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Identifying the Predictors of Pretrial Failure: A Meta-Analysis

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IN 2004, THE NATIONAL Association of Pretrial Services Agencies (NAPSA) published its third edition of the Standards of Pretrial Release. Standard 3.7 suggests that effective pretrial programs and operations have multiple characteristics, one of which is the use of a pretrial risk assessment tool. The past three decades have seen an ongoing effort in both pretrial programs and agencies and correctional settings to establish the importance of pretrial risk assessment tools in evaluating the potential risk of failure to appear or more seriously, risk to public safety. While there are still pretrial recommendations based solely on professional judgment rather than on a valid pretrial risk assessment instrument, NAPSA's Standard 3.7 certainly indicates the movement toward evidence-based practices in pretrial as a result of the research on best practices. In particular, findings from multiple studies have repeatedly demonstrated that actuarial risk assessments have a higher predictive validity than clinical or professional judgment alone (Latessa and Lovins, 2010; Ægisdóttir, White, Spengler et al., 2006; Andrews, Bonta, and Wormith, 2006; Grove, Zald, Lebow, Snitz and Nelson, 2000; Meehl, 1954).

These studies have certainly encouraged the use of pretrial risk assessments, but several issues have arisen related to implementation and evaluation that have left a noted gap in the literature. First, some jurisdictions have selected tools that are either developed or validated on a different population without fully considering their target population's characteristics and what pretrial risk predictors are significantly correlated with pretrial failure. Second, jurisdictions often do not consistently use a structured pilot plan designed to address the implementation of the instrument and to monitor the fidelity of its administration. Third, pretrial agencies may not always prepare for a future evaluation of the instrument's predictive validity. In many cases, these concerns may be due to the high demands of the initial training of a new instrument, addressing the cultural shift toward supporting the use of a pretrial risk assessment instrument and then meeting the overall goal of assessing the defendants and making an overall recommendation of pretrial

supervision or detainment.

Pretrial services officers work within a short time period to collect reliable information about a defendant and make recommendations to the court concerning pretrial release and possible needs to be addressed during supervision; given such time constraints, the use of a predictive, objective, and reliable pretrial risk assessment tool is critical to streamlining this process. In addition, NAPSA's Standard 3.4 emphasizes the importance of incorporating information from the pretrial risk and needs assessment into a pretrial investigation report. Specifically, NAPSA recommends that such information "include factors shown to be related to the risk of nonappearance or of threat to the safety of any person or the community and to selection of appropriate release conditions" (NAPSA, 2004, p. 71). Many of the factors suggested for inclusion in a pretrial investigation report are (not surprisingly) also found on pretrial risk and needs assessment instruments. These include:

1. Defendant's age

2. Employment current status and history

3. Residential history, current status, and community ties

4. Criminal justice history, including if the defendant is on any active pretrial, probation, or parole supervision

5. Current offense severity

6. Financial history and current financial resources

7. Physical and mental health history and current status

8. Substance abuse needs

9. Previous court appearance history (NAPSA, 2004).

The purpose of the current study is to empirically examine what risk factors are statistically associated with various measures of pretrial failure. The authors conducted a meta-analysis to identify these risk factors and to determine if some of the factors more commonly assumed to be associated with pretrial failure are actual risks. This report will be divided into the following sections: a detailed description of the methodology for this meta-analysis, findings, limitations, and last, policy implications.

Methodology

Conducting this meta-analysis took multiple steps. First, we exhaustively reviewed both published and unpublished literature on pretrial risk assessments and risk factors of pretrial. To do so, we first pulled all published scholarly work from an academic library's online abstracting resources. We searched for key title and subject phrases, such as requesting articles that included "pretrial risk assessment," "pretrial risk," and "failure to appear" in the title or in the content of the journal article. Next we took the ancestry approach, which identified additional research papers and articles by reviewing the references and citations of the articles already extracted. We then conducted an internet search using the same key title and subject phrase searches along with identifying and examining pretrial agency websites to locate research or studies related to pretrial risk that have been conducted on their populations. Most of these specific agency searches yielded studies related to the validation of a pretrial risk assessment tool administered by that jurisdiction. Finally, we directly communicated with researchers in the field who have conducted studies associated with the evaluation of pretrial risk assessments to identify any unpublished work.

