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Developmental Pathways in Youth Sexual Aggression and Delinquency: Risk Factors and Mediators

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Childhood exposure to violence against females and male-modeled antisocial behavior were examined as risk factors for sexual aggression, and nonsexual aggression and delinquency, in a sample of 182 adolescent male sex offenders using structural equation modeling. Both risk factors produced direct and indirect effects on nonsexual aggression and delinquency with Psychosocial Deficits and Egotistical–Antagonistic Masculinity playing important mediating roles. Exposure to violence against females helped explain sexual aggression through the mediating role of Psychosocial Deficits. As hypothesized, youth who sexually offended against prepubescent children manifested greater deficits in psychosocial functioning, committed fewer offenses against strangers, and demonstrated less violence in their sexual offending than offenders against pubescent females. Findings are discussed within the context of two major evolutionary psychological concepts for explaining human sexual behavior: intrasexual selection and intersexual selection.

KEY WORDS: sexual aggression; delinquency; development; juveniles.

The American Medical Association, the Center for Disease Control, and the National Institute of Mental Health have declared sexual violence and child maltreatment urgent public health problems requiring increased professional attention and new research. The latter institutions have placed research priority on understanding the etiology of sexual perpetration, including risk and protective factors and its manifestation in the developmental psychopathology of youth (NCIPC FY 2000 Injury Research Priorities, 2001; NIMH PA-99-133, 1999). This focus on the early development and expression of sexual aggression parallels calls from the U.S. Surgeon General for new research in support of prevention programming for youth at risk for perpetrating violence (Surgeon General's Report released on January 17, 2001).

Advancement in intervention programming for at-risk youth requires both the identification of adverse developmental experiences that increase risk and illumination of the manner in which such experiences alter personality and social behavior. Although developmental correlates of youth sexual aggression and delinquency have been identified in a number of studies, little research has been conducted in support of delineating the mediational processes through which specific risk factors exert their influence. In response to these research needs, the authors have undertaken a series of studies designed to foster a greater understanding of developmental pathways leading to the perpetration of sexual offenses and delinquent behavior in youth. The present article describes findings related to two of the studied risk factors: exposure to male perpetrated sexual and physical violence toward females, and exposure to male modeled antisocial behavior. A subsequent publication will address other risk and protective factors and detail findings as they relate to contrasting the developmental, personality and offense characteristics of juveniles that sexually target prepubescent children with those that perpetrate against pubescent females.

Youth exposure to domestic violence has been linked to an array of mental health and behavioral problems in adolescents and adults including anxiety and depression, posttraumatic stress, anger and aggressive behavior, and sexual aggression (Blumenthal *et al.*, 1998; Fantuzzo & Mohr, 1999; Flannery *et al.*, 1998; McGruder-Johnson *et al.*, 2000; Spaccarelli *et al.*, 1997). Symptom severity appears to be associated with both the extent of exposure

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(dose-effect) and moderating influences, such as parental support (Grych *et al.*, 2000). Although the number of studies focusing on mediating factors is limited, O'Keefe (1997) has suggested that youth exposed to domestic violence, who in turn perpetrate dating violence, can be differentiated from similarly exposed, but nonviolent peers on the bases of attitudes reflecting acceptance of violence in dating relationship, low self-esteem, and additional exposure to community and school violence.

Similarly, exposure of youth to male-modeled antisocial behavior and intrasexual violence is thought to increase the risk of violent and delinquent behavior (Fitzpatrick, 1997; Gorman-Smith & Tolan, 1998; Williams *et al.*, 1998). Exposure to socially deviant peers, even in treatment environments, has been shown to produce lasting detrimental effects on young males, including long-term increases in aggressive and antisocial behavior (Dishion *et al.*, 1999). These negative effects remain strong even when controlling for other risk factors, such as family violence, and are believed to be the result of internalization of antisocial values, deviance modeling, and social reinforcement of delinquent attitudes and behavior (Dishion *et al.*, 1999; O'Keefe, 1997).

