Parental Knowledge and Moral Agency as Protective, Risk, and Promotive Factors for Delinquency: A Longitudinal Study of Early Adolescent Youth

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Abstract: The purpose of this study was two-fold. The first purpose was to ascertain whether parental knowledge and moral agency predicted subsequent delinquency when included in the same regression equation and whether either protected youth against future delinquency by moderating the risk effect of past delinquency on future delinquency. The second purpose was to determine whether the upper or prosocial poles of these two constructs served as promotive factors and the lower or antisocial poles as risk factors. This study was also designed to verify whether combining the two constructs improved prediction. Participants for this study were 845 middle-school students (406 boys, 439 girls; mean age = 11.21 years) who completed a survey on three separate occasions, with a year between each evaluation. Results revealed that while neither variable served as a protective factor, both showed signs of serving as a risk/ promotive factor, particularly when the two variables were combined.

Keywords: Parental Knowledge; Moral Agency; Risk Factors; Promotive Factors; Delinquency

In reducing risk and preventing delinquency it is imperative that we consider both protective and promotive factors. Where protective factors reduce the risk of future delinquency by moderating the impact of risk factors on delinquency, promotive factors reduce delinquency risk by stimulating the mitigating or prosocial pole of a bipolar concept that is a risk factor on one end and a promotive factor on the other (Farrington *et al.*, 2016). The current study sought to integrate two popular theories of risk in an effort to provide a coherent approach to understanding protective, risk, and promotive factors in a group of early adolescents. In developing the General Personality and Cognitive Social Learning (GPCSL) approach, Bonta and Andrews

(2017) assembled a long list of risk, need, and responsivity factors designed to lessen a person's involvement in a delinquent or criminal lifestyle. Eight factors, in particular, are emphasized in the GPCSL. These "central eight" risk/need factors include criminal history, procriminal attitudes, antisocial personality patterns, procriminal associates, education/employment, family/marital, leisure/recreation, and substance abuse. Using a somewhat different approach, Farrington and colleagues (2008) have long held that risk is a function of variables that encourage a person to become involved in offending behavior (risk factors), discourage a person from becoming involved in offending behavior (promotive factors), or mitigate the effect of a risk factor by interacting with that factor (protective factors).

Integrating the GPCSL with Farrington's risk factor prevention paradigm occurred in four steps, starting with the selection of two risk/need factors from the GPCSL "central eight:" i.e., parental knowledge as a reflection of family/marital issues and moral agency as a counter to procriminal attitudes. The second step in integrating the GPCSL and risk factor prevention paradigm was finding a conceptual framework that could be used to assess the potential relevance of each factor to a developmentally informed model of risk. Farrington *et al.* (2008) provide such a model in which a variable is assessed for its potential as a protective, risk, and promotive factor using multiple regression and classification analyses to determine whether a putative protective factor interacts with a known risk factor and also whether it encourages delinquent behavior (risk factor), discourages delinquent behavior (promotive factor), or both. The third step in integrating GPCSL with the risk factor prevention paradigm is assessing whether the risk and promotive factors identified during the second step have, as has been proposed by Bonta and Andrews (2017), a cumulative effect. This was accomplished by testing the combined effect of two risk/promotive factors selected for the current study. Finally, the analyses were carried out over two successive time periods to determine, in part, whether developmental or lifespan effects were present, although no predictions were offered with respect to this aspect of the study. The purpose of this investigation was to evaluate the ability of two variables (parental knowledge and moral agency) to provide protection against a well-known risk factor (prior delinquency) and as risk and promotive factors in a group of middle school children making the transition from late childhood to early adolescence.

Parental Knowledge

One potential protective/risk/promotive factor that has been found to relate to antisocial behavior in a child is parental knowledge. This encompasses both active parental monitoring and a child's willingness to share personal information with his or her parents, seeing as both are believed to be instrumental in explaining a parent's

awareness of their child's activities and whereabouts (Kerr & Stattin, 2000). Results from a recent meta-analysis indicated that child disclosure was a significantly stronger correlate/predictor of parental knowledge than any parenting strategy with the possible exception of parental warmth (Liu *et al.*, 2020). Unfortunately, most of the studies included in the meta-analysis were cross-sectional rather than longitudinal in nature. In one of the few longitudinal studies to investigate the parental knowledge-delinquency association, Stavrinides (2011) discovered that while child disclosure at Time 1 predicted reduced delinquency at Time 2, Time 1 parental monitoring had no effect on Time 2 delinquency. Previously, however, Lahey *et al.* (2008) ascertained that direct parental monitoring predicted future delinquency in adolescents from high-crime neighborhoods. Hence, it would appear that both parental monitoring and child self-disclosure contribute to parental knowledge. In the current study parental knowledge was assessed in the form of parental knowledge as perceived and reported by the child.