The next step for this meta-analysis was the development of a coding guide for reviewing all of the located research. This coding guide both helped establish eligibility for the study to be included in the meta-analysis and coded the necessary variables to conduct the statistical analysis and calculate the individual and overall effect sizes.[1] Variables in the coding guide were:

- Publication information (published or unpublished studies, funding source, author affiliation)
- Sample demographics (sex, race, age, mental health, and sample size)
- Pretrial risk assessment type(s) and pretrial predictors—which included calculating effect sizes for predictors as well as the overall assessment(s) if applicable.
- Follow-up and recidivism – which specifies the length of time for the follow-up period and the types of recidivism measured in the study.

There were four primary eligibility criteria for this meta-analysis. Each included study: (1) contained at least one outcome measure of recidivism for a pretrial sample, (2) presented the statistics necessary to calculate an effect size, (3) was conducted in the United States, and (4) was published or reported after 1960. Often, studies were excluded because they presented only findings from binary multivariate logistic regression models. The coefficients from these models do not allow for calculating an effect size. For two such studies, we communicated directly with the original authors, who provided statistics that allowed us to calculate an effect size, thereby making these studies eligible for inclusion in the meta-analysis.[2] We noted methodological rigor of these studies in the database, since there were often missing data on sample demographics and follow-up time periods and minimal methodological descriptions in the individual studies.

Given the number of pretrial risk assessments that were reviewed, with a variety of static and dynamic domains and items included for each specific instrument, it was necessary to list and calculate effect sizes for each possible pretrial risk factor and an effect size for the instrument. In addition, we created broad categories for all of these various items in the database. These included: demographics, criminal history, personal achievement, residential status, substance abuse, mental health, and other. We calculated effect sizes for items and these categories based on the outcome measures reported in their respective studies. Further, we examined several outcome measures across the studies, in particular failure to appear, re-arrest, new crime, and any failure. Any failure was used as a measure in several studies and was typically a combined recidivism measure that incorporated two or more outcome measures for a study.

Analytical Design

The statistical analysis for this study is straightforward: we calculated random effects models. (We chose the random effects model, rather than a fixed model, since we assumed that these studies pulled samples from different populations, examined different pretrial risk assessment tools with unique risk factors, and examined a variety of outcome measures. As such, the random effects model suggests that these variations across studies could have an impact on the overall effect size.[3])

The effect sizes calculated for each individual pretrial risk predictor were Pearson's r correlation coefficients. Pearson's r values can range from -1 to 1. A coefficient of -1 suggests a perfect negative relationship and a coefficient of 1 suggests a perfect positive relationship. A value of 0 indicates that there is no linear relationship. To interpret the correlation, a positive value would be interpreted as an increase in the first variable followed with an increase in the second variable. A negative relationship then would be interpreted as an increase in the first variable followed with a decrease in the second variable. Specifically, we performed these calculations for all individual predictors, the broad categories described above, the instrument, collective static or collective dynamic items, and then overall. As previously stated, these analyses are repeated for each outcome.

In order to calculate confidence intervals around Pearson's r, a z statistic was calculated.[4] This was done by converting r to z-scores, using the Fisher's r to z transformation.[5] The lower and upper limit confidence intervals around r and significance (p) values are reported. To interpret confidence intervals, the following guidelines are suggested:

- The smaller the range ($<.10$) between the upper and lower limit, the greater should be the confidence in the effect size value.
- The larger the range ($>.10$) between the upper and lower limits, the more cautiously the effect size should be interpreted.

- Similar to significance testing, the confidence interval can also suggest that the effect size is significantly correlated. If the range would include 0, then it would **not** be considered significant.

Eligible studies' sample sizes ranged from 162 defendants to 202,859 defendants. Given this range in sample sizes, we had to address the potential for sampling bias, since the effect size from the larger studies might mask the effect size from studies with the smaller sample size.

Findings

There were 33 studies identified for review in the meta-analysis. Of these, 13 studies (k =13) were eligible for inclusion in the meta-analysis. Of these 13 studies, there were six pretrial risk assessment instruments with the necessary statistics reported to calculate an effect size.[6] These findings are presented by outcome measures. Results are provided in tabular format. Individual pretrial risk predictors will be presented first, then categories of risk, followed by static and dynamic factors, and the overall effect size.