Three potential mediators of risk were examined in the present study: Hostile Masculinity, Egotistical–Antagonistic Masculinity, and Psychosocial Deficits. Hostile Masculinity has been shown to be a significant predictor of self-reported sexual aggression and likelihood to rape age-group peer or adult women (Hall *et al.*, 2000; Malamuth, 1998; Malamuth & Malamuth, 1999). The factor reflects distrust and hostility toward women stemming from anticipated rejection, and a consequent need to control or dominant women in interpersonal relationships (Malamuth *et al.*, 1995). Males scoring high on this factor tend to endorse stereotypical rape myths and legitimize interpersonal violence. The likelihood of sexual aggression toward women is amplified when Hostile Masculinity is combined with a preference for promiscuous, impersonal sex and low sensitivity to the needs of others (Dean & Malamuth, 1997).

Egotistical/Antagonistic Masculinity reflects a stereotypically masculine sex role orientation, and high "mating effort," or a heightened emphasis on aggressive dominance in sexual competitions with other males. Males who score high on this factor tend to be hypermasculine and egocentric, and prefer casual sex to long-term commitments in relationships with females. Egotistical/Antagonistic Masculinity has been shown to predict both juvenile delinquency and early adolescent promiscuity (Rowe *et al.*, 1997).

The focus here is on understanding the factors leading to individual differences in aggressive characteristics and actual aggressive behaviors of young offenders. A useful theoretical framework for integrating some of the findings reported above and the predictions made in the current research is evolutionary psychology, which postulates that humans share the same basic underlying mechanisms or a common evolved psychology. As suggested by various theorists (Belsky *et al.*, 1991; Malamuth, 1998; Trivers, 1972) part of this evolved psychology is an adaptation to permit the individual to "identify" the relevant aspects of the environment early on and "choose" (not necessarily consciously) the strategy most suited to his attributes and the local conditions. Particularly relevant to the current research is the "harshness" or "exploitativeness" of early social environments in the home and community that may calibrate an individual's psychological mechanisms to anticipate and deal with relatively more exploitative or cooperative interactions later in life. It is suggested that in harsh early environments in which exploitation occurs frequently, mechanisms may be calibrated in line with using coercive tactics to gain one's goals.

This research focused on the mediating constructs that may affect whether early experience in "harsh" environments leads to aggressive characteristics and/or behaviors. Egotistical–Antagonistic Masculinity and Hostile Masculinity approximately correspond to deviant responses to the two major forces that contemporary evolutionary psychology theory posit to be the basic components of sexual selection: *intersexual* selection and *intrasexual* selection. Intersexual selection involves the predilection of females to choose mates based on perception of their advantageous genetic and behavioral qualities (Buss, 1994). Intrasexual selection is characterized by varying combinations of competition and cooperation between individuals of the same sex in the pursuit of potential mates (Buss, 1988; Williams, 1975). From an evolutionary theory perspective, Hostile Masculinity represents an antagonistic response to the "strategic interference" imposed by females in thwarting unwanted male sexual advances. Egotistical–Antagonistic Masculinity represents the strategic use of interpersonal violence and threat, as opposed to prosocial means (e.g., occupational achievement), to attain dominance and respect in sexual competitions with other males. Although the process by which males acquire each of these traits is still a matter of some controversy, one theory is that they are constitute alternative sexual strategies preferentially adopted by males who are less proficient at implementing more conventional, prosocial strategies (Figueredo *et al.*, 2000b). Thus, it is believed that males who manifest psychosocial deficits are more likely to engage in threatening and aggressive behavior with other males in sexual competitions, and utilize sexual coercion with females.

Deficits in social competency have been shown to be associated with an increased risk of interpersonal aggression in juveniles (Lochman & Dodge, 1994; Loeber *et al.*, 1998; Oyserman & Saltz, 1993) and are a target of many secondary and tertiary prevention programs (Henggeler *et al.*, 1992; Reppucci *et al.*, 1999; Webster-Stratton & Lindsay, 1999). Hunter and Figueredo (2000) found that deficits in self-sufficiency, and associated pessimistic explanatory styles, differentiated adolescent males with a history of sexual offenses against children from sexually nonoffending peers. Research has shown that social competency deficits are correlated with depression and an absence of familial support in adolescents (Cole *et al.*, 1999). It has been suggested that these deficits and are linked to parentally transmitted deficiencies in social-information-processing (Pakaslahti, 2000). Adult sex offenders have been found to have deficits in social competency relative to normal controls, with child molesters showing even more pronounced deficits than rapists (Marshall *et al.*, 1995).

