
Prediction of peer-rated adult hostility from autonomy struggles in adolescent–family interactions

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Abstract

Observed parent–adolescent autonomy struggles were assessed as potential predictors of the development of peer-rated hostility over a decade later in young adulthood in both normal and previously psychiatrically hospitalized groups of adolescents. Longitudinal, multireporter data were obtained by coding family interactions involving 83 adolescents and their parents at age 16 years and then obtaining ratings by close friends of adolescents’ hostility at age 25 years. Fathers’ behavior undermining adolescents’ autonomy in interactions at age 16 years were predictive of adolescents-as-young-adults’ hostility, as rated by close friends at age 25 years. These predictions contributed additional variance to understanding young adult hostility even after accounting for concurrent levels of adolescent hostility at age 16 years and paternal hostility at this age, each of which also significantly contributed to predicting future hostility. Results are discussed as highlighting a pathway by which difficulties attaining autonomy in adolescence may presage the development of long-term difficulties in social functioning.

The ability to establish and maintain satisfying interpersonal relationships has been related to indices of successful social adaptation across the life span, ranging from academic achievement to positive marital interaction to coping with old age (Bankoff, 1983; Cairns, Cairns, & Neckerman, 1989; Gottman, 1993; Mounts & Steinberg, 1995; Sarason, Sarason, & Pierce, 1990; Stephens, Kinney, Ritchie, & Norris, 1987). Conversely, a high level of hostility in social relationships appears to be a fundamental marker of social development gone awry. By early adulthood, hostility in social interactions has been linked

to indices of dysfunction ranging from insecure attachment (Kobak & Sceery, 1988) and the failure of marital relationships (Gottman, 1993; O’Connor, Thorpe, Dunn, Golding, & the ALSPAC Study Team, 1999) to a substantially increased risk of coronary heart disease and early death (Knox et al., 1998; Miller, Smith, Turner, Guijarro, & Hallet, 1996). Prospective studies have also suggested links of hostile patterns of social interaction to several forms of formally diagnosed psychopathology including affective, anxiety, substance dependence, and conduct disorders (Krueger, Caspi, Moffitt, Silva, & McGee, 1996), suggesting that the development of hostile patterns of social interaction may be an important underlying risk factor for numerous forms of psychosocial dysfunction.

Unfortunately, beyond adolescence there is a lack of prospective research examining the precursors of hostility in adult social relationships (Patterson, 1998). Hostility appears un-

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likely to arise *de novo* in young adulthood (Blieszner & Adams, 1992; Hartup & Stevens, 1997); rather, an organizational–developmental perspective suggests that the precursors of young adult hostility would be most likely to appear in difficulties in central tasks of social development in earlier eras, such as negotiating family relationships (Cicchetti & Schneider–Rosen, 1986; Sroufe & Jacobvitz, 1989). Although problematic family interactions have been implicated in peer relationship difficulties in late childhood and early adolescence (Brown, Mounts, Lamborn, & Steinberg, 1993; Dishion, 1990), virtually no studies have examined whether difficulties in family interactions predict problems in peer functioning well beyond adolescence.

This paper focuses on difficulties attaining a primary goal of social development during adolescence—establishing autonomy while maintaining a sense of relatedness with parents—as a potential predictor of later hostility in young adulthood. The effort to establish relationships characterized by both autonomy and relatedness is now recognized as a central challenge in the development of healthy relationships from adolescence into adulthood (Allen, Hauser, Bell, & O’Connor, 1994; Baxter, 1994; Steinberg, 1990), and how this task is handled appears linked to outcomes ranging from self-esteem and ego development to depression and delinquency (Allen, Hauser, Bell, & O’Connor, 1994; Allen, Hauser, Eichholt, Bell, & O’Connor, 1994). Because establishing autonomy while maintaining relationships with parents plays such a central role in adolescent development, problems in handling adolescent autonomy negotiations appear likely to predict the development of young adult hostility through several distinct developmental mechanisms, as outlined below.

First, adolescents may establish patterns of relationship-undermining, hostile behavior in interactions with their parents around autonomy negotiations that they then replicate in new relationships as they grow older. Although no prospective research has assessed the extent to which hostility in adolescent–family interactions generalizes and persists into adult close relationships, other related research has demonstrated somewhat similar

homotypic continuities in patterns of hostile and aggressive behavior over time and in undercontrolled behavior from childhood into late adolescence (Capaldi & Clark, 1998; Newman, Caspi, Moffitt, & Silva, 1997). Several lines of research have demonstrated continuities in various forms of hostility and aggression outside of the family from adolescence into young adulthood (Eron & Huesmann, 1990; Pulkkinen, 1996). This study first addresses the basic question: Does hostility observed in the context of autonomy negotiations with parents in adolescence serve as a predictor of hostility in new relationships a decade later in young adulthood?