Re-arrest

Table 1 presents the individual pretrial risk predictors' effect sizes of re-arrest. Risk items with the strongest significant correlations include: age, community supervision violation, failure to appear, injury to victim, instrument, jail incarcerations, prior conviction, prior felony, prior misdemeanors, prior violence, property, or drug and weapon. Regarding direction, the positive correlations for community supervision violation, failure to appear, instrument, jail incarcerations, prior conviction, prior felony, prior misdemeanors, prior violence, property, or drug appear to be in the expected direction. For example, having one or more community supervision violations was significantly correlated with experiencing pretrial re-arrest. Similarly, having one or more prior jail incarcerations was significantly related to pretrial re-arrest. In contrast, the significant association between having a weapon involved in the current offense and pretrial re-arrest is a negative relationship. As such, having weapons in the current offense does not appear to be a significant risk of pretrial re-arrest. Further, if the victim is injured, this correlates significantly with re-arrest, but not in the expected direction. Likewise, age shows a positive relationship with pretrial re-arrest, but not in the expected direction of younger defendants experiencing pretrial re-arrest.[7] Rather, this finding suggests that older defendants are more likely to experience re-arrest. Pretrial risk predictors that were not found to be significantly correlated with re-arrest included estimate,[8] family, having pending cases, residence length, robbery as a current offense, and work/employment. It appears that most of the significant predictors of pretrial re-arrest are static rather than dynamic predictors.

Table 2 depicts the effect sizes for the six risk categories below. Based on these findings, criminal history, demographics, and the instrument overall are significantly correlated with pretrial re-arrest.[9] Measures of personal achievement were not significantly related to pretrial re-arrest. Similar to the findings for individual predictors, the most strongly correlated risk categories capture static risk factors.

Table 3 provides the effect size for static and dynamic predictors, for the instrument and the overall average effect size. Static predictors appeared to have a stronger association with pretrial re-arrest than dynamic. Overall, the five pretrial risk assessments appeared to have a significant correlation with pretrial re-arrest and this is close to a moderate strength.[10] The ranges between the lower and upper limits of the confidence intervals were quite narrow. With 59 effect sizes included in the analysis to examine the overall average effect size, the correlation, while significant, is rather weak.

Failure to appear

Table 4 reports the effect sizes for the individual pretrial risk predictors of failure to appear. Risk items with the strongest significant correlations included age, estimate, failure to appear, instrument, juvenile arrests, prior conviction, prior jail, property or drugs, and victim injury. Other than age and victim injury, these significant risk items were in the expected direction. Pretrial risk items that were not significantly correlated with failure to appear are: alcohol,

communication, community supervision violation, current felony, gender, residence verified, and current violent offense.

Table 5 presents the risk category effect sizes for failure to appear. All categories but substance abuse were found to be significantly correlated with failure to appear. Demographics, estimate and the five instruments had the strongest correlations with failure to appear and these three were in the expected direction.

Table 6 depicts the effect sizes for the collective static and dynamic predictors, the instruments, and the overall average effect size. With 120 predictors examined overall for failure to appear, the correlation is rather weak at .07. The pretrial risk assessment instruments appear to have the strongest correlation at .19, which would be of moderate strength.

Table 7 describes the effect sizes for the individual pretrial risk predictors and the outcome measure, new crime.[11] Risk items with the strongest significant correlations of new crime were: alcohol, criminal history, failure to appear, juvenile arrests, prior felonies, prior misdemeanors, and transportation. The relationship between alcohol and new crime was negative, while the other risk items were in the expected direction. Risk items that were not significantly correlated with new crime were age, family, felony (current offense), residence length, residence verification, weapon with the current offense, and work.

New Crime

Table 8 presents the effect sizes for new crime. Criminal history was the only significant risk category for new crime and was in the expected direction. Demographics, other, residence, and substance abuse were not significant pretrial risk categories for new crime.

Table 9 provides the findings for static and dynamic predictors and overall effect size for new crime. Collectively, static risk predictors had the strongest significant correlation, but this was a relatively weak correlation overall.

Any Failure

This last series of tables examines pretrial risk predictors of any failure. The strongest significant correlations (see Table 10) are for the following risk items: prior failure to appear, the instruments, juvenile arrests, pending cases, prior arrests, prior felonies, and prior misdemeanors. Each of these risk predictors was in the expected direction. Similar to earlier risk item tables, it would appear that these items are primarily static, rather than dynamic risk factors. Risk items that were not significant included: alcohol with the current offense, communication, medical, mental health, race, transportation, violence, and work.