The objective of the present study was to explore through causal modeling the direct and indirect effects of exposure to violence against women and male-modeled antisocial behavior on sexual aggression and nonsexual delinquency. It was hypothesized that exposure to violence against women and male-modeled antisocial behavior would directly predict nonsexual delinquency and indirectly predict sexual offenses against pubescent females as mediated by Hostile Masculinity and Egotistical–Antagonistic Masculinity. It was further predicted that exposure to antisocial males would indirectly predict delinquency through Egotistical–Antagonistic Masculinity. It was hypothesized that exposure to violence against women and male-modeled antisocial behavior would predict sexual offenses against children through the alternative pathway of Psychosocial Deficits. Consistent with past research (Hunter *et al.*, 2000), it was predicted that juveniles that sexually offended against prepubescent children would have committed a lower percentage of offenses against strangers and engaged in less violence than offenders of pubescent females.

METHODS

Participants

Participants were recruited from multiple public and private institutional treatment programs for juvenile sex offenders across the United States. One hundred and fifty-seven adolescent males with a history of "hands-on" sexual offending against a male or female child under the age of 12, and 25 adolescent males with "hands-on" offending against a female 12 years of age or older participated in the study. Youth were classified into offender groups based on reference sexual offense. Participating youth ranged in age from 12 to 18 years, with an overall mean age of 15.9 years for both groups. Approximately, 67% of the overall sample was Caucasian, 21% African American, 8% Hispanic, 2% Native American, and 2% "Other or Unknown."

The average age of victims of offenders of prepubescent children was 6.1 years, with offenders being 14.2 years of age on average at the time of the reference offense. In this group of offenders, 58.3% of the reference sexual offenses were committed against a female victim only, 23.8% against a male victim only, and 17.9% against children of both genders. The offender was related to the victim in 62.2% of the cases, and a stranger or acquaintance in 37.8%.

The average age of victims of offenders against pubescent females was 17 years, with victims ranging in age from 12 to 59 years old. These youth were 14.6 years of age on average at the time of the reference sexual offense. Sixty-eight percent of the offenders of pubescent females targeted an acquaintance or stranger. Slightly over two thirds of both groups of youth engaged in actual or attempted vaginal and/or anal intercourse with the victim. Eighty percent of the offenders of pubescent females, and 48.4% of the offenders of prepubescent children, had been previously arrested for a nonsexual offense. Approximately 12% of both groups of youth had been previously arrested for a sexual offense. Slightly over three quarters of the sample had been exposed to some form of sexual or physical violence toward females; 53.8% had witnessed a male relative beat a female. Over 90% of the sampled youth had been exposed to some form of male-modeled antisocial behavior; 48.6% had viewed a male relative threaten another male with a weapon, and 59.3% had seen a male relative commit a nonviolent crime (e.g., sell drugs).

Procedure and Measures

Sexual offense data were coded from institutional records by trained research assistants. Youth were administered a social history questionnaire that provided detailed data on developmental experiences occurring before the age of 13 and engagement in acts of nonsexual aggression and delinquency within 12 months of project participation. The collected data were scaled and based on frequency of occurrence. Youth were also administered a battery of assessment instruments designed to measure the personality constructs of interest and delinquent behavior and attitudes. Measures administered relative to each studied construct are as follows.

Hostile Masculinity

Hostility Toward Women (Check, 1985) is a 21-item instrument reflecting a negative stereotypic view of females as rejecting and untrustworthy (e.g., "It is safer not to trust girls.").

Adversarial Sexual Beliefs (Burt, 1980) is a 9-item scale assessing the degree to which male–female relationships are perceived to be antagonistic (e.g., "In a dating relationship a woman is largely out to take advantage of a man.").

Rape Myths Acceptance (Burt, 1980) is a 13-item scale that measures attitudes justifying sexual aggression toward females.

