al., 2004). Some evidence suggests that similar risk factors predict adolescent and early adult antisocial behaviors, with some exceptions, but further work on longitudinal prediction of antisocial behaviors across this transitional period is needed (Kosterman et al., 2001; Stouthamer-Loeber et al., 2004).

It was hypothesized that homeless youth would report higher levels of both overt and covert antisocial behavior, but that the difference would be more pronounced for covert behaviors. We expected that the number of deviant peers would significantly predict covert antisocial behavior, but not overt antisocial behavior (Brendgen, Vitaro & Bukowski, 2000; Snyder et al., 2005), and that deviant peer association would be the strongest of the three predictors of covert antisocial behavior. Parental monitoring was expected to mediate the effects of parental deviance, and deviant peer association was predicted to mediate the effects of parental monitoring (Ary, et al., 1999; Snyder, Dishion & Patterson, 1986). Due to limited prior research on predictors of change in antisocial behavior during the transition to adulthood, it was difficult to postulate detailed hypotheses regarding change. However, it was expected that deviant peer affiliation in adolescence would predict persistence of covert antisocial behavior into the transition to adulthood (Stouthamer-Loeber, et al., 2004).

Method

Sample

252 homeless adolescents were recruited between 1997-2000 at homeless shelters, soup kitchens, and other service organizations targeting homeless youth in a large Midwestern city. Homeless adolescents nominated peers who were not homeless to be included in the housed comparison group. The housed youth ($N=149$) were matched to the homeless on age, gender, race, and neighborhood income. By matching on neighborhood income, some risk for antisocial behaviors due to poverty is shared across both homeless and housed groups

(Lahey, Loeber, Burke & Applegate, 2005; Patterson, DeBaryshe, & Ramsey, 1989). 331 formerly homeless or housed youth completed a 6.5-year follow-up interview. 29 youth who were missing a 6.5-year interview were included, substituting their outcome data from their 5.5-year interview. An additional 15 participants missing both 6.5- and 5.5-year data were included using 4.5-year outcome data, bringing the total sample to include all 374 participants who had at least one follow-up interview in early adulthood.

This final sample was comprised of 231 homeless and 143 housed youth, with approximately two-thirds female (female $N=247$, male $N=127$). The sample was almost evenly split between African American ($N=179$) and Caucasian ($N=174$) participants, with a small number of participants identifying as Hispanic ($N=9$) or another race ($N=12$). All participants were between age 13-17 ($M=15.40$) at baseline and 18-26 ($M=21.69$) at follow-up. Due to the matching procedure, chi-square analyses demonstrated no significant differences between homeless and housed samples on gender or race, with an independent-samples t-test showing no significant difference between the two subgroups on age.

Measures

Association with deviant peers—Number of deviant friends was assessed using the Social Network Interview (SNI; Bates & Toro, 1999). The SNI was administered at all time points included in the study. Participants are asked first to list their close friends, and then are asked a number of questions about each friend on their list. 10 items address illegal behavior of each friend, including whether they had been arrested, sold drugs, threatened someone physically, or sold drugs. A network member was recorded as deviant if they endorsed at least one antisocial behavior. Total number of deviant friends reported in the final sample ranged from 0-14 ($M=1.84$).

Parental deviance—Parental deviant behaviors were also assessed using the SNI. In addition to using the same 10 items of illegal behavior, two items addressing whether respondents perceived their parent as having an alcohol or drug problem were incorporated, as respondents' perception of parental substance abuse was deemed a likely indicator of parental deviance. A sum of the resulting 12 items was used to index degree of parent deviance ($\alpha=.68$). For respondents with multiple parents ($N=201$) the higher deviance rating was used ($M=1.29$).

Of the 374 respondents with any follow-up interviews, 68 did not report a parent as part of their social network at baseline. To account for the possible bias due to respondents being temporarily estranged from their parents while homeless, respondents' report of parental deviance at the most recent follow-up point (from 6 to 18 months after baseline) was substituted for missing parent information. After this substitution, 45 respondents had no available information for parental deviance.