Moral Agency

Moral agency was a second putative protective/risk/promotive factor examined in this study. Moral agency can be defined as an internalized moral system that emphasizes personal responsibility, cognitive empathy, and respect for the rights of others and the rules of society (Liable *et al.*, 2008). It is the opposite of two constructs commonly assessed in antisocial populations; namely, neutralization (Sykes & Matza, 1957) and moral disengagement (Bandura *et al.*, 1996). Both neutralization and moral disengagement have been found to correlate significantly with future delinquent behavior in adolescents ranging in age from 11 to 18. In a meta-analysis that used various measures of neutralization and moral disengagement to predict future delinquency and general antisocial behavior in adolescent populations, Walters (2022a) recorded a moderately strong pooled effect size ($r = .34$, k = 26) for outcomes occurring six to 36 months post-prediction. In a study not included in the Walters (2022a) meta-analysis, Nasaescu and colleagues (2021) classified moral emotion as a competency and moral disengagement as a risk factor for future antisocial behavior. Results from this study revealed that while aspects of moral disengagement predicted antisocial behavior and victimization, moral emotions failed to prevent either antisocial behavior or victimization.

Prior Delinquency

The old adage that the best predictor of future behavior is past behavior certainly holds true when it comes to predicting offending behavior. It is a well-recognized fact that past antisocial behavior, regardless of a person's age, is one of the best predictors, if not the best predictor, of future antisocial behavior (Loeber & Dishion, 1983). Meta-analyses conducted since the Loeber and Dishion review have confirmed the conclusion that

prior antisociality or criminal history is one of the strongest predictors of both adult (Campbell *et al.*, 2009; Goodley *et al.*, 2021) and juvenile (Assink *et al.*, 2015; Cottle *et al.*, 2001) offending and recidivism. In the present study, prior delinquency served as a risk factor for future delinquency. As a risk factor, it was entered into interaction with the two previously mentioned putative protective/risk/promotive factors in an effort to determine whether either variable qualified as protective vis-à-vis prior delinquency.

Present Study

The overall objective of this study was to determine whether two variables—a dynamic family-based variable (parental knowledge) and an internalized child-based variable (moral agency)—would serve as protective, risk, and/or promotive factors with respect to future offending at the point in development when offending often begins (i.e., early adolescence: Jolliffe *et al.*, 2017). Prior delinquency served as the risk factor in the protective analysis and each of the potential protective/risk/promotive factors was evaluated for risk and promotive effects. Including a measure of prior delinquency as a covariate in the linear and binomial logistic regression analyses shifted the focus from predicting a static estimate of delinquency to predicting a change in delinquency. Four control variables were included in this study based on prior research showing that they may impact on the associations known to form between one or both of the putative protective/risk/promotive factors and concurrent or subsequent delinquency: cohort, age (Kierkus & Hewitt, 2009), sex (Eitle, 2006), and race (Bumpus & Rodgers, 2009). Two hypotheses were tested in this study.

> H1: Perceived parental knowledge and moral agency will moderate the relationship between past and future delinquency by reducing the criminogenic effect of past delinquency on future delinquency. The aforementioned protective effect should occur with both factors (perceived parental knowledge and moral agency) and encompass both outcomes (Delinquency2 and Delinquency-3).

> H2: Perceived parental knowledge and moral agency will serve as risk factors for an increase in subsequent delinquency at the low end of each variable dimension and as promotive factors for a drop in subsequent delinquency at the high end of each variable dimension. It was further predicted that combining the two risk/protective factors would lead to higher risk and promotive effects.

Method

Participants

The sample for this study consisted of 845 middle-school students (406 boys, 439 girls) from the three-wave longitudinal Pocono Bullying Study (PBS: Walters *et al.*, 2017).

Participants were enrolled in a single middle school (Grades 6, 7, and 8) located in the northeastern region of Pennsylvania in a school district that was partly suburban and partly rural. In early to late November of each year (2016-2021) students were offered the opportunity to participate in an electronic survey where they answered questions about bullying, delinquency, depression, and their home and school environments. Five cohorts are represented in the longitudinal PBS study. Students in Cohort 1 were in sixth grade in 2016, students in Cohort 2 were in sixth grade in 2017, students in Cohort 3 were in sixth grade in 2018, students in Cohort 4 were in sixth grade in 2019, and students in Cohort 5 were in sixth grade in 2020. The average age of participants at the start of this study (Grade 6) was 11.21 years (SD = 0.49, Range = 10 to 13) and the racial/ethnic composition was 47.7% White, 17.9% Black, 17.6% Hispanic, and 16.8% other. Nearly two-thirds of the sample (61.0%) denied any involvement in delinquency in the year preceding the baseline survey (Wave 1) and the majority of all remaining students (22.2%) reported that their past year involvement in offending was limited to one or two minor offenses. The Kutztown University Institutional Review Board (IRB) approved all six years of data collection.

All three waves of data (Waves 1-3) were included in the current investigation. A student had to participate in at least two waves of the PBS to be included in the longitudinal sample. In the overall group of 845 youth who are included in the longitudinal PBS, 320 (37.9%) completed all three waves of data collection, 267 (31.6%) completed Waves 1 and 2, 130 (15.4%) completed Waves 1 and 3, and 128 (15.1%) completed Waves 2 and 3. There were several reasons why students failed to complete one or more waves of the PBS. Some students moved out of the school district before completing the eighth grade, other students moved into the school district after the sixth grade, a number of students decided not to participate in the survey for one of the three years or failed to include their correct identification number so that their results could be linked to previous or subsequent administrations of the survey, and students in Cohort 5 did not have the opportunity to complete the survey in eighth grade because the study had already ended. Comparing students who participated in all three waves of the PBS to students who participated in just two waves failed to show evidence of significant Bonferroni-corrected differences (32 individual comparisons, p = .0016) between students in each of the first four cohorts who completed all three survey waves and students who completed just two survey waves. Participants from Cohort 5 could only participate in the first two waves because the study ended before their final year of middle school.

