PORTER COUNTY: IRAS-PAT VALIDATION

FINAL REPORT

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INTRODUCTION

Pretrial decision-making involves timely choices by judges with limited information and variable input from members of the courtroom workgroup (DeMichele et al., 2018). It is well established that the decisions made at this phase of justice system have implications for subsequent outcomes. Defendants incarcerated pending trial are more likely to plead guilty, receive lengthier sentences, and subsequently recidivate more often in relation to defendants released prior to court disposition (Stevenson & Mayson, 2017). Incarceration can also disrupt housing, employment, family relationships, and ties to the community (Stevenson & Mayson, 2017). Pretrial risk assessments have emerged as one strategy to structure and improve pretrial decision-making. The integration of these assessment tools also comes at a time when reforms to reduce the use of monetary bond schedules are being advanced across the country (Stevenson, 2018).

Pretrial risk assessment tools are not without controversy. The primary set of criticisms about these tools concern whether they are able to predict pretrial misconduct, differentiate the likelihood or frequency of misconduct by risk level, and minimize the potential effect of racial, ethnic, and gender biases while maintaining comparable rates or reducing the risk of pretrial misconduct. Much of the evidence for or against the utility of pretrial risk assessment tools is based on theoretical claims; research evaluations have not kept pace with the volume of local implementations. Although studies have demonstrated the predictive validity of specific pretrial risk assessment tools (e.g., Austin, Bhati, et al., 2010; Austin, Ocker, et al., 2010; Cadigan & Lowenkamp, 2011; Latessa et al., 2010), questions remain about tools that have not been subject to validity tests, tools that have been constructed in one jurisdiction and integrated in another, the items used to score tools, the capacity to administer the tools, how the perceptions of courtroom workgroup professionals can influence the adoption of tools (DeMichele et al., 2018), and the effect of instrument adoption on rates of incarceration and pretrial misconduct (Stevenson, 2018).

Previously, researchers from the Indiana University Public Policy Institute, Center for Criminal Justice Research (CCJR) conducted a process evaluation of pilot counties to understand how the Indiana Risk Assessment System – Pretrial Assessment Tool (IRAS-PAT) was adopted by participating pilot counties. This foundational study also identified barriers and facilitators to implementation and explored relationships between IRAS-PAT items, risk categories, and bond or order for release outcomes (Grommon et al., 2017). The current inquiry moves to the second stage of research on the IRAS-PAT pilot program. This phase offers a county-by-county validation of the IRAS-PAT.

Other assessment tools in the IRAS suite – Community Supervision Tool (CST), Community Supervision Screening Tool, and Prison Reentry Tool (PRT) – were assessed in a sole Indiana validation study (Latessa et al., 2013). Overall, the findings confirmed that the IRAS-CST, IRAS-CSST, and IRAS-PRT are able to predict recidivism and the relative risk of recidivism varies by risk level. The predictive validity of the IRAS-PAT could not be assessed in this study due to the lack of requisite data (Latessa et al., 2013, p. 9).

Insights about the predictive validity of the IRAS-PAT can be deduced from the IRAS' predecessor, the Ohio Risk Assessment System (ORAS) and its Pretrial Assessment Tool (PAT).

The ORAS-PAT consists of seven items across four domains: criminal history (three items), employment (one item), residential stability (one item), and substance abuse (two items). ORAS-PAT assessments were validated in a sample of 452 defendants from seven Ohio counties and an average follow-up of 12 months (Latessa et al., 2009). Overall, 16% of defendants failed to appear or were rearrested. Risk score was positively and moderately associated with recidivism (r=0.23). Risk levels also followed a stepwise progression as 5% of Low risk defendants recidivated, while 18% of Moderate risk and 30% of High risk defendants recidivated. Similar stepwise patterns were observed within ORAS-PAT domains (although the associations between domains and recidivism outcomes were not as strong as those established in the test of relationship between risk score and recidivism, ranging in value from r=0.05 to r=0.19).