Parental monitoring—Parental monitoring was assessed using a 9-item subscale based on the measure used by Whitbeck and Hoyt (1999). Items target the degree to which parents monitor their child's whereabouts and activities, including questions about the degree to which parents know where their child is after school, whether the child has a set time to be home on weekends, and whether the parent knows whether the child is home at a set time. The parental monitoring subscale was administered at baseline and at the 6-month follow-up, but not at later administrations when it was believed that older respondents would have less contact with their parents. As a result, the mean parental monitoring score at baseline was used for the following analyses (range: 0-4, $M=2.95$, $\alpha=.81$). Those respondents who did not report having a parent completed this measure in reference to their "primary caregiver".

Antisocial behavior—Overt and covert antisocial behavior was measured at baseline using items from the Conduct Disorder subscale from the Diagnostic Interview Schedule for Children (Costello, Edelbrock, Kalas, Kessler & Klaric, 1982). A symptom count was constructed using 19 symptoms of antisocial behavior. Antisocial behavior was measured again at the 4.5-6.5 year follow-up interviews, when items from the DISC were combined with items from the adult Diagnostic Interview Schedule (Robins et al., 1999) to create a 37-item symptom count scale. This scale included all of the same items from the baseline measure, with the addition of two items targeted for adults. For each time point, only items that could clearly be classified as overt (e.g., “have you threatened someone in order to steal from them?”, “have you started any serious physical fights where there was punching or hitting?”) or covert (e.g., “since [the past year] have you broken into a house, building, or car?”, “have you stolen money from people you live with?”) were used to create non-overlapping overt and covert scales. Classification was based on the structures yielded from meta-analyses conducted by Frick and colleagues (1993) and Loeber and Schmalzing (1985a), and the factor analysis presented by Kazdin (1992). Only two items were included in the adult version of the scales that were not included in the child version, “Have you made money outside the law by buying or selling stolen property or selling drugs or running numbers?”, and “Have you made money by finding customers for prostitutes or call girls”; both were classified as covert. Remaining additional adult items were not clearly classifiable, and were not included. In the current sample, the mean for baseline overt behaviors was .76 ($N_i=8$, $\alpha=.71$), with a mean of 2.12 for covert behaviors ($N_i=11$, $\alpha=.74$). The mean for overt behaviors at follow up was .45 ($N_i=8$, $\alpha=.68$), with a mean of .84 ($N_i=13$, $\alpha=.52$) for covert behaviors.

Procedure

Interviews were administered at both time points by trained undergraduate and graduate students, and by trained full-time interviewers. Baseline interviews took place in a private area in shelters or group homes, and parental consent as well as adolescent assent was obtained. Administration of interviews was standardized. Participants were tracked over time by maintaining frequent contacts when possible, offering small monetary incentives for providing updated contact information, and through collateral contacts.

Results

Assumptions of normality were tested for all variables to be included in regression analyses. One case outlying on the deviant friends variable at baseline was dropped, as the respondent dramatically over-responded to the entire social network survey at baseline. Antisocial behavior variables, with the exception of baseline covert behaviors, each had one or two outlying cases. These variables were truncated so that these high values were assigned to one higher than the next-lowest value. All outcome variables remained significantly skewed after truncating, and were corrected using square root transformations. Parental deviance and number of deviant friends were corrected using square root transformation. Parental monitoring was negatively skewed, and was corrected using a reverse log10 transformation. Transformed parental deviance ($M=.79$) and parental monitoring ($M=.28$) were centered around the mean to facilitate interpretation of interactions. Number of deviant friends was not centered, as it has a meaningful 0 point (the absence of deviant friends; Cohen, Cohen, West & Aiken, 2002). Age at baseline was also centered around the mean ($M=15.41$) to facilitate interpretation.