Second, parents’ own hostility in response to adolescent autonomy strivings also appears likely to predict teens’ developing hostility in interactions by young adulthood. This will occur if parental hostility over time leads the adolescent to expect (albeit erroneously) hostility from others and to act aggressively toward them as a result (Dodge & Somberg, 1987). In addition, parental hostility displayed toward a teen in response to a primary developmental striving of the teen may reflect a broader pattern of poor parenting practices that undermines the parent–teen relationship and negatively alters the course of development leading to later difficulties in social interactions (Allen, Hauser, O’Connor, Bell, & Eichholt, 1996; Capaldi & Clark, 1998). This study will consider parental predictors of young adult hostility and the extent to which these predictors explain additional variance in young adult outcomes over and above that explained by teen hostility.

Third, theories of adolescent autonomy development suggest that later hostility would also be fostered by parents’ direct threats to adolescents’ autonomy strivings, even if hostility was not present initially (Allen, Moore, & Kuperminc, 1997). By blocking strong, developmentally important autonomy strivings, parents may lead their adolescents to try to establish their autonomy not via relationship-maintaining discussions but by seeking to escape from the autonomy-undermining relationship by using hostile behaviors. Over time, these patterns of handling autonomy threats with hostile behavior may become in-

ternalized and generalized to new relationships. This pattern of undermined adolescent autonomy leading to hostile behavior has now been observed in prospective research on adolescents' developing hostility within the family (Allen, Hauser, O'Connor, et al., 1996). Autonomy-undermining behavior within dyadic parent-adolescent interactions at age 14 years, coded from observed family discussions of disagreements, has been found to predict adolescents' increasing hostility with parents over the subsequent 2-year period. Allen, Hauser, O'Connor, and colleagues (1996) propose that adolescents who are experiencing great difficulty in establishing autonomy with their parents in direct negotiations ultimately use hostility toward parents to figuratively blast themselves out of autonomy-undermining relationships. This "blasting out" hypothesis may help explain the finding that autonomy-undermining behavior within the family is an even better predictor of later hostility than are assessments of adolescents' initial levels of hostility. The question to be addressed by this study is whether the "blasting out" process generalizes and extends to relationships outside of the family and beyond adolescence.

Assessing adolescent autonomy vis-à-vis parents requires recognizing that parents are themselves distinct and autonomous individuals and that relationships with mothers may well differ from relationships with fathers. Although fathers are typically neglected in research on adolescent-parent interactions, in part because they are far more difficult to recruit for observational studies, a wealth of evidence suggests that interactions with fathers are likely to be particularly important to functioning during and beyond adolescence (Amato, 1998; Booth & Crouter, 1998; Phares, 1992; Phares & Compas, 1992). Recent evidence suggests that fathers may have a particularly important role to play with respect to autonomy processes and social development. Research to date suggests clear links to fathers' behaviors and adolescents externalizing and aggressive behaviors (Bjoerkqvist & Oesterman, 1992; Phares & Compas, 1992) and to later career and academic achievement (Bell et al., 1996). One explanation of findings with adolescents is that fathers may play

a particularly important role in launching adolescents into the social world beyond the family and that autonomy negotiation processes between adolescents and their fathers may be an integral component of this launching process (Bell et al., 1996). The current study uses observational data to independently consider the roles of adolescents' interactions with both mothers and fathers in predicting later hostility.

A multiple pathways perspective on developmental psychopathology (Sroufe, 1997) also suggests the possibility that continuities between autonomy processes in adolescence and hostility in adult relationships are likely to be altered in the presence of serious adolescent psychopathology. For adolescents who are already struggling with serious psychopathology, it seems possible that the insult of further struggles to establish autonomy or maintain a sense of relatedness vis-à-vis parents would be particularly likely to alter developmental trajectories so as to lead to future difficulties (Sroufe, 1997). Such adolescents might be most vulnerable to give up on efforts to control hostile impulses in relationships as a result of a build up of frustration in dealing with hostile or autonomy-undermining parents along with the effects of serious psychopathology.

To date, no observational research has examined the longitudinal continuities between adolescent-family interactions and hostile behavior with peers in young adulthood. This study utilized longitudinal, multireporter, multimethod data to examine the relation between autonomy struggles in adolescent-family interactions observed at age 16 years and later hostility as rated by close peers a decade later in young adulthood (age 25 years). To consider autonomy and relatedness across different levels of functioning in adolescence, both a highschool sample and a sample of adolescents that had been previously psychiatrically hospitalized at age 14 years were examined, with covariance and interaction tests employed as appropriate to consider both the mediating and moderating effects of serious adolescent-era psychopathology on the continuities observed. This study followed Patterson's (1998) suggestion and first examined

simple homotypic continuities in adolescent displays of hostility over time, followed by examination of other potential precursors of later hostility, followed by analyses of whether these additional precursors add to our understanding over and above observed homotypic continuities. Specifically, we examined (a) whether homotypic continuity would be observed between hostility in relationships with parents in adolescence and with close friends 10 years later in young adulthood, (b) whether parental hostility in interactions with their adolescents would predict adolescents' later hostility as rated by close friends in young adulthood, (c) whether the previously seen effect of autonomy-undermining behavior leading to increased hostility over time—the “blasting out” effect—would cross the boundaries from family to peer interactions and from adolescence to young adulthood, and (d) whether observed predictions were specific to young adult hostility or might simply reflect more general levels of psychosocial functioning (assessed as peer-rated ego resiliency, Block, 1978).