Acceptance of Interpersonal Violence (Burt, 1980) is a 6-item scale measuring attitudes contributing to sexual violence.

Egotistical/Antagonistic Masculinity

Mating Effort Scale (Rowe *et al.*, 1997) is a 10-item scale measuring intrasexual competition amongst males in the pursuit of females, and a preference for multiple sexual partners.

Negative/Positive Masculinity/Femininity (Spence *et al.*, 1979). Nine items were used that measure negative masculinity (e.g., "I am a bossy person.").

Psychosocial Deficits

Youth Self-Report scales: Anxious/Depressed, Social Problems, Withdrawn (Achenbach, 1994). These scales respectively measure poor self-esteem and loneliness, immaturity and peer rejection, and social isolation.

Social Self-Esteem Inventory (Lawson *et al.*, 1979) is a 30-item scale measuring self-esteem in social situations.

Nonsexual Aggression and Delinquency

A social history questionnaire was used to obtain the youth's self-report of engagement in a variety of delinquent behaviors over the past 12 months (e.g., fighting, theft, drug use).Youth Self-Report: Delinquent Behavior and Aggressive Behavior scales (Achenbach, 1994). These scales respectively measure verbally and physically threatening, and antisocial and delinquent behaviors.

Data Analyses

The two statistical software packages that were used for these analyses were SAS 8.0 (SAS Institute, 1999) and EQS 5.7b (Bentler, 1995). Because it was not possible to analyze all of the individual items within a single multivariate model simultaneously, due to limitations in computational resources, a hierarchical analytical strategy was employed. First, items were theoretically assigned to hypothesized lower-order factor scales. Then, unit-weighted common factor scores (Gorsuch, 1983) were computed for all the lower-order factor scales and several higher-order factors in SAS (PROC STANDARD and DATA), using the means of the standardized item scores for all nonmissing items on each subscale (Figueredo *et al.*, 2000a). Also computed were both the Cronbach's alphas and the covariance matrices of the lower-order factor scales in SAS (PROC CORR). The internal consistencies of each of these lower-order factor scales are presented in Table I. Some of these lower-order scales had somewhat lower alphas due to a low number of items, but had acceptable item–scale correlations. The loadings (scale–factor correlations) of the unit-weighted higher-order factors on the lower-order factor scales are presented in Table II.

Table I. Internal Consistencies (Alphas) of Lower-Order Factor Scales

Code	Alpha	Description of measure
ASME	.87	Exposure to Male-Modeled Antisocial Behavior
VTWE	.83	Exposure to Abuse of Females
SSI	.93	Self-Esteem
MES	.82	Mating Effort Scale
MF	.80	Masculinity/Femininity
HTW	.85	Hostility Towards Women
ASB	.83	Adversarial Sexual Beliefs
AIV	.62	Acceptance of Interpersonal Violence
RMA	.85	Rape Myths Acceptance
DELBEH	.86	Delinquent Behavior of Perpetrator

Table II. Factor Loadings (Lambdas) of Higher-Order Factor Scales

Code	Lambda	
Psychosocial Deficits Factor		
ANXDEP	.87	Anxiety and Depression
SPROB	.87	Social Problems
WITHDRAW	.84	Social Withdrawal
SSI	.74	Self-Esteem
Egotistical–Antagonistic Masculinity Factor		
MF	.84	Masculinity/Femininity
MES	.84	Mating Effort Scale
Hostile Masculinity Factor		
HTW	.69	Hostility Towards Women
ASB	.82	Adversarial Sexual Beliefs
AIV	.70	Acceptance of Interpersonal Violence
RMA	.76	Rape Myths Acceptance
General Delinquency Factor		
DELBEH	.70	Delinquent Behavior of Perpetrator
AGG	.81	Aggressiveness of Perpetrator
DEL	.87	Delinquency of Perpetrator

All the unit-weighted factor scales were entered as manifest variables for multivariate causal analysis within a single structural equation model. Structural equation modeling was performed by EQS. Standardized subscales were theoretically assigned to higher-order constructs and tested for convergent validity. Structural equation modeling between these constructs then provided a multivariate causal analysis of the structural relations between them.