Attrition analyses were conducted to determine which, if any, baseline variables predicted missing data in adult follow-up. T-tests were used to compare “missing” ($N=26$) vs. “non-missing” ($N=374$) groups. Only parent deviance significantly predicted attrition, with those

missing all adult follow-up interviews having slightly higher mean parent deviance ($M=27.25$, vs. $M=26.08$; $t(347)=2.00$, $p<.05$). As a result, Type II error for parental deviance as a predictor of change in antisocial behavior is increased due to reduced range.

Descriptive analyses

Intercorrelations among predictors and outcomes are presented in Table 1, and differences between housed and homeless respondents in mean levels of antisocial behaviors and predictor variables are presented in Table 2. Homeless youth reported higher levels of both types of antisocial behaviors at both time points, higher levels of parental deviance, and lower levels of parental monitoring. No difference on number of deviant friends was found between homeless and housed adolescents, suggesting that youth experiencing homelessness are not more likely to acquire deviant peers than their housed counterparts from the same neighborhoods.

Mean levels of overt and covert behaviors were compared at each time point using a paired-samples t-test, using a modified version of the follow-up covert scale to drop two items not included on the baseline scale and square-root transformation on all variables to correct for skew. Mean levels of both scales were significantly lower at follow-up, with overt behaviors decreasing from an overall (uncorrected) mean of .75 to .43, $t(373)=5.13$, $p<.001$, and covert behaviors decreasing from an overall (uncorrected) mean of 2.16 to .73, $t(373)=14.80$, $p<.001$. T-tests run separately for housed and homeless respondents revealed that each demonstrated a similar decrease in both overt behaviors (housed: $t(142)=4.94$, $p<.001$, homeless: $t(230)=3.04$, $p<.01$) and covert behaviors (housed: $t(142)=7.50$, $p<.001$, homeless: $t(230)=13.01$, $p<.001$).

T-tests were also run to examine differences between those respondents not reporting a parent in adolescence ($N=45$), who were therefore not included in regression analyses, and those who reported deviance information on at least one parent ($N=329$). Respondents with a parent were less likely to be homeless ($t(372)=3.72$, $p<.001$), reported higher levels of parental monitoring ($t(372)=2.51$, $p<.05$), and reported lower levels of overt antisocial behaviors at follow-up ($t(372)=2.08$, $p<.05$). No significant differences were found between respondents with and without a parent on overt behaviors at baseline, or on covert behaviors at either time point. The amount of missing data complicates analyses of deviant parents. While it is possible that youth who do not report a parent have the most deviant parents, it is equally possible the impact of their parents' deviance is attenuated by the adolescent's limited exposure to their parent. For the current analyses, we focus only on adolescents who name at least one parent, and acknowledge the importance of future research more closely examining those teens who do not name a parent in their social network.

Primary analyses

Four models were tested using hierarchical multiple regression analyses: two cross-sectional models of overt and covert antisocial behaviors at baseline, and two longitudinal models predicting overt and covert antisocial behavior 6.5 years later.

Cross-sectional models used the following steps of entry for predictors. Step 1, homeless/housed status, gender, age at baseline; Step 2, parental deviance; Step 3, parental monitoring; Step 4, number of deviant peers; Step 5, interaction terms. Gender was entered in the first step due to extensive research documenting effects of gender on antisocial behaviors, as was age¹. Parental deviance was entered before monitoring and peers to test the hypothesis that the effects of deviant parenting may be mediated by the parent's ability to monitor their child (Ary, Duncan, Duncan & Hops, 1999). Deviant peers follows parental monitoring to test for mediation of parental monitoring by peers (Patterson, 1982).