Table 11 displays effect sizes of the collective risk categories for any failure. Significant risk categories included criminal history, the six risk assessment instruments, personal achievement, residence, and substance abuse. However, with the 38 effect sizes examined for criminal history and any failure, this appears to have the strongest correlation overall. Demographic, mental health, or other categories were not found to be significantly correlated with any failure.

Table 12 presents the effect sizes for the collective static and dynamic predictors, the instruments, and the overall effect size. Specifically, static predictors and the instruments were found to be the strongest correlates of any failure. While all of these risk predictors are significant, the correlations overall are rather weak, although they are moving toward moderate strength (Rice and Harris, 2005).

To briefly summarize, the purpose of this meta-analysis was twofold. The first goal was to empirically identify what risk predictors of pretrial are statistically associated with various measures of pretrial failure. The second intent of the study was to identify if there were commonly collected pretrial factors that may not be statistically associated with pretrial failure after a review of the existing research. The measures of pretrial failure included re-arrest, failure to appear, new crime, and any failure. Based on these findings, very few correlations were strong predictors of pretrial failures. Those risk items with the strongest correlations that were also in the expected direction are primarily static indicators, such as prior convictions, prior felonies, prior misdemeanors, prior failure to appear, and juvenile arrests. The pretrial risk assessments were found to be significant as well and in the proper direction, suggesting that

increase in pretrial risks was significantly correlated with pretrial failure outcomes. To address the final goal for this meta-analysis, multiple risk predictors were examined. While there were insignificant predictors, several measures that are commonly gathered for pretrial but were either found to be in the wrong direction or were consistently not significantly associated with pretrial failures were: 1) residency, 2) injury to victim, 3) weapon, and 4) alcohol.

Limitations

Several limitations of this meta-analysis are worth noting. First, many studies were not included, primarily because these studies presented only the findings from multivariate regression models that should not be calculated into effect sizes. Second, some studies reported only presented the statistics necessary for calculating an effect size for the overall instrument, but not for the individual risk items, or vice versa. Third, it is likely that some studies still have not been located, especially for pretrial programs that have completed internal predictive validation studies within their respective departments. Fourth, the methodological rigor for the studies reviewed and even for those included varied. This may have impacted the overall effect sizes that were calculated. Fifth, as mentioned previously, the range in individual study sample sizes was rather large; even with weights, this could potentially influence the overall average effect sizes.

Policy Implications

This study should be considered preliminary in examining pretrial risk predictors. Given the limitations previously discussed, these findings must be taken within the context of these issues. However, within that framework, several policy implications can be considered.

- Administering pretrial risk tools should continue. While the correlations for the instruments examined in this meta-analysis were near moderate strength, these effect sizes were the average correlation for these instruments collectively (Rice and Harris, 2005). The range of correlations for the individual assessments from their respective studies extended from .08 to .28.
  - These assessment tools should be validated on the population being served and the risk level cutoffs for these instruments should be normed.
  - Reliability studies should be conducted for agencies that have implemented a pretrial risk assessment instrument. Such studies would evaluate whether those administering the tool do so with fidelity and whether they score a given defendant similarly to other trained officers.
- Residency, weapons, alcohol, and victim injury may still be risk items for pretrial failure. However, future research should explore whether or not these factors are consistently related to nonappearance or risk to public safety.
- For future research to continue to examine these goals, reports examining pretrial risk predictors or the validation of pretrial risk assessment tools should be published or publicly disseminated.
- Research on pretrial risk factors and assessment tools should report the necessary statistics to allow for the calculation of effect sizes.

Identifying the Predictors of Pretrial Failure: A Meta-Analysis

Appendix

Pretrial Predictors Meta-Analysis Coding Guide
Last revised: January 4, 2011

Coding Information

CODE 1:   **DATE OF CODING**

CODE 2:   **NAME OF CODER**

1   Chris Lowenkamp

2   Alex Holsinger

3   Kristin Bechtel

PUBLICATION INFORMATION

PUB 1:   **TYPE OF PUBLICATION**

1   journal

2   book

3   report

4   conference poster/presentation

5   thesis/dissertation

6   unpublished data

7   on-line article

9   MISSING

PUB 2:   **DECADE OF PUBLICATION OR**
                    DATE DATA GENERATED

1   1960s

2	1970s
3	1980s
4	1990s
5	2000 to present
9	MISSING

PUB 3:   STATUS OF PUBLICATION

1	yes
2	no
3	MISSING

PUB 4:   DISCIPLINE OF SENIOR AUTHOR

1	criminal justice
2	economics
3	education
4	political science
5	psychiatry/medicine
6	psychology
7	social work
8	sociology
9	MISSING
10	other