Method

Participants

Two-hundred fourteen family members in 83 families participated in initial assessments (adolescents, $N = 83$; mothers, $N = 83$; fathers, $N = 48$), and 83 adolescents and 152 of their young adult peers were assessed in the young adult sample. There were 46 male and 37 female adolescents. Each family originally included an adolescent selected in ninth grade from a local public high school ($N = 55$) or a similar-aged, nonpsychotic, nonorganically impaired, psychiatrically hospitalized adolescent ($N = 28$). Data for this report are drawn from assessments of these adolescents at ages 16 years and 25 years (mean age in adolescence, 16.6 years, $SD = .87$; mean age in young adulthood, 25.7 years, $SD = .95$). Hospitalized adolescents carried a range of diagnoses, including conduct and oppositional defiant disorders (46%), mood disorders (32%), anxiety disorders (4%), and a variety of other disorders (18%). Specific adolescent diagnoses within this group have not yet been found to differentially predict any long-term out-

comes, suggesting that homogeneity with regard to presence of severe pathology may have been more salient for this group than heterogeneity with regard to diagnosis (Allen, Hauser, & Borman–Spurrell, 1996). Families in both groups were predominantly upper middle class (mean Hollingshead, 1975, socioeconomic status = 2.07, $SD = 1.26$); all participants were White. Participants and their families were paid \$30.00 for participating in the family session during adolescence. Young adults were paid \$120 for participating in the follow-up data collection, which included a 3-hr battery of measures.

The 83 young adults described in this report were originally part of a sample of 94 adolescents from whom family data were obtained at age 16 years (an 88% reinterview rate). Of the 11 adolescents for whom young adult hostility data were not available, 9 were unavailable because participants were unable to name any peers or to name any peers who would agree to complete our ratings of participants. Only 2 adolescents from the family assessments at age 16 years refused to participate in the assessment at age 25 years. Attrition analyses on these very small numbers of participants revealed no significant differences on any of our measures at age 16 years of qualities of demographic and psychiatric background factors or on measures of qualities of family interactions between participants for whom data were versus were not available at age 25 years.

Participants from the high school and psychiatric groups did not significantly differ in terms of age, gender, birth order, or number of siblings, and differed only moderately in social class (higher for the high school sample). The sampling procedure used was selected to examine adolescents across a broader range of levels of psychosocial functioning than would typically be available in a normal sample. Psychiatric hospitalization at age 14 years was thus used as a criterion to obtain a sample likely to be at lower levels of functioning at that point. To assure that observed relations among family interaction measures were not an artifact of comparing two very different groups of adolescents, a dummy variable for adolescents' psychiatric history (high school vs. psychiatrically hospi-

talized sample) was entered as a covariate into substantive analyses, so that any variance in outcomes explained by this sampling factor could be appropriately monitored. Potential interactions of history of hospitalization with other relations of interest in the data were also examined to assess whether significant relationships might apply only to one of the two groups or differ between the groups.

Setting and procedure

Individual adolescent participants and families were assessed repeatedly on an annual basis beginning at age 14 years in private rooms at either their hospital (for the sample that was hospitalized at age 14 years) or their school (for the high school sample). Data from the assessment at age 16 years are reported in this paper, as these represent the oldest age at which observational data were collected on the full sample and the period of data collection farthest removed from any lingering effects of hospitalization at age 14 years. Interaction data were collected using a revealed differences task (Strodtbeck, 1951) in which family members were first interviewed separately about moral dilemmas, and then brought together to discuss issues about which they disagreed. Family members were asked to take up to 10 min to discuss their first disagreement and, if possible, to resolve it. Families were then presented with a new disagreement to discuss. This procedure continued for 30 min, with disagreements presented so as to alternate which family member was in the minority. This task challenges adolescents to establish and display cognitive and emotional autonomy vis-à-vis parents in discussions about interpersonal behaviors—a frequent challenge for actual parent–adolescent conflicts focused on less hypothetical issues (Smetana, 1989).

In young adulthood, participants were interviewed in private offices either at the research site or, for participants living at a distance who preferred not to travel, in private offices in hotels, libraries, and similar sites near participants' residences. They provided information about friends to whom they felt closest, and with their permission these friends were contacted and asked to complete

the California Adult Q-sort (Block, 1978) with respect to our participants.

Measures

Autonomy and Relatedness Coding System. The Autonomy and Relatedness Coding System (Allen, Hauser, Bell, & O'Connor, 1994; Allen, Hauser, Borman, & Worrell, 1991; Allen, Hauser, Eickholt, et al., 1994) builds from a system developed by Grotevant and Cooper (1985) and examines behavior promoting or undermining autonomy and relatedness in the family interaction task described above. The system yields a rating for each family member's overall behavior toward each other family member in the interaction (e.g., separate ratings for adolescents' hostility toward mothers and for mothers' hostility toward adolescents). Ratings are molar in nature, yielding overall scores for each family member's behavior toward each other member across the entire the interaction; however, these molar scores are derived from an anchored coding system that considers both the frequency and intensity of each speech relevant to that behavior during the interaction in assigning the overall molar score.