RESULTS

Figure 1 presents the results of the final factor analytic structural equations model. The path coefficients shown are the standardized Maximum Likelihood regression weights. The correlation among the two exogenous predictors ($r = .57$) was not shown to avoid visual clutter. The chi-squared value for the model was statistically nonsignificant, $\chi^2(23) = 26.369$, $p = .2838$, indicating that the model successfully predicted all of the observed covariances to within the estimated margin of sampling error. The practical indices of fit were also acceptable ($NFI = .927$, $CFI = .990$). The *NFI* is the Bentler-Bonett Normed Fit Index and the *CFI* is the Comparative Fit Index. Practical indices of fit exceeding .90 are generally considered acceptable (Bentler, 1995; Bentler & Bonett, 1980), although there is no absolute rule for these cutoffs (Bollen, 1989). Of these fit indices, the *CFI* was given greater weight in our evaluation of model adequacy because it is adjusted for model parsimony and also because it performs well with moderate to small sample sizes ($N < 250$) and Maximum Likelihood estimation (Bentler, 1990; Hu & Bentler, 1995). Unadjusted indices, such as the *NFI*, may underestimate the fit of the model with smaller samples (Bollen, 1989; Byrne, 1994). The standardized root mean square residual and root mean squared error of approximation were acceptably low ($RMR = .049$, $RMSEA = .028$), indicating a very small average absolute magnitude for the residuals, or "unexplained" components, of the observed correlations. *RMSEA* values of .05 or less are usually considered to indicate an excellent fit to the data (Loehlin, 1998; MacCallum *et al.*, 1996).

The following description of the study findings begin with the direct effects upon each construct in the hypothesized causal sequence. The indirect pathways by which each variable is influenced are considered in the discussion that follows.

Effects on Trait Factors

Psychosocial Deficits was significantly and positively influenced by Exposure to Abuse of Females (.20); however, the proportion of variance in Psychosocial Deficits accounted for by this predictor was not very high ($R^2 = .04$). Egotistical–Antagonistic Masculinity was significantly and positively influenced by both Psychosocial Deficits (.23) and Exposure to Male-Modeled Antisocial Behavior (.26). The cumulative proportion of variance in Egotistical–Antagonistic Masculinity accounted for by these predictors was somewhat higher, but also rather low ($R^2 = .13$). Hostile Masculinity was significantly and positively influenced both by Egotistical–Antagonistic Masculinity (.44) and Psychosocial Deficits (.24). The cumulative proportion of variance in Hostile Masculinity accounted for by these predictors was reasonably high ($R^2 = .30$).

Effects on Nonsexual Aggression and Delinquency

Nonsexual Aggression and Delinquency was significantly and positively influenced by Egotistical–Antagonistic Masculinity (.34), Psychosocial Deficits (.22), Exposure to Abuse of Females (.17), and Exposure to Male-Modeled Antisocial Behavior (.26). The cumulative proportion of variance in Nonsexual Aggression and Delinquency accounted for by these predictors was quite high ($R^2 = .45$).

Effects on Offender Status

Perpetration against a prepubescent child victim was significantly and positively influenced by Psychosocial Deficits (.22); however, the variance accounted for by this predictor was not very high ($R^2 = .05$).

Effects on Offense Characteristics

The offense characteristics were significantly influenced only by whether the victim was a prepubescent child. This dichotomy significantly and negatively influenced both the Dangerousness of Offenses ($-.34$; a composite of the level of violence used in the commission of the reference offense, whether a weapon was used, and whether nonsexual crimes were also committed) and Offenses Against Strangers ($-.18$; a composite of whether the reference offense occurred outside the perpetrator's home and whether the perpetrator was unrelated to the victim).