Results for baseline overt behavior are presented in Table 3. Homeless teens and males reported significantly higher rates of overt antisocial behavior. Parental deviance directly predicted overt behaviors, and parental monitoring inversely predicted overt behaviors. Number of deviant peers directly predicted overt behaviors. Parental monitoring negatively predicted overt behaviors. Parental deviance became non-significant when parental monitoring was entered in the model. Parental deviance significantly predicted parental monitoring when housing status, gender, and age were controlled ($\beta = -.107, p < .05$), confirming that parental monitoring fully mediates the effects of parental deviance on overt behaviors at baseline. When number of deviant peers was entered, the strength of the association between parental monitoring and overt behaviors decreased, but remained significant (from $\beta = -.276, p < .001$ to $\beta = -.229, p < .001$). A Sobel test confirmed that the effect of parental monitoring on overt behaviors is partially mediated by the number of deviant friends (Sobel z value=2.78, $p < .01$). None of the three interaction terms were significant for overt behaviors, indicating that the effects of parents and peers are similar for homeless and housed adolescents.

Results for cross-sectional analyses for baseline covert behavior are presented in Table 4. Homeless teens reported significantly higher rates of covert antisocial behavior. Parental deviance did not significantly predict, but parental monitoring significantly inversely predicted covert behaviors. Number of deviant peers significantly predicted covert behaviors at baseline. As with overt behaviors, when number of deviant peers was entered, the strength of the association between parental monitoring and covert behaviors decreased but remained significant (from $\beta = -.315, p < .001$ to $\beta = -.254, p < .001$). A Sobel test confirmed that number of deviant peers partially mediates the association between parental monitoring and covert antisocial behaviors at baseline (Sobel z value=3.24, $p < .01$).

Both longitudinal regression models entered baseline levels of overt or covert antisocial behavior as the first step. In this way, findings reflect change from baseline levels of antisocial behavior. The following steps of entry were used: Step 1, baseline levels of overt or covert antisocial behavior; Step 2, homeless/housed status, gender, age at baseline; Step 3, parental deviance; Step 4, parental monitoring; Step 5, number of deviant peers; Step 6, interaction terms.

Longitudinal results for overt antisocial behaviors are presented in Table 5. Baseline levels of overt behaviors positively predicted overt behaviors 6.5 years later. Young adults who were homeless at baseline reported more adult overt behaviors, as did males. Although age at baseline did not predict cross-sectionally, age at baseline did negatively predict overt behaviors in young adulthood. Because age at baseline is very highly correlated with age at follow-up ($r = .87, p < .001$), it appears likely that younger adults engage in more overt antisocial behaviors than those who are 2-4 years older.² The only remaining predictor of overt behaviors in adulthood was parental deviance at baseline, which demonstrated a significant inverse association even when other variables were included in the model. As the bivariate correlation between parental deviance and adult overt behaviors was non-

¹Race was also considered as a possible additional covariate, given the ethnically diverse sample. However, when examined at the bivariate level in the current sample, minority status negatively predicted only covert antisocial behaviors at baseline, with White respondents reporting greater antisocial behaviors ($r = -.18, p < .05$). This finding is more consistent with literature suggesting that race is not consistently predictive of antisocial behavior, largely due to confounding of its effects with economic status and other ecological variables, and as a result race was not examined further in the current study (Metropolitan Area Child Study Research Group, 2002; Peeples & Loeber, 1994).

²It is also possible that age at baseline interacts with homeless status, and that age effects are partially due to the differential impact of the experience of homelessness at different ages in adolescence. To test this hypothesis, an additional two regression models were run for overt and covert behaviors at follow-up, entering the interaction term of age by homelessness at the third step (after baseline antisocial behaviors and demographic variables). This interaction term was non-significant in both cases, indicating that age effects are not likely to be due to the effects of having been homeless at a specific age.

significant, an additional regression model was run to explore the presence of suppressor variables. Controlling only for baseline overt behaviors, parental deviance does not significantly predict adult overt antisocial behaviors ($\beta = -.085, p = .11$). When homeless/housed status was added to the model, parental deviance became significant ($\beta = -.142, p < .01$), indicating that when variance explained by homeless/housed status is controlled, higher levels of parental deviance is associated with lower levels of overt antisocial behaviors.

