Identifying the Predictors of Pretrial Failure: A Meta-Analysis

FINAL REPORT

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INTRODUCTION

In 2004, the National Association of Pretrial Services Agencies (NAPSA) published its third edition of the Standards of Pretrial Release. It is Standard 3.7 which suggests that there are multiple characteristics for effective pretrial programs and operations, one of which is the use of a pretrial risk assessment tool. Recognizing this important step in evaluating the potential risk of failure to appear or more seriously, risk to public safety, has been on ongoing effort for many pretrial programs and agencies as well as correctional settings for the past three decades. While it is likely that there are still pretrial recommendations made based solely on professional judgment rather than with the use of a valid pretrial risk assessment instrument, this standard is certainly an indication of the movement toward evidence-based practices in pretrial and an adoption of the research on best practices. In particular, this may be due to the findings from multiple studies that have repeatedly demonstrated that the use of actuarial risk assessments results in a higher predictive validity than clinical or professional judgment alone (Latessa and Lovins, 2010; Ægisdóttier, 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, there is not consistently 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.   Much of these concerns are likely due to the high demands related to 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 related to pretrial supervision or detainment.

Given the 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, 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 expounds upon the use of a pretrial risk and needs assessment and incorporating this data 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 of 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 items 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. As such, a meta-analysis was conducted to identify these risk factors as well as to determine if some of the more commonly assumed factors 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 lastly, policy implications.

METHODOLOGY

There were multiple steps taken to conduct this meta-analysis. First, an exhaustive review to locate both published and unpublished literature on pretrial risk assessments and risk factors of pretrial was conducted. This step was completed by initially pulling all published scholarly work from an academic library's online abstracting resources. Key title and subject phrase searches were conducted, 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. Second, the ancestry approach was taken which identified additional research papers and articles by reviewing the references and citations of the articles already extracted. Third, an internet search was conducted using the same key title and subject phrase searches along with identifying pretrial agency websites and examining their site to locate research or studies that have been conducted on their populations related to pretrial risk. Most of these specific agency searches yielded studies related to the validation of a pretrial risk assessment tool administered by that jurisdiction. Fourth, there was direct communication 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 to be used to review all of the located research. This coding guide served two purposes, eligibility for the study to be included in the meta-analysis and coding of the necessary variables to conduct the statistical analysis and calculate the individual and overall effect sizes.[1] Variables contained in the coding guide were:

❑ Publication information (published or unpublished studies, funding source, author affiliation)

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

❑ 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 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) the study was conducted in the United States, and (4) the study was published or reported after 1960. Often, studies were excluded due to only presenting findings from binary multivariate logistic regression models. The coefficients from these models do not allow for calculating an effect size. For two such studies, the original authors were communicated with directly and statistics were provided that allowed for the calculation of an effect size, thereby making these study's eligible for inclusion in the meta-analysis.[2] Methodological rigor of these studies was noted in the database since there were often missing data with regard to sample demographics, follow up time periods and minimal methodological descriptions in the individual studies.

Given that there were multiple pretrial risk assessments 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, broad categories for all of these various items were created in the database. These included: demographics, criminal history, personal achievement, residential status, substance abuse, mental health and other. Effect sizes were calculated for items and these categories based on the outcome measures reported in their respective studies. Further, there were several outcome measures examined across the studies. In particular, failure to appear, rearrest, new crime and any failure[3]. Any failure was found as a measure with 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 rather straight-forward. Random effects models were calculated. A decision to choose the random effects model, rather than a fixed model, was made since it is assumes 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

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[2] We would like to acknowledge the assistance of 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] Outcome measures were taken directly from studies rather than assumptions being made that the different outcome labels were actually capturing the same measure. For example, it was not always clear if 'new arrest' and 'new crime' were both measuring the same outcome across the eligible studies.

random effects model suggests that these variations across studies could have an impact on the overall effect size[4].

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 corresponds with an increase in the second variable. A negative relationship then would be interpreted as an increase in the first variable corresponds with a decrease in the second variable. Specifically, these calculations were done 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. The significance cutoff value was set at $p \leq .05$.

In order to calculate confidence intervals around Pearson's r, a z statistic was calculated[5]. This was done by converting r to z-scores, using the Fisher's r to z transformation[6]. 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 suggests that there should be more confidence in the effect size value.

❑ The larger the range (>.10) between the upper and lower limits suggests that the effect size value should be interpreted cautiously.

❑ 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, it was necessary to address the potential for sampling bias since it is possible that the effect size from the larger studies may 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 there were 13 studies (k =13) eligible for inclusion in the meta-analysis based on the criteria presented above. Of these 13 studies, there were six pretrial risk assessment instruments where there were the necessary statistics

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[4] A fixed effects model assumes that the true effect size would be consistent across studies.
[5] This z statistic was also calculated since the individual study's that were coded and effect sizes were calculated for identified pretrial predictors was done with a meta-analysis calculator. This addresses issues with normality.
[6] Formula for the Fisher's r to z transformation: $z_r = (1/2)[\log_e(1+r) - \log_e(1-r)]$.

reported to calculate an effect size.[7] These findings are presented by outcome measures. Results are provided in tabular format and individual pretrial risk predictors will be presented first, then categories of risk, followed by static and dynamic factors and the overall effect size.

