Meta-Analysis of Longitudinal Studies to Identify the Risk Factors Most Predictive of Later Antisocial Behavior

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General Criteria for Studies Included in the Meta-Analysis

- Prospective longitudinal panel studies.

- Majority of the subject sample under age 19 at the first wave of measurement; restricted to 14 or under for this analysis.

- Participant sample represents the general population or a population distinguished only by general indicators of risk, e.g., sex, race, SES, previous ASB, conduct disorder.

- Study reports on the relationship between a predictor variable and antisocial behavior measured at a later time.

- Conducted in the U.S. with the earliest study report published in English after 1950. No exclusions based on type of publication, characteristics of the researchers, or method features other than those identified above.

Major Types of ASB Outcomes (Measured Between Ages 12 and 20)

Delinquent and aggressive/disruptive behavior:

- delinquent or illegal behavior*
- interpersonal aggression, intentional violence
- general externalizing and undifferentiated problem behavior

  * Target outcome at age 16

Major Categories of Predictor Variables (Measured Between Ages 6 and 14)

	Studies	Samples	ESs
Prior ASB			
Delinquency	41	69	415
Externalizing	50	85	497
Substance use orientation	11	15	138
Substance use	6	6	17
Personal characteristics			
Internalizing	23	36	97
Self-esteem	14	25	81
Emotional regulation	7	7	24
Attention-activity	7	10	43
Overall problems	7	14	39

Major Categories of Predictor Variables (continued)

	Studies	Samples	ESs
Family factors			
Parenting practices	18	26	341
Parental warmth	17	28	187
Family functioning	15	17	42
Social relations			
Sociability	18	21	91
Social self-concept	8	14	33
School behavior			
Academic performance	27	40	159
School participation	5	6	11
School adjustment	15	29	222

We Fit a Regression Model for Each Category of Predictor Variables

Dependent Variable: T1 Risk-T2 Outcome correlation

Independent Variables:

- Sample size (logged)
- Attrition, T1 to T2
- Age, sample mean at T1
- Time interval, T1 to T2
- Time interval squared
- T1 measure: questionnaire (vs. other)
- T1 informant: parents vs. teachers vs. peers vs. multiple
- T1 measure: number of items
- T1 measure: scaling (dichotomous vs. continuous)
- T1 & T2 informant different (vs. same)
- T1 & T2 N of items different (vs. same)
- T1 & T2 scaling: different (vs. same)
- Risk level of sample
- Percent male
- Predominant ethnicity
- Outcome variable: delinquency (vs. externalizing, aggression)

Example: Predicting the T1 Prior Delinquency/T2 Delinquency Correlation

Independent Variable	Coefficient	
Constant	.553	
Sample size (logged)	-.053*	
Attrition, T1 to T2	-.178*	
Age, sample mean at T1	.001	
Time interval, T1 to T2	-.007*	
Time interval squared	.001*	
T1 measure: questionnaire	.052*	
T1 informant: peers	.116*	
T1 informant: records	-.075*	
T1 measure: number of items	.074*	
T1 measure: scaling	.017*	
T1 & T2 informant different	-.160*	
T1 & T2 N of items different	.070*	
T1 & T2 scaling: different	-.014	
Risk level of sample	-.003	
Percent male	.017	
Predominant ethnicity white	.035*	
Outcome variable: delinquency	-.049*	* $p<.10$