Longitudinal results for covert antisocial behaviors are presented in Table 6. Baseline level of covert behaviors was the strongest predictor of follow-up covert behaviors. Males were significantly more likely to engage in covert behaviors, as were younger respondents. No other predictors, including former homeless status, were significantly associated with adult covert behaviors.

Discussion

Cross-sectional analyses within adolescence confirmed prior research identifying parenting and peer variables as important predictors of antisocial behavior. Parental monitoring and deviant peer affiliation each independently predicted both types of antisocial behavior, while parental deviance predicted only overt antisocial behaviors. The effect of parental deviance on overt behaviors was fully mediated by parental monitoring, supporting the hypothesis that parental monitoring might be the mechanism through which other parental variables influence antisocial behaviors (Ary et al., 1999; Patterson et al., 1989). In this sample, however, the ability of caregivers to monitor adolescents' behaviors might also serve to counteract the negative effects of deviant behavior by other parental figures, as measures of parental deviance and parental monitoring did not necessarily refer to the same parental figure. In turn, deviant peer affiliation partially mediated the effects of parental monitoring for both overt and covert behaviors. Patterson and colleagues explain this mediation effect as evidence that parental monitoring controls access to deviant peers, and that deviant peers in turn influence antisocial behaviors (Patterson, Reid & Dishion, 1992). However, association with deviant peers only partially mediated the association between parental monitoring and antisocial behavior, suggesting that parental monitoring may also directly control adolescent behaviors.

Parental and peer influences were not consistently different for overt and covert behaviors, although some differences were suggested by findings. Parental deviance predicted only overt behaviors, indicating that the confrontational nature of overt behaviors may be more susceptible to influence by heritability, parental modeling, or reinforcement by deviant parents. When all variables were entered in the model, parental monitoring was the strongest predictor of overt behavior, followed by deviant peers. It was predicted that peers would be more predictive of covert antisocial behaviors, but peers significantly predicted antisocial behavior of both types and were only equally as significant in predicting covert antisocial behavior as parental monitoring when all variables were entered. While these results do not negate the importance of deviant peers in predicting antisocial behaviors, they highlight the importance of parental variables, particularly in predicting overt antisocial behavior.

As predicted, homeless adolescents reported higher levels of both types of antisocial behaviors at baseline. Housing status demonstrated a stronger association with covert than overt behaviors, both when initially entered and when other predictors were controlled. This discrepancy supports our hypothesis that the experience of homelessness is more likely to lead teens to engage in covert "subsistence" behaviors such as theft or truancy, and that the relationship between overt behaviors (either as a cause or effect) and homelessness is less strong. In fact, the association between homelessness and adolescent overt behaviors disappears completely when parental deviance is added to the model (see Table 3),

suggesting that the association between homelessness and overt behaviors in adolescence might be due to the higher levels of parental deviance reported by homeless teens. However, no interaction terms between homelessness and primary predictors were significant, indicating that the effects of parenting and peer variables did not differ between housed and homeless adolescents.

Change in antisocial behavior during the transition to early adulthood proved to be less predictable than cross-sectional levels of antisocial behavior in adolescence. T-test results indicate that overall, mean levels of both overt and covert behavior significantly decreased from baseline to follow-up. This general decrease is consistent with other studies finding that many antisocial adolescents desist or decrease their antisocial behaviors in early adulthood (Farrington, 1986; Kosterman et al., 2001; Stouthamer-Loeber et al., 2004). Adolescent levels of antisocial behavior significantly predicted antisocial behavior in early adulthood, indicating that despite this general decrease, adolescents with higher levels of antisocial behavior were likely to become adults with relatively high levels of antisocial behaviors (Olweus, 1979; Simonoff et al., 2004). Although significant associations between adolescent and adult antisocial behavior support evidence of consistency of antisocial behaviors, adolescent overt antisocial behavior uniquely accounted for only 6.2% of variance in adult overt behaviors, and adolescent covert behavior uniquely accounted for 9.9% of variance in adult covert behaviors. While antisocial behavior may be relatively consistent across time, a significant amount of variance in adult antisocial behaviors remains to be explained.