Measures

Delinquency. The delinquency measure administered at Waves 1 through 3 of the PBS was modeled after Huizinga *et al*.'s (1991) self-report of offending (SRO) scale.

Participants were asked to rate their past year involvement in 14 different delinquent acts (running away from home, skipping school, drinking alcohol, using marijuana, stealing something worth less than $5, stealing something worth more than $5, breaking into a house or business, selling illegal drugs, stealing a motor vehicle, destroying property belonging to another person, participating in a physical fight, hurting someone so badly that they needed medical treatment, taking something by force or intimidation without a weapon, and taking something by force or intimidation with a weapon) on a five-point frequency scale (0 = *no times*, 1 = *1-2 times*, 2 = *3-5 times*, 3 = *6-9 times*, 4 = *10 or more times*). For the purposes of the present study, however, variety scores (number of offense categories divided by 14) were calculated and used in all analyses. To the extent that delinquency scales tend to measure disparate behaviors rather than unified constructs (Huizinga & Elliott, 1986), reliability was thought to be more accurately assessed by correlating delinquency scores obtained one year apart, the results of which showed adequate to good test-retest reliability (r = .37-.50). The internal consistency values (alpha coefficients) were nonetheless computed and showed modest to good internal consistency for Waves 1 through 3: i.e., .76, .61, and .87, respectively.

Parental Knowledge. Children rated how knowledgeable their parents were of their activities and whereabouts using the 8-item Parental Management Scale (PMS: Gibbs *et al.*, 1998). Each item on the PMS (e.g., "an adult in my house knows where I am when school is out;" "my parents know my close friends") is assessed on a four-point Likert type scale (1 = *not true at all*, 2 = *sometimes true*, 3 = *often true*, 4 = *always true*) and the results summed. The Parental Knowledge scale achieved adequate internal consistency at Waves 1 (α = .77) and 2 (α = .76) of the PBS. All but one of the eight items on the parental knowledge measure achieved a standardized factor loading > .400 on the Wave 1 and Wave 2 administrations of the PMS. Parental knowledge and the other putative risk/promotive/protective factor, moral agency, were assessed as latent constructs for the purpose of the main regression analyses, although supplemental regression analyses were also performed in which parental knowledge and moral agency were treated as manifest variables.

Moral Agency. Items on the Denver Youth Survey Neutralization scale (DYS-N: Huizinga *et al.*, 1991) were reverse coded to provide an estimate of moral agency. Each of the 11 items on this scale (e.g., "It's okay to tell a small lie if it doesn't hurt anyone;" "People who leave things lying around outside their house should expect that some of their things might be taken or stolen;" "It's okay to take little things from a store without paying for them since stores make so much money that it won't hurt them") was rated on a five-point scale (1 = *strongly agree*, 2 = *agree*, 3 = *neither agree nor disagree*, 4 = dis*agree*, 5 = *strongly disagree*). Item scores were then summed to produce a total score that could range from 11 to 55. The internal consistency of this scale was found

to be adequate during the first (α = .78) and second (α = .78) waves of the PBS. Just one of the eleven items on the DYS-N failed to achieve a standardized factor loading > .400 during the Wave 1 and Wave 2 administrations of this measure. Like parental knowledge, moral agency was assessed as a latent factor for the purposes of the main regression analyses.

Control Variables. There were four control variables included in the current investigation: cohort (1 = *2016–2018*, 2 = *2017–2019*, 3 = *2018*-2020, 4 = *2019–2021*, 5 = *2010–2021*), age (in years), sex (1 = *male*, 2 = *female*), and race (1 = *White*, 2 = *non-White*). Cohort was assessed over time, but this variable also took into account the extent to which participants competed the survey under pandemic conditions. That is because Cohorts 1 and 2 completed all three waves pre-pandemic, Cohort 3 completed two of three waves pre-pandemic, Cohort 4 completed one of three waves pre-pandemic, and Cohort 5 completed both of its waves while the pandemic was ongoing. Prior delinquency was included in the analyses as both a risk and precursor measure. Using it as a precursor measure changed the purpose of the study from predicting a static outcome to predicting a dynamic, changed, or lagged outcome.

Procedure and Analytic Strategy

This study employed a two-step procedure. In the first step, a multiple regression analysis was performed whereby the four control variables, one risk factor (prior delinquency), two protective/risk/promotive factors (Parental Knowledge and Moral Agency), and two protective x risk interactions (Knowledge x prior delinquency and Moral x prior delinquency) were regressed onto subsequent delinquency. This was done twice: first, with predictors from Wave 1 and a Wave 2 outcome (Delinquency-2), and then with predictors from Wave 2 and a Wave 3 outcome (Delinquency-3). Three models were tested, one with just the control and risk (prior delinquency) factors, one with the control, risk, and two protective/promotive factors (Parental Knowledge and Moral Agency), and one with the control, risk, and protective/promotive factors and the risk x protective interactions. Interactions were formed by multiplying the respective variables after they had been centered.