DISCUSSION

Strong support was found for the hypothesized contention that childhood exposure to violence against women

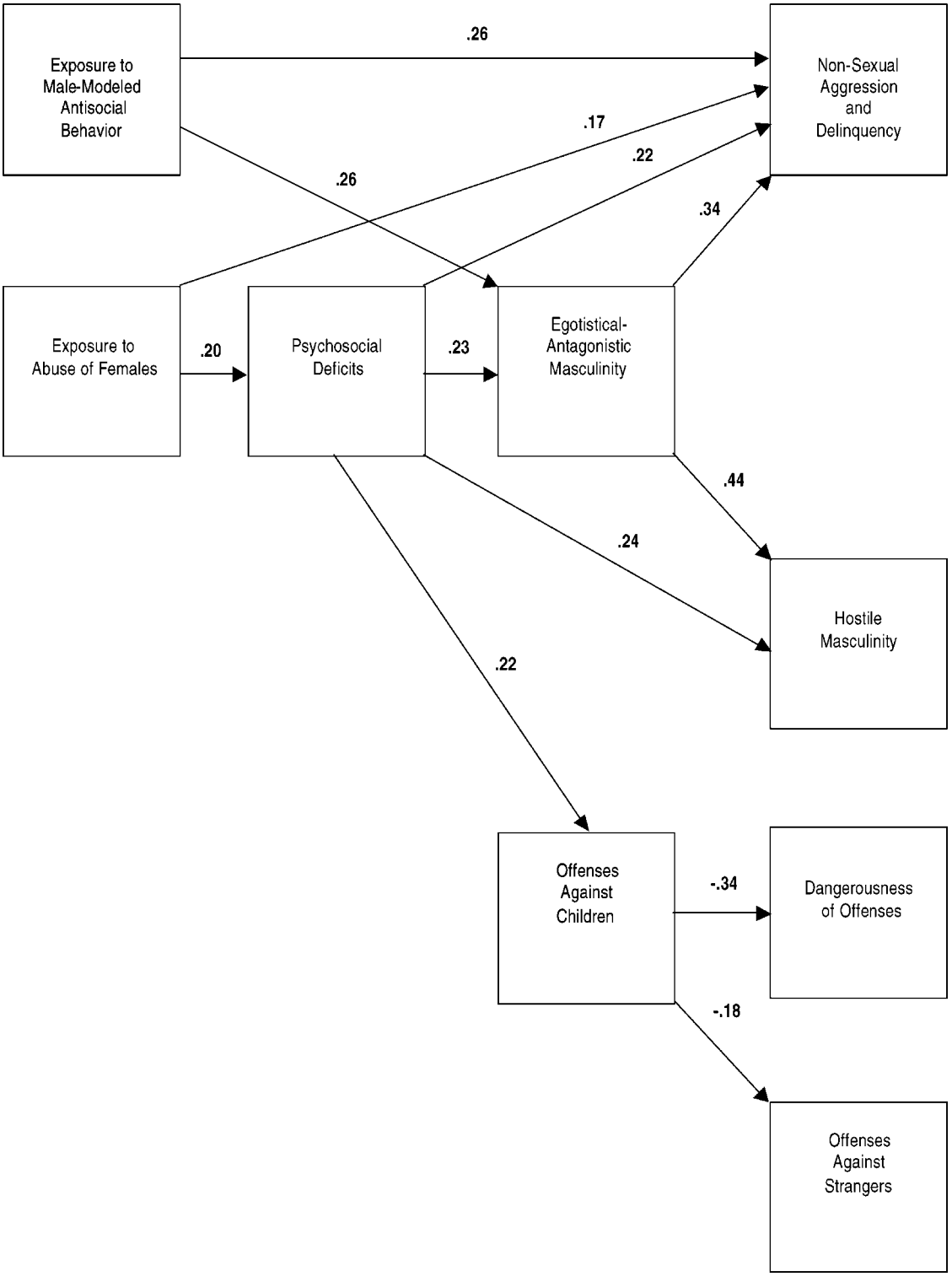

Fig. 1. Structural equation model for juvenile sex offender etiological risk factors, deviant personality traits, offender status, and offense characteristics.

and male-modeled antisocial behavior increase the risk of nonsexual aggression and delinquency in adolescent male sex offenders. As predicted, both risk factors produced direct effects on the nonsexual aggression and delinquency factor. In addition, both exposure to violence against females and male-modeled antisocial behavior influenced nonsexual aggression and delinquency through specific personality mediators. The relatively high percentage of variance in nonsexual aggression and delinquency explained by the combined risk factors and personality mediators underscores the importance of understanding these influences in the design of prevention programming for at-risk youth.