Example: Predicting the T1 Prior Delinquency/T2 Delinquency Correlation

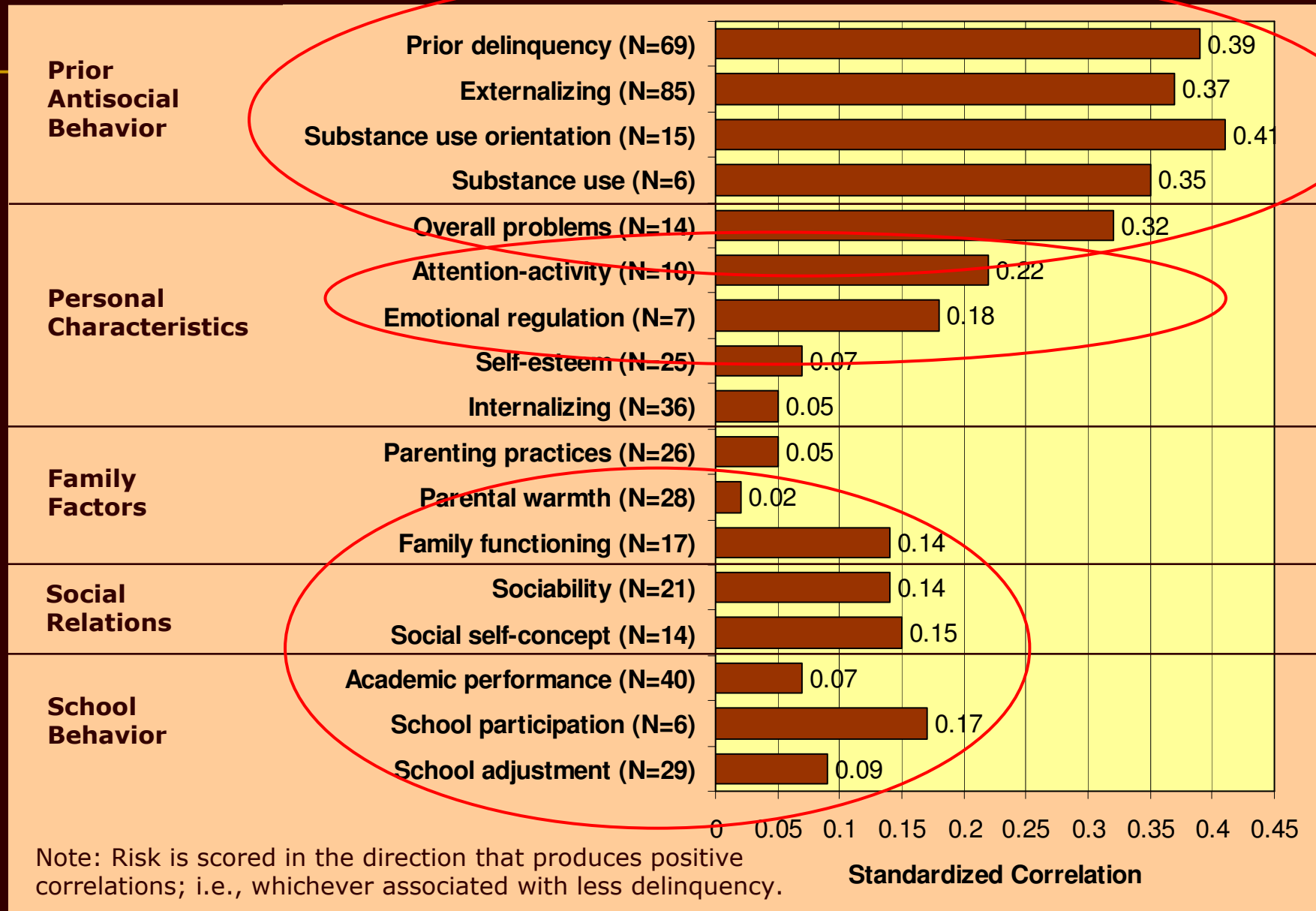| Independent Variable		Coefficient
Constant	[include]	.553
Sample size (logged)	[median N=300]	-.053
Attrition, T1 to T2	[0=no attrition]	-.178
Age, sample mean at T1	[10 years]	.001
Time interval, T1 to T2	[72 mo = 6 years]	-.007
Time interval squared	[square in months]	.001
T1 measure: questionnaire	[1=Yes, Q used]	.052
T1 informant: peers	[0=No, self report]	.116
T1 informant: records	[0-No, self report]	-.075
T1 measure: number of items	[2=multiple]	.074
T1 measure: scaling	[4=continuous]	.017
T1 & T2 informant different	[0=no diff]	-.160
T1 & T2 N of items different	[0=no diff]	.070
T1 & T2 scaling: different	[0=no diff]	-.014
Risk level of sample	[5=individual risk]	-.003
Percent male	[.50= 50/50 mix]	.017
Predominant ethnicity white	[4=mainly Anglo]	.035
Outcome variable: delinquency	[1=delinquency]	-.049

Magnitude of T1-T2 Correlation Between Prior and Later Delinquency

Correlation from regression prediction ("standardized correlation")= .39

Distribution of N=385 observed correlations:

Mean	.37
25th percentile	.22
Median	.37
75th percentile	.50

Standardized Correlations: Risk at Age 10 Predicting Delinquency at Age 16

Summary

- A large number of longitudinal studies provide data on predictors of delinquency and related forms of antisocial behavior

- T1 Risk-T2 Outcome correlations, standardized for comparability, show:

  - Prior antisocial behavior variables are the strongest predictors of later delinquency, including early substance use

  - Self-regulation variables are under-studied but show relatively large correlations

  - Some social, family, and school variables show modest correlations but, overall, these categories of predictors are not strong.

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