For the second step of the study, scores on the two putative risk/promotive factors were organized into a best quarter (top 25% of scores), a worst quarter (bottom 25% of scores), and a middle half (central 50% of cases), after which odds ratios were calculated by comparing the worst or lower quarter and middle half of cases (risk effect) and the best or upper quarter and middle half of cases (promotion effect) for the absence of delinquency at Wave 2 and then again at Wave 3. The odds ratios were calculated using a binomial logistic regression approach that controlled for cohort, age, sex, race, and prior delinquency. The two putative risk/promotive factors were then converted to

Z-scores, combined, and assigned to a top 25% of scores, bottom 25% of scores, and middle half of scores. Odds ratios were computed twice—once with Wave 1 predictors and a Wave 2 outcome and once with Wave 2 predictors and a Wave 3 outcome. The regression analyses were performed with MPlus 8.3 (Muthén & Muthén, 1997-2017) and the descriptive and binomial logistic regression analyses were calculated with SPSS 26 (IBM, 2019).

Missing Data

There was a modest to moderate amount of missing data in the current sample of 845 participants. A little more than a third of the sample (36.7%) had complete data on all 11 study variables, 30.9% were missing data on one variable, 0.8% were missing data on two variables, 29.8% were missing data on three variables, and 1.8% were missing data on four to six variables. The total amount of missing data across all 11 variables was 11.8% and there were seven variables that were missing more than 5% of their data: Parental Knowledge-1 (15.5%), Moral Agency-1 (16.1%), Parental Knowledge-2 (15.5%), Moral Agency-2 (16.0%), Delinquency-1 (17.9%), Delinquency-2 (16.6%), and Delinquency-3 (32.4%). There were two different ways in which missing data were handled in this study. For the linear regression analyses, missing data were handled with full information maximum likelihood (FIML). For the classification and binomial logistic regression analyses, missing data were handled with expectation-maximization (EM). Whereas FIML estimates population parameters and standard errors by analyzing non-missing data, EM imputes values estimated with maximum likelihood. Both procedures have been found to provide more accurate and less biased results than traditional approaches like simple imputation and listwise deletion (Allison, 2002).

Results

Descriptive statistics and variable inter-correlations for the 11 variables included in this study are listed in Table 1. Although only about half the correlations achieved Bonferroni-corrected significance, this was due primarily to the fact that control variables correlated weakly with each other and with the protective/risk/promotive and outcome variables. Both protective/risk/promotive variables achieved significant Bonferroni-corrected prospective negative correlations with delinquency at Waves 2 and 3.

Multiple Regression Analyses

Collinearity diagnostics were performed initially in order to determine whether there was multicollinearity between the nine predictor variables included in either of the two multiple regression equations. The results revealed no evidence of multicollinearity

Table 1: Descriptive Statistics and Correlations for the 11 Variables Included in this Study

Variable	n	M	SD	Range	2	3	4	5	6	7	8	9	10	11
1. Cohort	845	2.41	1.16	1–5	-.09	.03	.09	-.02	.02	.01	-.07	-.01	.01	.02
2. Age	845	11.21	0.49	10–13		-.10	-.10	-.05	-.09	-.02	-.06	.05	.08	.09
3. Sex	845	1.52	-	1–2			.04	.15†	.08	.22†	.11	-.15†	-.08	-.10
4. Race	845	1.52	-	1–2				-.10	-.08	-.14†	-.15†	.10	.13†	.10
5. Parental Knowledge-1	714	26.62	3.41	8–32					.58†	.32†	.35†	-.44†	-.28†	-.35†
6. Parental Knowledge-2	714	27.97	3.60	12–32						.21†	.40†	-.27†	-.38†	-.34†
7. Moral Agency-1	709	40.28	7.15	18–55							.54†	-.42†	-.34†	-.31†
8. Moral Agency-2	710	38.68	7.22	17–55								-.34†	-.50†	-.30†
9. Delinquency-1	694	0.06	0.11	.00–.93									.47†	.41†
10. Delinquency-2	705	0.06	0.10	.00–.57										.49†
11. Delinquency-3	571	0.07	0.14	.00–.93										

Note: Cohort = cohort from 2016(1) to 2020(5); Age = chronological age in years; Sex = 1 (male) and 2 (female); Race = 1 (White) and 2 (non-White); Parental Knowledge-1 = perceived parental knowledge at Wave 1; Parental Knowledge-2 = perceived parental knowledge at Wave 2; Moral Agency-1 = child moral agency at Wave 1; Moral Agency-2 = child moral agency at Wave 2; Delinquency-1 = self-reported delinquency variety score at Wave 1; Delinquency-2 = self-reported delinquency variety score at Wave 2; Delinquency-3 = self-reported delinquency variety score at Wave 3; n = number of observations; M = mean; SD = standard deviation; Range = range of scores in current sample.

†p < .0009 (Bonferroni-corrected alpha: .05 / 55 correlations).