Preliminary predictive validity findings of IRAS-PAT assessments conducted in five Indiana counties were published in a prior report (Lowder et al., 2020). This study found the IRAS-PAT assessments produced good-to-excellent levels of predictive validity (AUCs = 0.67-0.72) for any FTA, any new arrest, and any arrest pretrial misconduct outcomes. In this pooled investigation, 4.3% of Low risk defendants, 12.9% of Moderate risk defendants, and 24.8% of High risk defendants had any FTA. Rates of any new arrest were 8.8%, 19.3%, and 31.9% for Low, Moderate, and High risk defendants, respectively. Findings overall showed strong levels of predictive validity for IRAS-PAT assessments conducted in practice.

To better understand the predictive validity of the IRAS-PAT, we report IRAS-PAT validation findings from **Porter County**. Prior to presenting the results, we describe the methods, procedures, and assumptions. The study will conclude with a discussion of key findings.

METHODS

Study Context

Mirroring national trends, the state of Indiana reported the highest local incarceration rate of all midwestern states (330 per 100,000 residents) in 2013, representing a 15% increase over 1999 rates. Indiana's local jail capacity was among the highest for midwestern jurisdictions at year-end 2013 (83.2% capacity), second only to Ohio (Minton et al., 2015). Responding to these trends, the Indiana Supreme Court founded the Committee to Study Evidence-Based Pretrial Release to develop and evaluate evidence-based pretrial release practices. In 2014, the Committee developed a pilot program to examine implementation of the IRAS-PAT in 11 Indiana counties: Allen, Bartholomew, Grant, Hamilton, Hendricks, Jefferson, Monroe, Porter, St. Joseph, Starke, and Tipton. The purpose of the pilot project was to validate and evaluate the implementation of the IRAS-PAT in the 11 pilot counties, including the extent of its use and feasibility for use in other Indiana jurisdictions. The pilot program began between January 2016 and March 2017 in participating counties and is ongoing.

Data was drawn from Porter County, located in Northwest Indiana bordering Lake Michigan. The county seat is located in Valparaiso. Porter County has a population of 168,495 (2017 estimate). Porter County began its the pilot program in March 2017. Individuals who are arrested and booked into the jail are assessed immediately, and then brought to see a judge within 24 to

48 hours depending on weekday or weekend booking. Individuals may refuse a risk assessment; however, they are required to be assessed prior to placement on pretrial supervision.

The study period for this validation ran from March 1st, 2017 through December 31st, 2018. The follow-up period for Porter County was defined by each defendant's pretrial processing period, from date of jail release to court disposition. However, all defendants were required to have their case disposed by December 31st, 2019.

Data Sources

Data for this validation came from several administrative data sources. Staff in Porter County provided internal records of assessments conducted during an initial episode of incarceration. This file included IRAS-PAT total score as well as arrest date. We additionally received jail records with information on booking dates, release dates, and associated charges during the study period and throughout the follow-up period (i.e., March 1st, 2017 through December 31st, 2019). We received pretrial data from INcite and the Supervised Release System (SRS), containing assessment information such as risk level, risk score, and item-level data as well as select court case information for defendants under formal supervision, including case record and FTA. Finally, the statewide Odyssey Case Management System provided us with case-related information such as FTAs, filing dates, disposition dates, and case outcomes between March 1st, 2017 and December 31st, 2019. Where information could not be located in administrative Odyssey files, we additionally manually consulted case notes in Indiana's MyCase (Office of Judicial Administration, 2020) for all defendants.

Data Cleaning

Because Porter County reassess individuals who are rearrested during pretrial release, we could not identify initial assessments for every defendant based on internal pretrial records from INcite. As a result, we received a separate data extract with all initial assessments conducted in the jail on individuals booked for a new offense. We linked these records separately to both jail records, internal pretrial statistics generated from INcite, and Odyssey case records. We detail this process in greater detail below.