The finding of a direct effect for exposure to male-modeled antisocial behavior on delinquency is consistent with the belief that young males are vulnerable to internalizing the values and imitating the behavior of socially deviant peers and adults. Consistent with previous research findings, higher levels of exposure to antisocial males were correlated with higher levels of delinquent behavior. However, the present results suggest that in addition to the direct influences of antisocial role modeling on delinquent behavior there may be more subtle alterations in how young males view and approach intrasexual competition for females and environmental resources. As predicted, exposure to antisocial males during childhood was found to be associated with a heightened sensitivity to the threat of sexual encroachment by other males, and endorsement of aggression as the best strategy for countering these threats.

The above findings are consistent with modern evolutionary psychological theory. Evolutionary theory posits that aggressive behavior can be explained as a complex interaction of genetic dispositions, observational learning, and cognitive scripts (Buss & Shackelford, 1997). Natural selection is viewed as not only having resulted in the propagation of specific personality traits that help explain aggressiveness in certain individuals, but also context-sensitive aggressive strategies for solving particular adaptive problems of social living (Buss, 1994; Buss & Shackelford, 1997). The latter reflects an understanding of aggression as being highly context specific. Aggression is triggered when certain social problems are confronted and the behavior is likely to result in accrual of adaptive advantages. Buss and Shackelford (1997) hypothesize that social problems for which aggression may have produced adaptive advantages in the ancestral past, include inflicting costs on same-sex rivals, defending oneself against attack, deterring rivals from future aggression, and negotiating status and power hierarchies. Evolutionary theory would not predict aggression under any of the above circumstances unless there was the perception on the part of the perpetrator that the potential benefits of the behavior out-weighed the likely costs within that particular environment. Thus, aggression is not just specific to problem set, but also the social and cultural environment in which the problem occurs (Figueredo *et al.*, 1995).

As applied to the current findings, youths growing up in high crime environments dominated by antisocial males may quickly surmise that survival is contingent on successfully warding off predators and gaining access to needed resources through the establishment of peer dominance. Not only may aggression and threat serve one well in such environments, but qualities that are adaptive in the larger society, such as trust, tolerance, and concern for the welfare and feelings of others, may signal vulnerability and thus constitute a liability. In more hostile environments, suspiciousness and readiness to respond to threat may be viewed as a sign of strength by peers, result in enhanced status, and serve to help protect one from falling prey to exploitive rivals. It is speculated that pressure on youths to assume an aggressive and dominant posture in such environments is intensified when there is little parental investment in the youth, or familial resources that can be brought to bear to support alternative prosocial pathways to status and achievement.

Although emotional callousness and aggression may emanate from a youth's accurate perception of what constitutes effective and adaptive behavior within high crime environments and delinquent subcultures, it can be surmised that these attitudes may not bode well for his functioning within the larger, societal environment or his future relationships with females. As it relates to the latter, Egocentric–Antagonistic Masculinity was also found to be a strong predictor of Hostile Masculinity and the perception that females cannot be trusted and often try and take advantage of males. Males high on Egocentric–Antagonistic Masculinity may therefore not only adopt a tough, aggressive stance with other males, but similarly assume a dominant and controlling role in relationships with females. The combination of high mating effort, dominance, and hostility toward females may well place them at risk for future sexual aggression given that it is in direct conflict with female sexual selection strategies.