(tolerance = .330–.975, variance inflation factor = 1.025–3.027). Three models were tested for each of two outcomes (i.e., Delinquency-2 and Delinquency-3)—one in which the control variables alone served as predictors, one in which the control and protective/ risk/promotive variables served as predictors, and one in which the control variables, protective/risk/promotive factors, and interaction terms served as predictors. The results, as outlined in Table 2 and summarized in Figure 1, disclosed that delinquency, moral agency, and the knowledge x delinquency-1 interaction, all measured at Wave 1, were the only significant effects. A plot of the interaction failed to confirm the presence of a protective effect (see Figure 2), but showed instead, a compound promotive effect in which a low level of prior delinquency coupled with a high level of parental knowledge produced a significant reduction in delinquency from Wave 1 to Wave 2.

Prior delinquency continued to predict later delinquency when control variables and protective/risk/promotive factors measured at Wave 2 were tested as predictors of Wave 3 delinquency (see Table 3 and Figure 1). According to these results, moral agency and the knowledge x delinquency interaction were no longer significant when Wave 2 variables were used to predict Wave 3 delinquency. On the other hand, the parental knowledge main effect at Wave 2 successfully predicted delinquency at Wave 3. These countervailing results between parental knowledge and moral agency appear to be at least partially the consequence of overlap in the ability of these two variables to predict later delinquency, with the correlation between moral agency and later delinquency decreasing slightly from the Wave1-Wave2 analysis to the Wave 2-Wave 3 analysis, and the correlation between parental knowledge and later delinquency increasing slightly from the Wave1-Wave2 analysis to the Wave2-Wave 3 analysis. When the two putative risk/promotive/protective factors were measured as manifest variables, the results did not change, although instead of poor-to-fair model fit (see Tables 2 and 3), the saturated model displayed perfect fit (CFI = 1.00, RMSEA = 0.000).

Classification and Binomial Logistic Regression Analyses

Classification and binomial logistic regression analyses performed on groups with high (best quartile), low (worst quartile), and medium (middle half) scores on the two putative risk/promotive factors are summarized in Table 4. According to the results listed in this table, moral agency and parental knowledge each displayed mixed effects (a promotive effect at the upper end of the scale and a risk effect at the lower end of the scale) for Delinquency-2 and Delinquency-3, respectively. An odds ratio of 2.35 for the upper three-quarters of scores on moral agency means that after controlling for cohort, age, sex, race, and prior delinquency, participants in the best quarter of moral agency scores were 135% (or 2.35 times) more likely to report being crime-free at Wave 2 than participants in the middle half of moral agency scores. By contrast, an odds ratio of 2.08

Table 2: Multiple Regression Analysis of Protective and Possible Promotive Effects for Delinquency-2

Variables	Model 1				Model 2				Model 3			
	b	SE	Z	β	b	SE	Z	β	b	SE	Z	β
Outcome = Delinquency-2												
Cohort	0.000	0.003	0.11	0.004	0.000	0.003	0.11	0.004	0.001	0.003	0.30	0.010
Age	0.011	0.007	1.48	0.052	0.009	0.007	1.35	0.046	0.008	0.007	1.19	0.041
Sex	-0.003	0.007	-0.49	-0.017	0.006	0.007	0.90	0.032	0.008	0.007	1.06	0.037
Race	0.016	0.007	2.56*	0.079	0.009	0.007	1.32	0.046	0.009	0.007	1.28	0.044
Delinquency-1	0.401	0.033	12.16**	0.440	0.296	0.042	7.00**	0.324	0.408	0.058	6.99**	0.466
Parental Knowledge-1					-0.012	0.015	-0.78	-0.041	-0.020	0.015	-1.32	-0.071
Moral Agency-1					-0.032	0.007	-4.24**	-0.221	-0.026	0.008	-3.50**	-0.184
Knowledge-1 x Del-1									0.011	0.003	3.33**	0.200
Moral-1 x Del-1									-0.002	0.004	-0.61	-0.032
R-Square	0.213	0.029	7.40**		0.254	0.031	8.18**		0.273	0.031	8.68**	
CFI	1.000				0.744				0.729			
RMSEA	0.000 [0.000, 0.000]				0.069 [0.065, 0.073]				0.068 [0.064, 0.071]			

Note: Outcome = outcome measure (delinquency at Wave 2); Cohort = cohort from 2016(1) to 2020 (5); Age = chronological age in years at Wave 1; Sex = male (1) versus female (2); Race = White (1) versus non-White (2); Delinquency-1 = self-reported delinquency variety score at Wave 1; Parental Knowledge-1 = perceived parental knowledge at Wave 1; Moral Agency-1 = child moral agency at Wave 1; Knowledge-1 x Del-1 = interaction between parental knowledge at Wave 1 and delinquency at Wave 1; Moral-1 x Del-1 = interaction between moral agency at Wave 1 and delinquency at Wave 1; R-Square = R^2 for the regression equation; CFI = comparison fix index; RMSEA = root mean standard estimate of approximation with 90% confidence interval in brackets; b = unstandardized coefficient, SE = standard error of the unstandardized coefficient; Z = Wald Z statistic; β = standardized coefficient; N = 845.
*p < .05, **p < .001.