Two scales from the Autonomy and Relatedness Coding System were selected based on prior research and theory to tap struggles with autonomy processes that were most likely to predict developing hostility over time (Allen, Hauser, Bell, & O'Connor, 1994; Allen, Hauser, Eickholt, et al., 1994). Specific interactive behaviors were coded then averaged together on a priori grounds into primary scales for (a) undermining autonomy, which is the average of ratings of behaviors that make it more difficult for individuals to express autonomy in a discussion (e.g., by overpersonalizing a disagreement, recanting a position without appearing to have been persuaded the position is wrong (thus ending the discussion), or pressuring another person to agree other than by making rational arguments); and (b) hostile conflictual behavior, which is the average of ratings of behaviors: overtly expressing hostility toward another member, and rudely interrupting or ignoring a family member. Both the undermining autonomy and the hostile

conflictual behavior scales, like the subscales from which they are averaged, utilize a 0- to 4-point range.

Each family member received a single rating for each scale based on their behavior toward each other family member across the entire interaction (e.g., separate ratings are made for mother's and for father's undermining autonomy of the adolescent and for the adolescent's attempts to undermine autonomy of each parent). Undermining autonomy and hostile conflictual behavior were moderately intercorrelated (mean r across dyads was .34).

Interactions were coded using both audiotapes and transcripts by graduate students in psychology who were blind to all other data obtained from participants. Coders were trained in use of the system and supervised as a group in coding transcripts until they were sufficiently reliable to code independently; reliabilities were assessed randomly during the subsequent period of independent coding of all transcripts. Reliabilities, assessed via intraclass correlation coefficients, were .82 and .70 for hostility and undermining autonomy, respectively. Examination of reliability correlations within dyads (which should be interpreted cautiously given the smaller numbers of participants on which these are based) revealed a correlation for hostility of .86 and .85 for fathers and mothers and correlations for undermining autonomy of .74 and .55 for fathers and mothers, respectively. Tests of the difference between reliability estimates for fathers versus mothers indicated no reliable difference in these reliabilities across gender of parent.

Prior research has demonstrated the reliability and construct validity of these codes, with connections of each class of behavior in this revealed differences discussion to theoretically sensible external correlates (Allen, Hauser, Bell, & O'Connor, 1994; Allen, Hauser, Eichholt, et al., 1994). Behaviors undermining autonomy have been linked to higher levels of depressed affect, lower levels of ego development, and the development of increasingly hostile interactive patterns over time, and hostile conflictual interactions have been linked to higher levels of externalizing behavior problems and lower levels of ego development.

Peer-rated hostility and ego resiliency. In young adulthood, each participant named two peers who were described as "knowing him or her well." These peers were then contacted and asked to rate participants using the California Q-sort (Block, 1978).

Peers' ratings were averaged together and from these ratings a mega-item for *hostility* was constructed using procedures outlined by Kobak and Sceery (1988) for application to this Q-sort. This mega-item summed eight items related to hostility from the Q-sort, including items such as "has hostility toward others," "expresses hostile feelings directly," and "is subtly negativistic." These items displayed good internal consistency ($\alpha = .76$), and even though our lay raters were untrained and it was expected that individual raters would be aware of different aspects of participants' functioning, ratings nonetheless were moderately correlated (Spearman-Brown r for composite ratings was .53).

Peer ratings for young adult *ego resiliency* were also obtained from this Q-sort, by correlating the sort for each young adult with a criterion sort for the maximally ego-resilient individual provided by Block (1978). The resulting correlation is obtained for each individual sort (ranges from -1.00 to $+1.00$) and was entered as the data point representing the peer's rating of the target individual's ego resilience score. Ego resiliency has been related to a range of outcomes, from the display of socially competent behaviors, to successful midlife aging, to freedom from internalizing symptoms (Huey & Weisz, 1997; Klohnen, 1996; Klohnen, Vandewater, & Young, 1996).

There were no differences in the levels of reliability of the peers depending upon either participants' gender or psychiatric history. For twelve participants, data from only one peer could be obtained and these data were used for those participants.

Results

Preliminary analyses

Means and standard deviations for all variables are presented in Table 1. Distributions

Table 1. Means and standard deviations of family interaction measures and peer-rated hostility

Construct	<i>M</i>	<i>SD</i>
Adolescent → mother		
Inhibiting autonomy	.69	.50
Inhibiting relatedness	.56	.70
Adolescent → father		
Inhibiting autonomy	.56	.80
Inhibiting relatedness	.68	.53
Mother → adolescent		
Inhibiting autonomy	.56	.47
Inhibiting relatedness	.25	.36
Father → adolescent		
Inhibiting autonomy	.54	.47
Inhibiting relatedness	.36	.49
Hostility with peers (age 25 years)	26.4	8.39
Ego-resiliency rated by peers (age 25 years)	0.43	0.23

of all variables were examined for presence of outliers, defined as variables more than 2 *SD* from the group mean. Only one outlier was found, for young adult hostility, and this was trimmed to the next highest value.