PUB 5:   AFFILIATION OF SENIOR AUTHOR

1	academic institution
2	government unit or agency
3	program
4	research firm or consultant
5	other
9	MISSING

PUB 6:   SOURCE OF FUNDING

1	agency/organization
2	federal/state/local government
3	funded, unknown source
9	MISSING

Pretrial Agency

AGENCY 1:   JURISDICTION

1   local

2   federal

3   other

Sample Demographics

AGE1:   MEAN AGE OF SAMPLE

SEX 1:   PERCENT MALE

RACE: RACE OF SAMPLE (≥ 80%)

1   White

2   Black

3   Hispanic

4   Asian

5   Native

6   mixed

9   MISSING

MDO: Mentally Disordered Offenders (≥ 80%)

1   yes

2   no

3   mixed

9   MISSING

Follow-Up Information

**FOL 1:   AVERAGE LENGTH OF FOLLOW-
                UP IN DAYS**

Effect Size Table						
	FTA		ARREST		MISCONDUCT	
Variable	R	N	R	N	R	N

Identifying the Predictors of Pretrial Failure: A Meta-Analysis

Tables

Table 1.

Effect sizes for re-arrest—Individual pretrial risk predictors

Risk Item	# Effect Sizes	Correlation	Lower Limit Ci	Upper Limit Ci	Z	*P* Value
Age	1	0.17	0.07	0.27	3.16	0.00
Alcohol	3	0.08	0.05	0.11	5.22	0.00
Communication	1	-0.07	-0.08	-0.06	-13.75	0.00
Community supervision violation	5	0.16	0.09	0.23	4.64	0.00
Custodian/Co-signer	1	0.05	0.04	0.06	8.24	0.00
Drug	6	0.06	0.02	0.11	2.61	0.01
Estimate	1	0.02	-0.06	0.10	0.49	0.62
Family	2	-0.07	-0.30	0.16	-0.59	0.56
Felony degree	1	0.11	0.10	0.12	18.17	0.00
FTA	8	0.13	0.09	0.18	5.54	0.00
Injury to victim	1	-0.29	-0.36	-0.22	-7.31	0.00

Instrument	5	0.17	0.16	0.19	30.72	0.00
Jail incarcerations	1	0.26	0.16	0.36	4.90	0.00
Mental health	4	0.10	0.07	0.12	7.92	0.00
Motivation	1	0.09	0.08	0.10	16.44	0.00
Pending cases	2	0.04	-0.14	0.21	0.45	0.66
Prior conviction	1	0.14	0.10	0.18	6.99	0.00
Prior felony	2	0.14	0.09	0.18	5.69	0.00
Prior misdemeanors	1	0.18	0.17	0.19	29.95	0.00
Prior violence	2	0.14	0.13	0.15	24.51	0.00
Property or drugs	1	0.16	0.08	0.24	3.95	0.00
Residence length	2	-0.10	-0.43	0.25	-0.55	0.59
Residence verified	2	-0.08	-0.09	-0.07	-15.14	0.00
Robbery	1	0.01	-0.07	0.09	0.24	0.81
Weapon	1	-0.21	-0.29	-0.13	-5.22	0.00
Work	3	0.06	-0.08	0.21	0.85	0.39

Table 2.

Effect sizes for re-arrest—Risk categories

Risk Category	# Effect Sizes	Correlation	Lower Limit CI	Upper Limit CI	Z	*P* value
Criminal History	27	0.11	0.09	0.14	8.30	0.00
Demographics	1	0.17	0.07	0.27	3.16	0.00
Instrument	6	0.16	0.11	0.20	6.52	0.00
Other	7	0.06	0.02	0.11	2.59	0.01
Personal Achievement	3	0.06	-0.08	0.21	0.85	0.39
Residence	6	-0.07	-0.11	-0.02	-2.85	0.00
Substance Abuse	9	0.08	0.05	0.10	5.03	0.00

Table 3.