Rearrest

Table 1 presents the individual pretrial risk predictors' effect sizes of rearrest. 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 rearrest. Similarly, having one or more prior jail incarcerations was significantly related to pretrial rearrest. In contrast, the significant association between having a weapon involved in the current offense and pretrial rearrest is a negative relationship. As such, having weapons in the current offense do not appear to be a significant risk of pretrial rearrest. Further, if the victim is injured is significantly correlated with rearrest, but not in the expected direction. Likewise, age shows a positive relationship with pretrial rearrest, but not in the expected direction of younger defendants experiencing pretrial rearrest. Rather this finding would suggest that older defendants would be more likely to experience rearrest[8] Pretrial risk predictors that were not found to be significantly correlated with rearrest included estimate[9], family, having pending cases, residence length, robbery as a current offense and work/employment. It appears that most of the significant predictors of pretrial rearrest are static, rather than dynamic predictors.

Table 1. Effect sizes for rearrest- 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

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[7] Several of these eligible studies examined more than one outcome measure.

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

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

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 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 rearrest[10]. Measures of personal achievement were not significantly related to pretrial rearrest. Similar to the findings for individual predictors, the most strongly correlated risk categories capture static risk factors.

Table 2. Effect sizes for rearrest- 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 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 rearrest than dynamic. Overall, the five pretrial risk assessments appeared to have a significant correlation with pretrial rearrest and this is close to a moderate strength.[11] 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.

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

[11] For a discussion on the strength of correlations for predictive accuracy and the relative strength of the correlation please see Rice and Harris (2005).

Table 3. Effect size for rearrest- 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

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 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 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 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 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 6. Effect size for failure to appear- Static and dynamic predictors, instrument and overall effect size

Risk Predictors	# Effect	Correlation	Lower	Upper	Z	p value

	Sizes		Limit CI	Limit CI		
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 describes the effect sizes for the individual pretrial risk predictors and the outcome measure, new crime.[12] 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 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

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

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 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 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 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 was a relatively weak correlation overall.

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

Any Failure

This last series of tables examines pretrial risk predictors of any failure. The strongest significant correlations 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 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	0.06

Table 13 displays that 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 11. Effect sizes 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 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).

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

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 rearrest, 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 increases 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 found to either 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

There were several limitations with this meta-analysis that are worth noting. First, there were many studies that were not included in this meta-analysis. Primarily this was due to these studies presenting only the findings from multivariate regression models which 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 the individual risk items or vice versa. Third, it is likely that there are still studies that have not been located, especially for pretrial programs that have completed internal predictive validation studies within their respective department. Fourth, the methodological rigor for the studies reviewed and even those included certainly varied. As such, 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, which even with weights 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, it should be recognized that these findings must be taken within the context of these issues. However, within that framework are several policy implications that can be considered.

- ❑ Administering pretrial risk tools is a process that 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 was from .08 to .28.
    - o These assessment tools should be validated on the population being served and the risk level cutoffs for these instruments should be normed.
    - o Reliability studies should be conducted for agencies that have implemented a pretrial risk assessment instrument. This would evaluate if those administering the tool would

do so with fidelity and would score the same defendant similarly with 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 permit for the calculation of effect sizes.

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Appendix

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PRETRIAL PREDICTORS META-ANALYSIS

CODING GUIDE

Last revised: January 4, 2011

CODING INFORMATION

CODE1:   DATE OF CODING

CODE2:   NAME OF CODER

1   Chris Lowenkamp
2   Alex Holsinger
3   Kristin Bechtel

PUBLICATION INFORMATION

PUB1:   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

PUB2:   DECADE OF PUBLICATION OR DATE DATA GENERATED

1   1960s
2   1970s
3   1980s
4   1990s
5   2000 to present
9   MISSING

PUB3:   STATUS OF PUBLICATION

1   yes
2   no
3   MISSING

PUB4:   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

PUB5:   AFFILIATION OF SENIOR AUTHOR

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

PUB6:   SOURCE OF FUNDING

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

PRETRIAL AGENCY

AGENCY1:   JURISDICTION

1	local
2	federal
3	other

SAMPLE DEMOGRAPHICS

AGE1:   MEAN AGE OF SAMPLE

SEX1:   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

FOL1:   AVERAGE LENGTH OF FOLLOW-UP IN DAYS

EFFECT SIZE TABLE

	FTA		Arrest		Misconduct	
Variable	R	N	R	N	R	N