Initial analyses examined the role of gender and adolescents' psychiatric (vs. high school) group membership on the primary analyses presented. A main effect of gender was found only for adolescents' hostility toward their mothers in family interactions at age 16 years (males, $M = 0.72$; females, $M = 0.35$; $t(81) = 2.49$, $p = .015$). Gender did not interact with any of the variables in the study in predicting young adult hostility. Gender is entered as a covariate in all primary analyses below. A history of psychiatric hospitalization at age 14 years was not related to any of the family interaction variables at age 16 years but was related to hostility with peers at age 25 years at the trend level (prior psychiatric history was associated with slightly higher levels of friend-rated hostility). A dummy variable for prior psychiatric history of hospitalization was also included as a covariate in all analyses below.

Primary analyses

Correlational analyses. Simple correlations of all predictor and outcome variables were ex-

amined first. These are presented in Table 2. Correlations from adolescents' hostility toward parents at age 16 years to hostility as perceived by peers at age 25 years suggested a significant degree of homotypic continuity in adolescents' displays of hostility across this 9-year span and across different interaction contexts. A correlation from parental hostility to young adult hostility as rated by peers was found only for fathers' hostility: fathers who were more hostile in interactions with their adolescent at age 16 years had adolescents who were perceived as more hostile by their friends at age 25 years. When parental autonomy-undermining behaviors were examined, no prediction was found from maternal autonomy-undermining behavior, but a strong prediction was found from paternal autonomy-undermining behavior to later hostility as perceived by peers.

Hierarchical regression analyses. A series of hierarchical regression analyses were next examined to assess whether any of the family interaction behaviors remained predictive of young adult hostility after accounting for adolescents' prior psychiatric history and gender. These are presented in Table 3, with each of the alternative lines for Step II representing results from a different equation in which Step I entered gender and psychiatric history and Step II entered the variable listed. Step I results appear only once for each parent, because they are identical for each equation for the same parent. These results reveal that adolescents' hostility toward mothers displayed a trend level prediction of later hostility, but no other interactive behaviors with mothers were predictive after accounting for gender and psychiatric status. In contrast, all three markers of problems with autonomy in adolescent-father interactions were predictive of peer-rated young adult hostility. Thus, even after accounting for gender and prior psychiatric history, peer-rated hostility at age 25 years displayed continuities with both adolescents' and fathers' hostility and with fathers' undermining of adolescent autonomy at age 16 years.

Hierarchical regression analyses were next used to examine the extent to which parental

Table 2. Simple correlations of predictor and outcome variables

	Adult Hostil. Twd. Father	Matnl. Hostil.	Patnl. Hostil.	Matnl. Auton. Undrmng.	Patnl. Auton. Undrmng.	Young Adult Ego Resil.	Young Adult Host.
Adolescent hostility toward parents (Age 16 years)							
Toward mother	.53***	.56***	.30*	.27*	.24	.02	.23*
Toward father		.28	.60***	.01	.37**	-.30*	.42**
Parental hostility toward adolescent (Age 16 years)							
Maternal hostility			.47***	.29**	.25	.14	.08
Paternal hostility				.12	.43**	-.11	.32*
Paternal undermining of autonomy (Age 16 years)							
Maternal autonomy undermining					.27	-.01	-.05
Paternal autonomy undermining						-.21	.50***
Young adult ego resiliency peer rated (Age 25 years)							
							-.45***

Note: *** $p < .001$. ** $p < .01$. * $p \leq .05$.

Table 3. Prediction of young adult hostility from adolescents' and parents' hostile behavior and parents' undermining of adolescent autonomy

	Hostility (Age 25 Years)		
	β	R^2	ΔR^2
Predictions From Mother-Adolescent Interactions			
Step I. Background factors			
Gender (1, Male; 2, female)	-.08		
Prior psychiatric history	.21		
Overall statistics		.055	.055
Alternative models for Step II			
Step IIa. Adolescent hostility to mothers	.21+	.094*	.039+
Step IIb. Mothers' hostility to adolescents	.07	.059	.004
Step IIc. Mothers' undermining of adolescent autonomy	-.05	.058	.003
Predictions From Father-Adolescent Interactions			
Step I. Background factors			
Gender (1, male; 2, female)	.01		
Prior psychiatric history	.17		
Overall statistics		.029	.029
Alternative models for Step II			
Step IIa. Adolescent hostility to fathers	.40**	.185*	.154**
Step IIb. Fathers' hostility to adolescents	.32*	.131+	.102*
Step IIc. Fathers' undermining of adolescent autonomy	.50***	.280**	.251***

Note: This table presents results from six different regression models (three for mothers and three for fathers). Each version of Step II above is independent of the others and represents the final step of a model in which gender and psychiatric history were the other predictors. Beta weights are from variables' first entry into model.