Effect size for re-arrest—Static and dynamic predictors, instrument and overall effect size

Risk Predictors	# Effect Sizes	Correlation	Lower Limit CI	Upper Limit CI	Z	*P* value
Dynamic	26	0.03	0.00	0.06	2.00	0.05
Static	28	0.11	0.09	0.14	8.52	0.00
Instrument	5	0.17	0.16	0.19	30.72	0.00
Overall Avg. ES	59	0.08	0.06	0.10	6.93	0.00

Table 4.

Effect size for failure to appear—Individual pretrial risk predictors

Risk Item	# Effect Sizes	Correlation	Lower Limit CI	Upper Limit CI	Z	P value
Age	3	0.15	0.04	0.26	2.59	0.01
Alcohol	4	-0.02	-0.09	0.05	-0.49	0.62
Communication	3	0.01	-0.05	0.07	0.45	0.65
Community supervision violation	11	0.03	-0.03	0.08	0.91	0.36
Criminal history	3	0.08	0.05	0.11	4.95	0.00
Custodian/Co-signer	2	0.04	0.03	0.05	6.71	0.00
Drug	7	0.04	0.01	0.07	2.75	0.01
Education	6	0.10	0.02	0.19	2.34	0.02
Estimate	1	0.14	0.06	0.22	3.45	0.00
Family	5	0.05	0.02	0.09	2.72	0.01
Felony	3	-0.06	-0.28	0.17	-0.49	0.62
FTA	13	0.20	0.17	0.22	16.96	0.00
Gender	1	0.06	-0.03	0.15	1.24	0.21
Instrument	5	0.21	0.12	0.29	4.55	0.00
Juvenile arrests	1	0.13	0.12	0.14	24.51	0.00
Mental health	5	0.02	0.00	0.04	1.95	0.05
Motivation	1	-0.01	-0.02	0.00	-1.82	0.07
Pending case	8	0.11	0.02	0.20	2.39	0.02
Prior Conviction	1	0.20	0.16	0.24	10.06	0.00
Prior felony	3	0.11	0.06	0.16	4.33	0.00
Prior jail	1	0.31	0.21	0.40	5.90	0.00
Prior misdemeanors	4	0.11	0.08	0.14	6.90	0.00
Prior violence	3	0.04	0.02	0.07	3.35	0.00
Property or drugs	1	0.21	0.13	0.29	5.22	0.00
Residence length	5	0.07	0.02	0.12	2.55	0.01
Residence verified	2	0.09	-0.17	0.35	0.68	0.50
Transportation	1	0.13	0.12	0.14	24.51	0.00
Victim injury	2	-0.25	-0.46	-0.01	-2.04	0.04
Violent	2	0.02	-0.07	0.12	0.44	0.66
Weapon	3	-0.12	-0.25	0.01	-1.78	0.07
Work	10	0.06	0.01	0.11	2.21	0.03

Table 5.

Effect sizes for failure to appear—Risk categories

Risk Category	# Effect Sizes	Correlation	Lower Limit CI	Upper Limit CI	Z	*P* value
Criminal History	59	0.08	0.06	0.11	6.21	0.00
Demographics	4	0.13	0.03	0.22	2.64	0.01
Estimate	1	0.14	0.06	0.22	3.45	0.00
Instrument	5	0.21	0.12	0.29	4.55	0.00
Other	12	0.03	0.00	0.06	2.15	0.03
Personal Achievement	16	0.08	0.03	0.12	3.02	0.00
Residence	12	0.06	0.03	0.10	3.29	0.00
Substance Abuse	11	0.02	-0.02	0.05	0.91	0.36

Table 6.

Effect size for failure to appear—Static and dynamic predictors, instrument and overall effect size

Risk Predictors	# Effect Sizes	Correlation	Lower Limit CI	Upper Limit CI	Z	*P* value
Dynamic	51	0.05	0.03	0.07	4.64	0.00
Static	63	0.08	0.06	0.11	6.73	0.00
Instrument	6	0.19	0.12	0.27	5.01	0.00
Overall Avg. ES	120	0.07	0.06	0.09	9.16	0.00

Table 7.