The three main adolescent risk factors did not reliably predict adult antisocial behaviors after controlling for adolescent antisocial behavior. Parental monitoring and deviant peer affiliation did not predict either overt or covert adult antisocial behaviors. Parental deviance predicted only overt antisocial behavior, and in the reverse of the expected direction. Follow-up analyses indicated that parental deviance was significant only when homelessness was controlled. Future research might explore the intersection of homelessness and parental deviance: it is possible that while adolescent homelessness directly predicts overt antisocial behaviors both during the episode of homelessness and years later, youth with high levels of parental deviance that leave home may experience some protective benefits in the long term.

Although parenting and peer variables did not consistently predict longitudinally, one effect of adolescent homelessness was apparent 6.5 years later. Young adults who had been homeless as teens were more likely to engage in overt antisocial behaviors, even when controlling for adolescent levels of antisocial behavior. Whitbeck and Hoyt (1999) suggest that the survival skills youth acquire while homeless amplify other risk factors to contribute to long-term maladjustment. While many of these survival skills, such as shoplifting, might be more consistent with covert antisocial behaviors, our findings indicate that the experience of homelessness is not linked to a lasting propensity to engage in covert antisocial behaviors. Homeless adolescents appear likely to desist from these covert types of subsistence behaviors once the episode of homelessness is over and years have passed. Rather, the amplification of pre-existing risk factors by the experience of homelessness appears to contribute to a tendency to persist in overt antisocial behaviors into adulthood. It is also possible that homeless youth are more likely to have antisocial personalities that both predispose them to conflicts that lead them to the streets, and increase their likelihoods of engaging in overt antisocial behaviors in adulthood. A closer look at the ways in which homelessness might alter this particular subtype of antisocial behaviors may help determine what about homelessness might influence the persistence of overt antisocial behaviors over time, and how pre-existing factors might play a role in this relationship.

Our results support previous findings that homeless adolescents are at greater risk for engaging in antisocial behaviors, and demonstrate that this risk persists long after the experience of homelessness itself. Policies aimed at preventing adolescent homelessness, such as those that increase services available to poor or troubled families, are also likely to lower crime rates among teens and young adults. Services that help homeless teens meet their basic needs may be particularly likely to reduce covert crimes such as theft during the episode of homelessness, while services targeting the prevention of overt antisocial behaviors such as assault may have more long-term effects. Interventions for adolescents with higher parental and peer deviance, or interventions aimed at increasing parental monitoring, are likely to be effective for both homeless and housed teens. However, as homeless adolescents report higher rates of parent risk factors, they may be particularly likely to benefit from interventions targeting these problems.

This study has some limitations that should be addressed in future research. While the sample size was sufficient to examine many main effects, future research with larger samples may be better able to examine interactions between homelessness and other predictors. By using multiple time points, the nature of the relationships between predictors and antisocial behaviors could be explored in the context of change in both. Finally, this study only examined three predictors of antisocial behavior. These predictors were selected based on evidence that they would well represent key elements of parenting and peer influences. Still, a number of possible predictors of antisocial behavior, as well as possible interactions between predictors, remain to be explored in future research.

Despite its limitations, the current study sheds light on differences between subtypes of antisocial behaviors and the strength of predictors of these behaviors within an at-risk sample. The transition from adolescence to young adulthood is a critical time when the formation of a prosocial identity and successful negotiations of important milestones is critical to adjustment throughout the rest of life. Identification of those adolescents who will engage in antisocial behaviors both in adolescence as well as across the transition to adulthood is crucial for preventing long-term negative outcomes.