*** $p < .001$. ** $p < .01$. * $p < .05$.

Table 4. Hierarchical prediction of young adult hostility from adolescents' and mothers' hostile behavior and mothers' undermining of adolescent autonomy

	β	R^2	ΔR^2
Step I. Background factors			
Gender (1, male; 2, female)	.01		
Prior psychiatric history	.17		
Overall statistics for step		.029	.029
Step II. Adolescent hostility toward mothers	.38**	.152+	.123**
Step III. Mothers' hostility	.02	.153	.010
Step IV. Mothers' undermining of autonomy	.16	.174	.021

Note: Beta weights are from variables' first entry into model.
 *** $p < .001$. ** $p \leq .01$. * $p < .05$.

behaviors were predictive of young adult hostility even after accounting for adolescents' hostility displayed in the family. Predicting adolescents' future levels of hostility after accounting for current levels yields one index of change in hostility over time. Because different sample sizes were available for interactions with mothers and with fathers, these analyses were performed independently for each parent.

Analyses with mothers' interactions (presented in Table 4) indicated that mothers' behaviors did not add to prediction of young adult hostility after accounting for adolescent hostility toward mothers. (Adolescents' hostility toward fathers was not included as a predictor in these analyses because it would have reduced sample size dramatically; when this variable was included in an alternative model with a reduced sample, results were substantially identical to those shown.) Thus, after accounting for adolescents' own hostility in family interactions, observations of mothers' behaviors did not contribute further to understanding young adult hostility.

Analyses with fathers' interactions indicated that a main effect for fathers' hostility did not add significantly to predicting young adult hostility, after accounting for adolescents' hostility, as depicted in Table 5. However, fathers' behavior undermining adolescent autonomy added substantially to predictions of young adult hostility (contributing an additional 13% of variance explained even after accounting for adolescent-era hostility).

Given the apparent pattern of interactions,

with fathers being more predictive of later hostility than interactions with mothers, analyses were next conducted to assess whether there was a statistically reliable difference in the beta weights for mothers' and fathers' undermining of adolescent autonomy in predicting young adult hostility when both were entered into a regression equation predicting young adult hostility, with gender, psychiatric history, adolescent hostility toward mothers and fathers, and paternal hostility toward adolescents as covariates. No difference was found ($p = .38$), indicating that while fathers' beta weight for the model was significantly different from zero it was nevertheless not significantly different than mother's beta weight ($\beta = .16$) in the model. This indicates that although fathers' observed beta weight is obviously larger than mothers' observed beta weight, this difference is not so great as to statistically rule out the possibility that mothers' true beta weight is actually as large as fathers' true beta weight.

To assess whether predictions obtained were specific to hostile behavior, or were instead reflective of more general patterns of global adaptation in peer relationships, our final analyses examined predictors of young adult hostility after first covarying an indicator of ego resiliency obtained at age 25 years from the same peers who rated adolescents for overall hostility. Even in this highly conservative analysis, presented in Table 6, both adolescent-era hostility toward fathers and paternal undermining of adolescent autonomy remained strongly predictive of young adult

Table 5. Hierarchical prediction of young adult hostility from adolescents' and fathers' hostile behavior and fathers' undermining of adolescent autonomy

	β	R^2	ΔR^2
Step I. Background factors			
Gender (1, male; 2, female)	.01		
Prior psychiatric history	.17		
Overall statistics for step		.029	.029
Step II. Adolescent hostility toward fathers	.40**	.185*	.156**
Step III. Adolescent hostility toward mothers	.21	.212*	.037
Step IV. Fathers' hostility	.13	.195*	.010
Step V. Fathers' undermining of autonomy	.41**	.329*	.134**

Note: Beta weights are from variables' first entry into model.
 *** $p < .001$. ** $p < .01$. * $p < .05$.

Table 6. Hierarchical prediction of young adult hostility from adolescent father interactions after accounting for concurrent levels of young adult ego resiliency

	β	R^2	ΔR^2
Step I. Background factors			
Gender (1, male; 2, female)	.01		
Prior psychiatric history	.17		
Overall statistics for step		.029	.029
Step II. Concurrent peer-rated ego resiliency	-.38*	.161*	.132*
Step II. Adolescent hostility toward fathers	.33**	.258**	.097**
Step III. Adolescent hostility toward mothers	.26	.300**	.042
Step IV. Fathers' hostility	.15	.272**	.014
Step V. Fathers' undermining of autonomy	.37**	.378**	.106**

Note: Beta weights are from variables' first entry into model.
 *** $p < .001$. ** $p \leq .01$. * $p < .05$.

hostility. This indicates the predictions obtained from adolescent–family interactions were specific to young adult hostility rather than simply being reflective of more general patterns of young adult social functioning.

Moderating effects of prior psychiatric history

To examine the possibility that psychiatric history might fundamentally alter continuities observed from adolescence into adulthood, the interaction term of psychiatric history with each of the adolescent-era predictor variables was entered into each of the preceding predictive equations. These interaction terms never reached significance (either individually

or in blocks), thus indicating that the relations observed above did not differ significantly across the normal and previously hospitalized groups.

Post hoc analyses

On a post hoc basis, analyses were conducted to determine whether the predictions presented in Table 5 from paternal (but not maternal) behaviors could have reflected sample artifacts (as all adolescents in paternal analyses were in two-parent families, whereas 35 of the 83 adolescents in maternal analyses were in single-parent families). All of the analyses for maternal predictors were rerun using only the sample of adolescents in two-

parent families (i.e. with father data). No new findings with maternal predictors emerged from any of these analyses.