Table 3: Multiple Regression Analysis of Protective and Possible Promotive Effects for Delinquency-3

Variables	Model 1				Model 2				Model 3			
	b	SE	Z	β	b	SE	Z	β	b	SE	Z	β
Outcome = Delinquency-3												
Cohort	0.004	0.005	0.87	0.038	0.005	0.005	0.99	0.043	0.005	0.005	1.00	0.043
Age	0.012	0.010	1.20	0.045	0.005	0.010	0.44	0.016	0.004	0.010	0.37	0.014
Sex	-0.014	0.010	-1.31	-0.050	-0.009	0.010	-0.89	-0.033	-0.009	0.010	-0.84	-0.032
Race	0.014	0.010	1.30	0.050	0.009	0.010	0.90	0.034	0.008	0.010	0.42	0.031
Delinquency-2	0.643	0.055	11.74**	0.473	0.513	0.067	7.60**	0.375	0.565	0.082	6.90**	0.414
Parental Knowledge-2					-0.112	0.031	-3.60**	-0.234	-0.111	0.032	-3.47**	-0.238
Moral Agency-2					-0.002	0.014	-0.13	-0.008	-0.001	0.014	-0.10	-0.006
Knowledge-2 x Del-2									0.000	0.005	0.07	0.004
Moral-2 x Del-2									0.006	0.006	1.02	0.059
R-Square	0.246	0.034	7.19**		0.295	0.037	7.91**		0.296	0.037	7.94**	
CFI	1.000				0.777				0.762			
RMSEA	0.000 [0.000, 0.000]				0.067 [0.063, 0.071]				0.066 [0.063, 0.070]			

Note: Outcome = outcome measure (delinquency at Wave 3); Cohort = cohort from 2016(1) to 2020 (5); Age = chronological age in years at Wave 1; Sex = male (1) versus female (2); Race = White (1) versus non-White (2); Delinquency-2 = self-reported delinquency variety score at Wave 2; Parental Knowledge-2 = perceived parental knowledge at Wave 2; Moral Agency-2 = child moral agency at Wave 2; Knowledge-2 x Del-2 = interaction between parental knowledge at Wave 2 and delinquency at Wave 2; Moral-2 x Del-2 = interaction between moral agency at Wave 2 and delinquency at Wave 2; R-Square = R^2 for the regression equation; CFI = comparison fix index; RMSEA = root mean standard estimate of approximation with 90% confidence interval in brackets; b = unstandardized coefficient, SE = standard error of the unstandardized coefficient; Z = Wald Z statistic; β = standardized coefficient; N = 845.
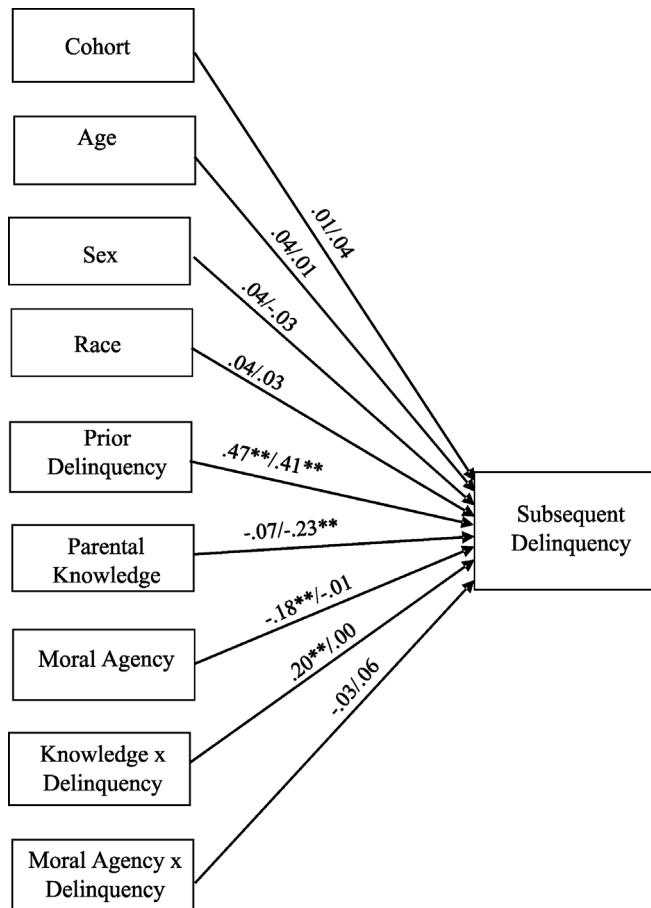
*p < .05, **p < .001.

Figure 1: Results for the Multiple Regression Analysis

Note: The coefficient in front of the slash is the value when predicting Delinquency-2 and the coefficient behind the slash is the value when predicting Delinquency-3.
$*p < .05, **p < .001.$

for the lower three-quarters of scores on parental knowledge indicates that participants in the middle half of parental knowledge scores were 108% less likely to engage in delinquency at Wave 3 than participants in the worst quarter of parental knowledge scores, again controlling for cohort, age, sex, race, and prior delinquency.