Witnessing the physical and sexual abuse of females was found to produce direct and indirect effects on nonsexual aggression and delinquency, and indirect effects on Egocentric–Antagonistic Masculinity and Hostile Masculinity. Psychosocial Deficits played a central role in mediating the influence of this risk factor. It is speculated that exposure to violence against females not only imparts harmful attitudes regarding females and the strategic value of dominance and aggression, but also leaves

young males deficient in their understanding and acquisition of prosocial relationship skills. Youth growing up in abusive family and community environments may learn little about male behavioral qualities that females value in potential mates, such as the sharing of resources, sensitivity, ability to protect, and parental investment (Buss, 1994; Buss & Schmitt, 1993). These skill and knowledge deficits may render these youth competitively disadvantaged relative to their more socially proficient and accomplished peers, and enhance their reliance on aggression as a means of resolving intrasexual and intersexual conflict. As it relates to male–female interactions, it is easy to envision such youth as becoming entrapped in a vicious cycle—negative male role-modeling and social ineptitude lead wary and suspicious youth to attempt to dominate and control females; these behaviors, in turn, only lead to negative and rejecting responses that contribute to further insecurity, resentment, and intensification of coercive sexual strategies.

Evolutionary theory would predict that males who engage in context specific aggression who do not have pronounced psychosocial deficits, or those whose deficits can be remediated through focused intervention, would shift from dominance and aggression as a competitive strategy when placed in environments that reward prosocial behavior and penalize those who engage in coercive strategies. Evolutionary theory is thus consistent with the basic tenants of social–ecological models of clinical intervention for delinquent youth in suggesting optimism about the capacity of youth to change if social competencies are enhanced and environmental contingencies are altered. Social–ecological models emphasize identifying the familial, cultural, and environmental determinants of delinquent and aggressive behavior and effecting changes in the multiple systems that maintain the behavior (Huey *et al.*, 2000; McCord, 2000). Research suggests that particularly important in deterring juvenile delinquency is working with the families of these youth so as to increase familial support and warmth (i.e. parental investment), alter negative peer affiliations, and promote social competency (Gorman-Smith *et al.*, 2000; Kuperminc & Reppucci, 1996; Tolan *et al.*, 1997).

The studied risk factors were of only limited utility in predicting whether the sexual offense was committed against a pubescent female or a prepubescent child. As previously discussed, exposure to violence against females did predict Psychosocial Deficits and, as hypothesized, Psychosocial Deficits predicted sexual offenses against children. As found in previous research, juveniles that sexually offend against children demonstrate more pronounced deficits in self-esteem and self-efficacy than offenders of pubescent females. These deficits are associated with heightened depression and anxiety and support the interpretation that the sexual offending of this group of juvenile sex offenders may be more compensatory (i.e. lack the confidence and skills to successfully compete with other males for same-age females) or paraphiliac in nature than reflective of antisocial values, hostile masculinity, and coercive sexual strategy. Also consistent with hypothesized differences between juveniles that offend against children and those that target pubescent females, the former group was found to be less likely to offend against a stranger or acquaintance, use force or a weapon, or commit a nonsexual offense in the commission of the sexual crime. These findings will be elaborated in a forth-coming article that addresses efforts to establish a juvenile sex offender typology.

Explanation as to why neither Hostile Masculinity nor Egocentric–Antagonistic Masculinity predicted sexual offenses against pubescent females is unclear and will be the subject of future research. It is possible that neither construct is highly relevant to understanding rape in juveniles, in contrast to adults. However, the absence of significant effects for these factors may simply have been a function of the relatively low number of offenders of pubescent females in the study and therefore an issue of inadequate power to detect group differences. Study findings are limited to adolescents that engage in "hands-on" sexual offending. Nonsex offender control groups were not included in the study and whether the findings on nonsexual aggression and delinquency would apply to other adolescent populations is unknown. Relationships between risk factors, mediators, and outcomes could reflect inherited personality traits, as well as environmental influences. Finally, it is acknowledged that the presented causal model is but one possible model for explaining the relationship between the studied risk factors, mediators, and outcomes. Other causal models may fit the data equally well.

Overall, the results of this study demonstrate the potential utility of examining the direct and mediated effects of risk factors for sexual and nonsexual aggression and delinquency within an evolutionary psychological framework. The specified causal model suggests how exposure to violence against females and male-modeled antisocial behavior exert their influence and alter developmental trajectories. Future studies by this investigative team will focus on additional risk and mediating factors. It is hoped that this research will ultimately support the development of effective prevention programming for at-risk youth and the refinement of intervention programming for identified clinical populations of sexually aggressive and delinquent youth.

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