Similarly, within the two-parent subsample, analyses were also conducted to determine whether maternal and paternal behaviors might have interacted with one another in predicting adolescent outcomes. Interactions were examined between both maternal and paternal hostility and between maternal and paternal autonomy undermining behaviors. No significant findings emerged.

Finally, analyses were conducted to assess whether interparental (i.e., marital) hostility was predictive of later hostility in parents' young adult offspring. No significant predictions were obtained.

Discussion

This study found that family difficulties handling adolescents' autonomy negotiations, as observed at age 16 years, were able to predict a substantial degree of the variation in young adults' hostility as rated by their peers over a decade later. Substantial continuity was found between adolescents' hostile behavior as displayed with parents at age 16 years and adolescents' later hostility as perceived by close peers at age 25 years. Similarly, continuity was also found between fathers' hostility displayed toward their adolescent and the adolescents' later hostility as a young adult. The strongest prediction of later young adult hostility was obtained from paternal behaviors undermining adolescent autonomy. Even after accounting for stability in adolescents' hostile behavior across contexts, fathers who undermined their adolescents' autonomy more had adolescents who were later rated as more hostile by their young adult peers. These predictions were also made after accounting for a more general marker of young adult psychosocial functioning, suggesting their specificity to processes surrounding hostility in social interactions. Given that both the observational measures in adolescence and the peer ratings in young adulthood were completely independent and each contained nontrivial amounts of measurement error (e.g., unreliability of ratings), it appeared that a strikingly large pro-

portion of the true variance in young adult hostility could be accounted for from observations of a carefully selected 30-min family interaction in adolescence. Limitations and implications of each of these findings are discussed in detail below.

The finding of substantial correlations between adolescents' hostility within their families at age 16 years and hostility as rated by close peers at age 25 years provides solid evidence that the precursors of patterns of hostility in social interactions in young adulthood could be observed in family interactions during midadolescence. This continuity suggests that robust patterns of hostile interaction in close relationships may be established by midadolescence and persist well beyond this era. Other researchers have also found sizeable correlations in hostile behavior across this part of the life span in areas such as aggression and antisocial behavior (Eron & Huesmann, 1990; Pulkkinen, 1996). This study was one of the first to assess the continuity of such behavior in social interactions using observational and independent rater data.

This study also found heterotypic continuity in fathers' hostile behaviors predicting the later hostility of their young adult offspring. One explanation for this heterotypic continuity is that fathers' hostile behavior toward adolescents leads them to expect hostility from others well into the future, even where it may not exist, and to act aggressively in "response" (Dodge & Somberg, 1987). Alternatively, fathers' hostility may have represented longstanding, enduring patterns of hostile interaction with their adolescents and to some extent may have been a reaction to the adolescent's own hostile behavior in interactions. A third possibility is that patterns of hostile interaction may have been genetically transmitted. This possibility seems less consistent with the current data, however, both because maternal hostility toward adolescents' was not predictive of later adolescent hostility and, more importantly, because parents' hostility toward one another in marital interactions (i.e., as adults in peerlike relationships—the closest analogy to what we observed in young adulthood) was not related to adolescents' peer-rated hostility as young adults.

It is important to note that the hostility observed during adolescence occurred in a particular context—handling a disagreement in which the adolescent's cognitive autonomy was being negotiated. Thus, the hostility that was observed occurred in response to a challenge to the adolescent's autonomy and can be seen as reflecting a fundamental difficulty negotiating autonomy without undermining the relationship with parents. As such, hostility within this context may have been more meaningful, and hence more predictive of future difficulties, than hostility occurring in other aspects of the adolescent–parent relationship. This suggests the importance of autonomy processes in adolescence, but it also suggests that the results of this study should not be taken as generalizing to show that all signs of adolescent hostility with parents are necessarily predictive of future social difficulties.

The strongest and most striking finding in this study was the degree of continuity between fathers' autonomy-undermining behavior and later hostility on the part of their young adult offspring. Notably, this behavior was not simply correlated with later hostility but predicted the development of young adult hostility (e.g., predicting future levels of this hostility even after taking into account concurrent levels in adolescence). This finding suggests that fathers were adding an important element to observed interactions over and above what adolescents were contributing. This finding was expected based on prior research and theory (Allen, Hauser, O'Connor, et al., 1996; Allen, Moore, & Kuperminc, 1997) but was nevertheless striking in its magnitude. After accounting for gender and prior psychiatric history, this effect alone accounted for 25% of the variance in young adult hostility. Even after further accounting for adolescents' and parents' hostility in interactions at age 16 years, fathers' autonomy-undermining behavior accounted for an additional 13% of the remaining variance in young adult hostility—a figure that may underrepresent the true effect size given attenuation due to unreliability in assessing fathers' autonomy-undermining behavior and to use of untrained lay reporters to assess young adult

hostility. Further, predictions from fathers' autonomy-undermining behaviors existed over and above predictions of a general measure of ego resiliency as rated by peers. This indicates a degree of specificity to these predictions—they were tapping not simply general levels of social functioning but rather a process that appeared more tightly linked to patterns of hostile social interaction.