First, we created a unique identifier based on individual name, date of birth, and arrest dates to link Porter County assessments to a jail booking record. Second, once we identified a booking record for each assessment, we linked these records to court case records to ensure we would be able to track case outcomes. For this process, we linked assessment records from initial assessments to those recorded in the internal pretrial statistics file from INcite. Matching assessments were used to pull in a cause number from the internal pretrial statistics file. For individuals who did not match, we used Odyssey records to identify an initial hearing date that occurred on the same day or up to seven days post-booking or a filing date that occurred within three days of booking.

The sample creation process is shown in Figure 1. Porter County initially provided us with 1,181 assessments conducted between March 2017 and December 2018. Of these assessments, we were able to identify a jail record for 1,078 assessments. We were able to link 907 of these assessments to court case records via the process detailed above. Of these 907 cases, 24 cases were removed due to being duplicate assessments, ensuring we maintained the first assessment for each individual only. We removed an additional 205 individuals whose case had not yet been disposed prior to the study end period (December 31st, 2019), whose case was disposed at a later date, or whose case was disposed without being released from jail. Finally, four individuals were excluded because their initial hearing occurred prior to their booking date. The final sample included 674 unique defendants who were booked into jail and assessed during the study period, and released into the community prior to court case disposition.

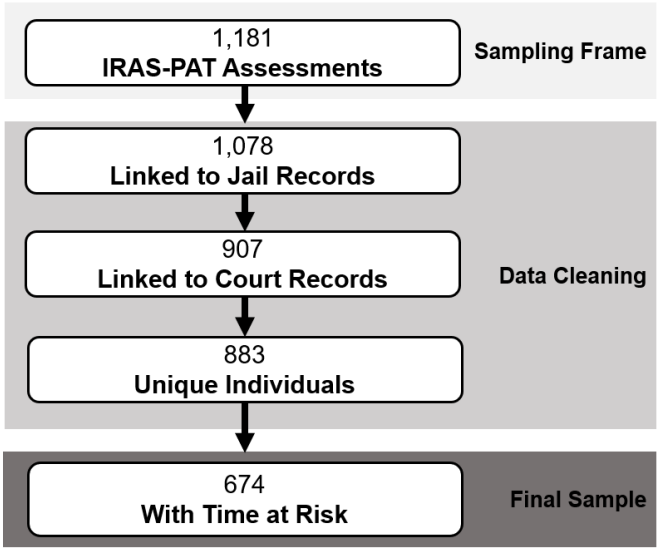

Figure 1. Sample Data Cleaning

Sample

The final validation sample for Porter County consisted of 674 defendants who were on pretrial release in the community. The average age at booking for defendants was 32.83 years old (*SD* = 10.62, Range: 17 to 75). Defendants were mostly male (*n* = 506, 75.1%; female: *n* = 168, 24.9%) and White (*n* = 559, 82.9%; Black: *n* = 113, 16.8%, Other: *n* = 2, 0.3%). On average, the charge level associated with arrests was 5.77, which corresponds to a Level 6 felony. Assault represented the most frequently occurring charge (*n* = 157, 23.3%), with driving under the influence charges (*n* = 154, 22.9%) and drug charges (*n* = 148, 22.0%) following closely thereafter. The average time defendants spent in the community between release and case disposition was 226.84 days (*SD* = 199.64, Range: 1 to 925).