Effect size for new crime—Individual pretrial risk predictors

Risk Item	# Effect Sizes	Correlation	Lower Limit CI	Upper Limit CI	Z	P value
Age	3	0.15	-0.06	0.35	1.44	0.15
Alcohol	1	-0.16	-0.17	-0.15	-28.44	0.00
Communication	1	-0.02	-0.03	-0.01	-3.75	0.00
Community supervision violation	3	0.13	0.02	0.24	2.37	0.02
Criminal history	2	0.17	0.08	0.25	3.62	0.00
Drug	1	0.09	0.08	0.10	15.54	0.00
Education	6	0.12	0.00	0.24	1.95	0.05
Family	2	0.06	-0.09	0.20	0.75	0.46
Felony	2	0.02	-0.16	0.19	0.22	0.82
FTA	4	0.27	0.20	0.33	7.53	0.00
Gender	1	-0.06	-0.09	-0.03	-4.61	0.00
Juvenile arrests	1	0.21	0.20	0.22	39.96	0.00
Mental Health	1	0.11	0.08	0.14	8.36	0.00
Prior felony	1	0.28	0.27	0.29	53.93	0.00
Prior misdemeanors	1	0.23	0.22	0.24	43.91	0.00
Residence length	1	-0.01	-0.04	0.02	-0.58	0.56
Residence verify	1	0.00	-0.01	0.01	0.00	1.00
Transportation	1	0.15	0.14	0.16	28.34	0.00
Violence	1	0.03	0.02	0.04	6.35	0.00
Weapon	2	0.08	-0.09	0.24	0.89	0.37
Work	6	0.03	-0.07	0.12	0.53	0.59

Table 8.

Effect sizes for new crime—Risk categories

Risk Category	# Effect Sizes	Correlation	Lower Limit CI	Upper Limit CI	Z	*P* value
Criminal History	17	0.16	0.12	0.21	6.56	0.00
Demographics	4	0.10	-0.06	0.26	1.20	0.23
Other	3	0.08	-0.04	0.20	1.26	0.21
Personal Achievement	12	0.07	-0.01	0.15	1.79	0.07
Residence	4	0.03	-0.06	0.11	0.59	0.56
Substance Abuse	2	-0.04	-0.27	0.21	-0.28	0.78

Table 9.

Effect size for new crime—Static and dynamic predictors, and overall effect size

Risk Predictors	# Effect Sizes	Correlation	Lower Limit CI	Upper Limit CI	Z	*P* value
Dynamic	21	0.05	0.00	0.11	1.94	0.05
Static	21	0.15	0.11	0.20	6.41	0.00
Overall Avg. ES	42	0.10	0.06	0.14	5.15	0.00

Table 10.

Effect size for any failure—Individual pretrial risk predictors

Risk Item	# Effect Sizes	Correlation	Lower Limit CI	Upper Limit CI	Z	P value
Age	2	0.07	0.04	0.09	4.35	0.00
Alcohol	6	0.00	-0.07	0.08	0.12	0.90
Citizenship	1	0.07	0.07	0.07	31.36	0.00
Communication	3	0.04	-0.03	0.11	1.08	0.28
Community supervision violation	9	0.13	0.09	0.18	5.36	0.00
Custodian/Co-signer	1	0.05	0.04	0.06	8.24	0.00
Drug	7	0.11	0.09	0.14	8.33	0.00
Education	8	0.11	0.05	0.16	3.84	0.00
Estimate	1	0.11	0.11	0.11	49.47	0.00
Family	1	0.09	0.08	0.10	16.92	0.00
Felony	4	0.07	0.03	0.11	3.34	0.00
FTA	6	0.17	0.11	0.22	5.74	0.00
Gender	3	-0.07	-0.13	0.00	-1.96	0.05
Instrument	5	0.16	0.14	0.19	14.37	0.00
Juvenile arrests	1	0.19	0.18	0.20	36.05	0.00
Medical	2	-0.03	-0.09	0.03	-1.00	0.32
Mental Health	6	0.04	0.00	0.09	1.80	0.07
Motivation	1	0.05	0.04	0.06	9.12	0.00
Pending cases	5	0.15	0.11	0.19	7.54	0.00
Prior arrests	2	0.23	0.17	0.28	7.46	0.00
Prior felony	5	0.17	0.10	0.24	4.63	0.00
Prior misdemeanors	3	0.14	0.08	0.20	4.22	0.00
Prior violence	1	0.11	0.10	0.12	18.17	0.00
Race	2	0.43	-0.41	0.87	1.00	0.32
Residence length	1	0.09	0.05	0.13	4.00	0.00
Residence verified	5	0.05	0.00	0.09	2.11	0.03
Transportation	3	0.08	-0.06	0.22	1.17	0.24
Violence	1	0.00	-0.01	0.01	0.00	1.00
Weapon	1	0.11	0.10	0.12	23.38	0.00
Work	13	0.04	0.00	0.09	1.88	0.66

Table 11.