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Table 1

Intercorrelations among predictor and outcome variables

	1.	2.	3.	4.	5.	6.	7.
1. Parental deviance	--						
2. Parental monitoring	-.158**	--					
3. Deviant peers	.176**	-.247***	--				
4. Overt baseline	.128*	-.311***	.249***	--			
5. Covert baseline	.123*	-.361***	.342***	.451***	--		
6. Overt follow-up	-.052	-.161**	.031	.256***	.209***	--	
7. Covert follow-up	-.016	-.219***	.014	.237***	.318***	.433***	--

Table 2

Housed/homeless differences on mean outcomes and predictors

	Homeless (N=231)		Housed (N=143)		<i>t</i> (372) ^a
	Mean	SD	Mean	SD	
Overt baseline	.90	1.32	.50	1.00	2.95**
Covert baseline	2.50	2.03	1.62	1.83	4.83***
Overt follow-up	.62	1.10	.13	.53	5.17***
Covert follow-up	.99	1.36	.59	1.01	2.61*
Parental deviance (total, 0-12)	1.50	1.67	.85	1.29	4.14***
Parental monitoring (0=low, 4=high)	2.81	.81	3.18	.63	4.54***
Number of deviant friends	1.89	2.26	1.74	2.07	.30

^aNote: T-tests were conducted on transformed variables. Degrees of freedom was 372 for all variables except parental deviance, which had df=327.* $p < .05$;** $p < .01$;*** $p < .001$

Table 3

Predicting overt antisocial behavior at baseline

	β	ΔR^2	R^2
1. Housed/homeless status (0=housed, 1=homeless)	.148**	.051*	.051**
Gender (0=male, 1=female)	-.168**		
Age at baseline	-.058		
2. Housed/homeless status (0=housed, 1=homeless)	.121	.014*	.065***
Gender (0=male, 1=female)	-.175**		
Age at baseline	-.072		
Parental deviance	.121*		
3. Housed/homeless status (0=housed, 1=homeless)	.060	.067***	.132***
Gender (0=male, 1=female)	-.123*		
Age at baseline	-.111*		
Parental deviance	.091		
Parental monitoring ^a	-.276***		
4. Housed/homeless status (0=housed, 1=homeless)	.074*	.034***	.166***
Gender (0=male, 1=female)	-.139**		
Age at baseline	-.131*		
Parental deviance	.064		
Parental monitoring ^a	-.229***		
Deviant peers	.195**		
5. Housed/homeless status (0=housed, 1=homeless)	.001	.014	.180***
Gender (0=male, 1=female)	-.149**		
Age at baseline	-.129*		
Parental deviance	.144		
Parental monitoring ^a	-.105		
Deviant peers	.121		
Homeless by parental deviance	-.076		
Homeless by parental monitoring	.144		
Homeless by deviant peers	.132		

^aParental monitoring variable was transformed using a reverse-logarithmic transformation. To facilitate interpretation, Beta value reflects original direction (before reversal).

*
p<.05;

**
p<.01;

p<.001

Table 4

Predicting covert antisocial behavior at baseline

	β	ΔR^2	R^2
1. Housed/homeless status (0=housed, 1=homeless)	.259***	.072***	.072***
Gender (0=male, 1=female)	-.068		
Age at baseline	.071		
2. Housed/homeless status (0=housed, 1=homeless)	.244***	.004	.077***
Gender (0=male, 1=female)	-.072		
Age at baseline	.063		
Parental deviance	.068		
3. Housed/homeless status (0=housed, 1=homeless)	.174**	.088***	.164***
Gender (0=male, 1=female)	-.013		
Age at baseline	.018		
Parental deviance	.034		
Parental monitoring ^a	-.315***		
4. Housed/homeless status (0=housed, 1=homeless)	.192***	.058***	.222***
Gender (0=male, 1=female)	-.033		
Age at baseline	-.008		
Parental deviance	-.001		
Parental monitoring ^a	-.254***		
Deviant peers	.254***		
5. Housed/homeless status (0=housed, 1=homeless)	.235**	.018	.240***
Gender (0=male, 1=female)	-.033		
Age at baseline	-.007		
Parental deviance	.086		
Parental monitoring ^a	-.335**		
Deviant peers	.303**		
Homeless by parental deviance	-.123		
Homeless by parental monitoring	-.119		
Homeless by deviant peers	-.092		

^a Parental monitoring variable was transformed using a reverse-logarithmic transformation. To facilitate interpretation, Beta value reflects original direction (before reversal).