Although this nonexperimental study cannot demonstrate the presence of causal relations, these effect sizes are consistent with the hypothesis that interference with appropriate adolescent autonomy strivings presents a powerful potential threat to social development well into the future. If further research supports the idea that such a causal chain exists, how might it work? It has been previously suggested that autonomy-undermining behavior may teach the adolescent that close relationships will not be flexible enough to permit autonomy to be attained via direct discussions (Allen, Hauser, O'Connor, et al., 1996). If adolescents learn from interactions with parents that autonomy is easily threatened and unlikely to be attained without use of hostile, distancing behavior, then over time they may come to perceive that autonomy in other close relationships is also most likely to be attained by literally or emotionally escaping from the relationship (Steinberg, 1990). Given that autonomy needs continue to arise in adult relationships (Baxter, 1994), hostility in young adulthood may reflect a learned approach to creating distance in relationships when normal autonomy needs arise. This may occur either because the adolescent has come to expect autonomy to be undermined in new relationships and uses hostile behavior to reflexively preempt these imagined threats or because the adolescent has simply not had the opportunity to learn to use reasoned, discussion-based approaches to handling autonomy concerns. Although this study does not prove the existence of causal mechanisms such as these, our findings clearly suggest the need for further research exploring these and other possible explanations for these striking continuities. Whatever the explanation for these continuities, this study emphasizes that family interaction patterns in adolescence may have

very important implications for social functioning well beyond the end of adolescence and outside of the family.

One intriguing aspect of these findings was that predictions were made primarily from relationships with fathers but not mothers (with the one exception that adolescents' own displays of hostility toward both parents were predictive of later hostility). Given that post hoc analyses did not find significant differences between predictions from fathers versus mothers, these findings should be taken only as showing that fathers appear quite important in predicting later hostility and not as showing that mothers are necessarily unimportant (or even less important) in this regard. The importance of fathers is being increasingly recognized in research on adolescent social development (Phares, 1992; Phares & Compas, 1992). In particular, fathers may play a role in mediating the transition into adultlike activities and relationships beyond the home—a transition in which autonomy negotiations are likely to play a central part. More generally, Freitag, Belsky, Grossmann, Grossmann, and Scheuerer-Englisch (1996) note that fathers may play a particularly important role in giving their offspring opportunities to explore issues of autonomy and relatedness throughout childhood. It may be that this role becomes even more important as the autonomy strivings of adolescence emerge.

In adolescence, fathers may partly serve to represent the larger social world beyond the family. When fathers undermine adolescents' autonomy strivings, these autonomy-undermining behaviors may be particularly problematic as they may set up a pattern of the adolescent expecting to need to use hostility to "blast out" of potentially autonomy-threatening social interactions in the world beyond the family. This pattern is quite analogous to the finding from prior research that adolescents' who are struggling with autonomy at age 14 years with either parent become more hostile in their families over the following 2 years (Allen, Hauser, O'Connor, et al., 1994). In further support of this explanation is the finding from this sample that paternal behavior undermining of adolescent autonomy is also predictive of lower levels of academic

achievement during and beyond adolescence (Bell, Allen, Hauser, & O'Connor, 1996). Adolescents who have experienced paternal undermining of their autonomy clearly struggle not just with friends but in school as well, as development proceeds. No Gender of Adolescent \times Gender of Parent interactions were observed, indicating that fathers' behaviors did not predict significantly different outcomes for male and female adolescents.

Notably, there was only a very marginal effect of severe adolescent-era psychopathology in predicting young adult hostility, and psychopathology did appear to alter appreciably the patterns of continuities observed between adolescent-family interactions and young adult hostility. This finding is in keeping with reports of long-term studies that have shown that the sequelae of adolescent psychiatric hospitalization on functional outcomes tend to be highly selective and focused in young adulthood (Allen, Hauser, & Borman-Spurrell, 1996). It further suggests that hostility in young adult close relationships is not predicted simply by the presence of prior psychopathology in adolescence but rather by focal interactions that disrupt or block the normative the process of establishing autonomy in the context of positive parental relationships.

Several limitations to these data warrant mention. First, the sample is an unusual one, reflecting two distinct, relatively small samples originally drawn from discrete and demographically homogeneous sites. Although this sample provides opportunities to explore the effect of severe psychopathology on later development, replication of these findings with broader and more diverse samples is certainly warranted. Second, even the presence of longitudinal findings over a 10-year period are not logically sufficient to support imputations of causality to processes observed in adolescence. Third, these data yielded evidence of striking areas of homotypic and heterotypic continuity in processes leading to young adult hostility, but they do not tell us what factors may have mediated such continuities. It may be that the interactions predicting hostility alter personality development of those adolescents observed and lead to subtle forms of psychopathology. Alternatively, the interac-

tions may have simply taught adolescents discrete patterns of dysfunctional behavior that were repeated in new settings but that otherwise left development unaffected. Future re-

search is now needed to begin to identify the links in the chain that mediate the continuities in predictors of hostility across this important decade of life.

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