Although the combined results for parental knowledge and moral agency were not necessarily larger than the individual results, they were more consistent. Where parental knowledge failed to achieve either a risk or promotive effective in predicting Delinquency-2 and moral agency failed to produce a promotive effective in predicting Delinquency-3, the combined results achieved significant mixed effects in predicting

Figure 2: **Interaction between Wave 1 Delinquency and Parental Knowledge in Predicting Wave 2 Delinquency**

both Delinquency-2 and Delinquency-3 (see Table 4). Although the best quarter/ middle half/worst quarter breakdown is a popular approach when testing for risk and promotive effects, other classification models are also possible. For instance, organizing the present scores into three equal groups (i.e., best third, middle third, and worst third) generated results comparable to those obtained with the best quarter/middle half/worst quarter breakdown.

Discussion

The current study integrated aspects from two theories of risk, the GPCSL model (Bonta & Andrews, 2017) and the risk factor protection paradigm (Farrington *et al.*, 2008), to address two hypotheses. The first hypothesis held that perceived parental knowledge and moral agency would each exert a protective effect on future offending by interacting with an identified risk factor (i.e., prior delinquency), thereby reducing the criminogenic effect of this well-documented risk factor on subsequent delinquency. Crossing two predictors (parental knowledge, moral agency) with two outcomes (Delinquency-2, Delinquency-3) produced four interactions. Only one of these interactions was significant and it was more consistent with a compound promotive effect than a protective effect. It should come as no surprise that protective effects did not surface in this study considering that over three-quarters of the sample reported no delinquency or very little delinquency in the year preceding the baseline survey. Testing

Table 4: Risk and Promotive Effects for Perceived Parental Knowledge, Moral Agency, and their Combination for Two Different Outcomes

Outcome = Delinquency-2	BQ	MH	WQ	Odds Ratio
Parental Knowledge-1				
Risk (WQ vs. MH)		51.6%	33.8%	1.43 [0.98–2.09]
Promotive (BQ vs. MH)	63.1%	51.6%		1.10 [0.77–1.57]
Moral Agency-1				
Risk (WQ vs. MH)		50.2%	30.5%	1.46 [1.01–2.11]
Promotive (BQ vs MH)	74.3%	50.2%		2.35 [1.59–3.47]
Combined-1				
Risk (WQ vs. MH)		52.4%	25.0%	2.25 [1.52–3.34]
Promotive (BQ vs MH)	72.5%	52.4%		1.73 [1.18–2.54]
Outcome = Delinquency-3	BQ	MH	WQ	Odds Ratio
Parental Knowledge-2				
Risk (WQ vs. MH)		48.0%	24.8%	2.08 [1.40–3.07]
Promotive (BQ vs. MH)	63.6%	48.0%		1.71 [1.19–2.46]
Moral Agency-2				
Risk (WQ vs. MH)		47.5%	24.2%	1.63 [1.07–2.49]
Promotive (BQ vs MH)	62.0%	47.5%		1.39 [0.98–1.98]
Combined-2				
Risk (WQ vs. MH)		44.4%	25.1%	1.50 [1.01–2.22]
Promotive (BQ vs MH)	70.7%	44.4%		2.40 [1.65–3.48]

Note: Percentages represent the proportion of the group reporting no offending during the follow-up; Risk/Promotive Factor = risk and promotive effects for specific risk/promotive factors; BQ = best or upper quartile of scores (promotive end of the scale); MH = middle half of scores; WQ = worst or lower quarter of scores (risk end of the scale); Odds Ratio = odds ratio followed by 95% confidence interval in brackets; N = 845.

for protective effects, it might be argued, requires a sample presenting with a much higher rate of risk than was found in the current sample, something along the lines of the Pathways to Desistance study (Mulvey, 2012).

The second hypothesis tested in this study maintained that both putative risk/ promotive factors (i.e., parental knowledge and child moral agency) would display significant risk and promotive effects (i.e., mixed effect) as predictors of change in offending status from one year to the next. This hypothesis found support in the sense that moral agency achieved a mixed effect for Delinquency-2 and a risk effect for Delinquency-3, whereas parental knowledge produced a mixed effect for Delinquency-3. It had also been hypothesized that given the youthful stature and low criminality of the

sample employed in this study that a combined effect might prove more useful than either of the individual effects upon which the combined effect was based. This aspect of the hypothesis failed to find support. Three out of eight individual effects were larger than their respective combined effects and none of the five smaller individual effects were significantly smaller than their associated combined effect as measured by non-overlapping 95% confidence intervals. The most that can be said at this point is that the combined effects were more consistent in that all four odds ratios for the combined measure were significant, compared to three out of four for moral agency, and two out of four for parental knowledge.

Although there were no significant differences between the combined and individual scales as predictors of delinquency, a potentially important and unpredicted developmental effect did surface. Moral agency was significant in the multiple regression equation predicting Delinquency-2 but not in the multiple regression equation predicting Delinquency-3. Perceived parental knowledge followed the opposite pattern—correlating significantly with Delinquency-3 but not with Delinquency-2. The classification results mirrored these patterns, with moral agency achieving a significant mixed effect in relation to Delinquency-2 and perceived parental knowledge achieving a significant mixed effect in relation to Delinquency-3. In interpreting these results we should take note of the fact that Farrington *et al.* (2008) and others (Prins *et al.*, 2021; Wong *et al.*, 2013) have discovered that risk and promotive effects frequently differ as a function of developmental stage. That could explain why moral agency predominated between Waves 1 and 2 and parental knowledge predominated between Waves 2 and 3, or as was previously stated, it could simply reflect the fact that there was significant overlap between the predictors such that only the higher correlating of the two was significant.