* p<.05;

** p<.01;

*** p<.001

Table 5

Predicting overt antisocial behavior at 6.5-year follow-up

	β	ΔR^2	R^2
1. Overt behaviors at baseline	.250***	.062***	.062***
2. Overt behaviors at baseline	.169**	.121***	.184***
Housed/homeless status (0=housed, 1=homeless)	.256***		
Gender (0=male, 1=female)	-.239***		
Age at baseline	-.102*		
3. Overt behaviors at baseline	.183***	.012*	.195***
Housed/homeless status (0=housed, 1=homeless)	.280***		
Gender (0=male, 1=female)	-.231***		
Age at baseline	-.088		
Parental deviance	-.113*		
4. Overt behaviors at baseline	.164**	.004	.200***
Housed/homeless status (0=housed, 1=homeless)	.266***		
Gender (0=male, 1=female)	-.220***		
Age at baseline	-.100*		
Parental deviance	-.118*		
Parental monitoring ^a	-.074		
5. Overt behaviors at baseline	.161**	.000	.200***
Housed/homeless status (0=housed, 1=homeless)	.266***		
Gender (0=male, 1=female)	-.221***		
Age at baseline	-.101		
Parental deviance	-.120*		
Parental monitoring ^a	-.072		
Deviant peers	.011		
6. Overt behaviors at baseline	.158**	.014	.214***
Housed/homeless status (0=housed, 1=homeless)	.383***		
Gender (0=male, 1=female)	-.232***		
Age at baseline	-.097		
Parental deviance	-.017		
Parental monitoring ^a	-.087		
Deviant peers	.132		
Homeless by parental deviance	-.110		
Homeless by parental monitoring	.158		

	β	ΔR^2	R^2
Homeless by deviant peers	-.172		

^aParental monitoring variable was transformed using a reverse-logarithmic transformation. To facilitate interpretation, Beta value reflects original direction (before reversal).

*
p<.05;

**
p<.01;

p<.001

Table 6

Predicting covert antisocial behavior at 6.5-year follow-up

	β	ΔR^2	R^2
1. Covert behaviors at baseline	.314***	.099***	.099***
2. Covert behaviors at baseline	.289***	.090***	.189***
Housed/homeless status (0=housed, 1=homeless)	.064		
Gender (0=male, 1=female)	-.279***		
Age at baseline	-.105*		
3. Covert behaviors at baseline	.292***	.001	.190***
Housed/homeless status (0=housed, 1=homeless)	.073		
Gender (0=male, 1=female)	-.276***		
Age at baseline	-.101*		
Parental deviance	-.039		
4. Covert behaviors at baseline	.264***	.007	.197***
Housed/homeless status (0=housed, 1=homeless)	.059		
Gender (0=male, 1=female)	-.261***		
Age at baseline	-.112*		
Parental deviance	-.047		
Parental monitoring ^a	-.093		
5. Covert behaviors at baseline	.282***	.004	.201***
Housed/homeless status (0=housed, 1=homeless)	.051		
Gender (0=male, 1=female)	-.255***		
Age at baseline	-.106*		
Parental deviance	-.038		
Parental monitoring ^a	-.104		
Deviant peers	-.068		
6. Covert behaviors at baseline	.287***	.017	.218***
Housed/homeless status (0=housed, 1=homeless)	.054		
Gender (0=male, 1=female)	-.269***		
Age at baseline	-.102*		
Parental deviance	.104		
Parental monitoring ^a	-.089		
Deviant peers	-.063		
Homeless by parental deviance	-.147		
Homeless by parental monitoring	.204*		
Homeless by deviant peers	.012		

^aParental monitoring variable was transformed using a reverse-logarithmic transformation. To facilitate interpretation, Beta value reflects original direction (before reversal).

*
p<.05;

**
p<.01;

p<.001