Effect size for any failure—Risk categories

Risk Category	# Effect Sizes	Correlation	Lower Limit CI	Upper Limit CI	Z	p value
Criminal History	38	0.14	0.12	0.16	14.33	0.00
Demographics	8	0.11	-0.18	0.39	0.76	0.45
Instrument	6	0.15	0.11	0.19	7.82	0.00
Mental Health	6	0.04	0.00	0.09	1.80	0.07
Other	9	0.04	-0.02	0.10	1.42	0.16
Personal Achievement	21	0.07	0.03	0.11	3.69	0.00
Residence	8	0.06	0.03	0.09	3.70	0.00
Substance Abuse	13	0.07	0.03	0.11	3.39	0.00

Table 12.

Effect size for any failure—Static and dynamic predictors, instrument, and overall effect size

Risk Predictors	# Effect Sizes	Correlation	Lower Limit CI	Upper Limit CI	Z	p value
Dynamic	57	0.06	0.04	0.08	6.31	0.00
Static	46	0.14	0.07	0.20	4.05	0.00
Instrument	6	0.15	0.11	0.19	7.82	0.00
Overall Avg. ES	109	0.10	0.07	0.13	5.97	0.00

treatment and comparison groups with respect to age and RPI score. Recall that the average RPI score for the treatment group was slightly over 7 and the average age of the treatment group members was nearly 32 years. As such, the comparison group members were lower risk in terms of age and total RPI score. Regarding race, 86 percent of the comparison group is identified as Black and 14 percent are White. According to the RPI risk categories, 15 percent of the comparison group is low risk, 24 percent are moderate risk and 61 percent are high risk. For motivation, 38 percent of the comparison group was identified as being motivated toward supervision and 62 percent were unmotivated. Based on chi-square test results, there is a significant difference between groups in this unmatched sample for race and RPI risk category.

12. Predicted probabilities were also calculated for the significant predictors of re-arrest from the multivariate model to provide specific examples of how ACE participation might affect re-arrest rates. Unmotivated, high-risk, 33-year-old offenders that did not participate in the ACE program would potentially experience a 73 percent re-arrest rate. In contrast, the re-arrest rate would be 44 percent for unmotivated, high-risk, 33-year-old offenders that did participate in ACE. A similar trend was noted for motivated offenders. More specifically, motivated, high-risk, 33-year-old offenders that did not participate in ACE would experience a 47 percent re-arrest rate in comparison to 21 percent for the motivated, high-risk, 33-year-old ACE participants.

13. The study warned, however, that it was unclear based on available data if treatment providers correctly adhered to the MRT curriculum. Moreover, prior research has suggested that MRT is most successful in programs implemented by the creators or developers of the curriculum and that it is unclear whether criminal justice personnel can successfully deliver the necessary MRT programming. Therefore, the study recommended further research into the issue of whether MRT can be delivered as intended.

Identifying the Predictors of Pretrial Failure: A Meta-Analysis

1. The Appendix contains a copy of the coding guide. Please note that variables were re-coded as necessary for the analysis.

2. We would like to thank Marie VanNostrand, Ph.D. and Jim Austin, Ph.D. for their kind assistance to calculate these statistics in order for their studies to be included.

3. A fixed effects model assumes that the true effect size would be consistent across studies.

4. This z statistic was also calculated since the individual studies that were coded and effect sizes calculated for identified pretrial predictors was done with a meta-analysis calculator. This addresses issues of normality.

5. Formula for the Fisher's r to z transformation: $zr = (1/2)[\log_e(1+r) - \log_e(1-r)]$.

6. Several of these eligible studies examined more than one outcome measure.

7. However, this is probably due to the different measures and weights for age on the various risk assessment instruments.

8. Estimate is an estimate of risk that was from one coded study where an officer made an estimate of risk.

9. Demographic measures only had one effect size. As such, this may not be the most reliable correlation.

10. For a discussion of the strength of correlations for predictive accuracy and the relative strength of the correlation, see Rice and Harris (2005).

11. With this specific outcome measure, there were no instruments that presented the necessary statistics to calculate an effect size.

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