Implications

The current results indicate that it may be possible to integrate two of the most important practical developments in the psychology of crime within the past several decades: namely, the GPCSL perspective on criminal behavior (Bonta & Andrews, 2017) and the risk factor prevention paradigm (Farrington, 2000). With its adoption of risk, need, and responsivity (RNR) principles, the GPCSL enumerates an ever-expanding list of risk, need, and responsivity factors that can be used to reduce a person's involvement in, commitment to, and identification with a delinquent or criminal lifestyle. The risk factor prevention paradigm, on the other hand, provides a useful heuristic for identifying protective factors and differentiating between risk and promotive effects. According to this model, a variable could serve as a risk-based protective factor, an interactive protective factor, a risk factor, or a promotive factor (Farrington *et al.*, 2016).

In the current study, two variables from the GPSCL's "central eight"—a family-based dynamic variable (parental knowledge), and a child-based variable (moral agency)—were evaluated with respect to their potential as interactive protective factors, risk factors, and promotive factors.

Strategies designed to reduce a child's propensity for delinquency can be grouped into two broad categories: environmental strategies and competence building strategies (Walters, 2022b). Environmental strategies are designed to alter the structure and function of a child's environment in an effort to reduce the risk of delinquency and reinforce counter-delinquency thoughts and behaviors. The promotive and risk effects of parental knowledge would appear to lend themselves to interventions designed to change environments in ways that reduce risk and promote positivity. Development of a strong parent-child relationship, a precondition for better-quality parental knowledge (Stattin & Kerr, 2000), could perhaps be realized by making family-friendly changes in work and government policy that reduce family stress and keep parents together (Siu *et al.*, 2010). The promotive effects of high parental knowledge could similarly be enhanced by recognizing, reinforcing, and encouraging parents who display a reasonable degree of interest in the activities and whereabouts of their children (Silverman & Caldwell, 2005). The risk presented by low parental knowledge, on the other hand, could be reduced by teaching parents how to monitor their child's behavior without being overly intrusive (Lee *et al.*, 2020).

Competence building strategies are designed to build competencies in a person rather than change their environment. This approach could be used with both the risk and promotive effects observed with parental knowledge and moral agency. Parental knowledge can be considered a shared parent-child competence. As such, improving parental knowledge is both a matter of improving disciplinary and support skills in parents and building certain competencies in the child. The types of child competencies with the greatest potential to reduce the risk of low parental knowledge and increase the positive effects of high parental knowledge would be increased child disclosure. In children who disclose very little to their parents (risk factor), this might entail removing obstacles (e.g., disinterest, discomfort, inadequate social skills) that stand in the way of a child's willingness to self-disclose. In children with moderate to high levels of self-disclosure (promotive factor), this might entail encouraging the child to engage in even more self-disclosure. With respect to moral reasoning, the risk of weak moral reasoning could be reduced and future delinquency prevented with a cognitive-behavioral intervention that teaches the child how to challenge the neutralization beliefs that give rise to weak moral agency (Mitchell & Tafrate, 2012). Moral habilitation training (Tuck & Glenn, 2020), by contrast, would seem to be better suited to enhancing the promotive effect of strong moral reasoning.

Limitations

Sample size and the use of a longitudinal research design with prospective data are two of the principal strengths of this study. These strengths need to be considered in light of several study limitations, however. One such limitation is that we were unable to examine risk-based protective factors. Farrington *et al.* (2016) define risk-based protective factors as variables that predict a low rate of offending in a group of individuals at high risk for delinquency or criminality. According to Farrington *et al.*, studies on risk-based protective factors require a relatively large sample of high-risk individuals, something that could not be obtained in the current study. For one, participants were relatively young, with an average age that was just slightly over 11 years, and so had fewer opportunities for crime than would have been the case had the sample been older. For another, these children were not selected for their involvement in the juvenile justice system and nearly two-thirds had no prior (Wave 1) delinquent involvement, and more than half had no subsequent (Waves 2 and 3) delinquent involvement. A related limitation is that because the current study used a non-representative sample from a single middle school the generalizability of the results is unknown.

Conclusion

As was mentioned earlier, the current findings illustrate the compatibility and potentially integratability of the GPCSL perspective on criminal behavior and the risk factor prevention paradigm on crime. Bonta and Andrews' (2017) GPCSL seems an ideal vehicle for identifying potential risk and promotive factors, whereas the risk factor prevention paradigm espoused by Farrington (2000) offers a means by which these risk and promotive factors can be compared, evaluated, and verified. The GPCSL helps identify potentially important risk, need, and responsivity factors; the risk factor prevention paradigm, on the other hand, illustrates how these variables can be assessed with respect to their protective, risk, and promotive potential. That these effects exist within a developmental context is apparent from some of the results obtained in this study (e.g., combining factors when attempting to evaluate risk/promotive factors in early adolescents and the possibility that risk/promotive factors may differ by developmental stage), all of which require further investigation.

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