Variables

IRAS-PAT. The IRAS-PAT is an actuarial assessment designed to predict risk of arrest and FTA during the pretrial period. The IRAS-PAT is a 7-item instrument measuring 1) age at first arrest, 2) number of FTA warrants in the past 24 months, 3) three or more prior jail incarcerations, 4) employment at the time of arrest, 5) residential stability, 6) illegal drug use in the past six months, and 7) a severe drug use problem. Items 1, 3, 5, 6, and 7 are scored dichotomously (i.e., 0 or 1) and items 2 and 4 are scored on a 0-2 point scale, producing a maximum total score of 9. Total scores classify defendants into three risk levels: Low (0-2), Moderate (3-5), and High (6+). Our investigation used IRAS-PAT *total scores*, *risk levels*, and *items.* Because of missing data in defendants assessed prior to November 2017, our item-level analysis of the IRAS-PAT in Porter County was restricted to the 290 defendants assessed between November 2017 and December 2018.

Pretrial misconduct outcomes. Pretrial misconduct outcomes were measured in the period between a defendant's release date and case disposition date. We measured three primary outcomes. *Any arrest* measured any booking occurring during the pretrial period. *Any new arrest* measured a new booking occurring during the pretrial period in which a detainee was booked on any new offense charge. *Any FTA* measured failure to appear at any court appearance during case processing. Because few FTAs were recorded with accompanying event dates in court records, we triangulated FTA records using internal pretrial statistics collected from INcite/SRS as well as public case records on Indiana MyCase using individual case numbers. We recorded number of FTAs that occurred in between release and disposition dates, along with the date for the first FTA. In addition to these outcomes, we report descriptively on *any pretrial misconduct,* measured in two ways. First, we measured pretrial misconduct according to any arrest or FTA occurring during this period. Second, we measured pretrial misconduct according to any new arrest or FTA occurring during this period. Multivariable models additionally controlled for *time at risk*, defined as the number of days in the community, excluding jail time, between the release date and case disposition date. On average, defendants were at risk in the community for 192.95 days (*SD* = 160.20, Range: 1 to 856).

Analytic Strategy

We first conducted descriptive statistics on all study variables to assess response distributions. Then, we conducted crosstabulations of risk levels with pretrial misconduct outcomes to examine rates of misconduct at each risk level. Significant associations were tested using a chi-squared test of independence and effect size measured using Cramer's V. Cramer's V values of .10, .30, and .50 indicate small, medium, and large effect sizes, respectively (Cohen, 1988). Among defendants with arrests or any pretrial failure during the case processing period, we examined survival days (i.e., days from release to date of arrest or FTA) by risk level.

To examine the predictive validity of IRAS-PAT assessments, we used a multi-pronged approach. First, we examined the Area Under the Curve (AUC) of the Receiving Operating Characteristic (ROC) curve statistics. AUC values are commonly used to evaluate the predictive accuracy of risk assessment total scores. AUC values range from .50 to 1, with .50 indicating chance levels of classification and 1 suggesting perfect classification. AUC values below .54 are typically considered poor, .55 to .63 fair, .64 to .70 good, and .71 and above excellent. These conventions have been documented in reports adopted by the Bureau of Justice Assistance, National Institute of Justice, and National Institute of Corrections and represent the benchmarks for predictive accuracy in the field of risk assessment (Desmarais & Singh, 2013). Second, we conducted a series of logistic regression analyses to examine the predictive validity of IRAS-PAT assessments for each pretrial misconduct outcome, controlling for time at risk. For reference, odds ratios of 1.50, 3.00, and 5.00 indicate small, medium, and large effect sizes, respectively (Chen et al., 2010). Third, we conducted survival analyses using cox proportional hazard models to examine predictive accuracy as a function of time to a specific outcome. Resulting hazard ratios (HR) produced by cox regression models are a numerical expression of a difference in the rate of an outcome occurring between two conditions. For inferential statistics, we used a $p < .05$ criterion to determine statistical significance.

RESULTS

Sample Descriptives

IRAS-PAT. IRAS-PAT scores averaged 4.00 (*SD* = 1.97, Range: 0 to 9) across defendants. This corresponds to a Moderate risk level. We present the frequency distribution of risk scores in Figure 2. As shown, the defendants were assessed at a relatively Moderate risk, with half of the risk scores falling between 3 and 5 (50.0%).

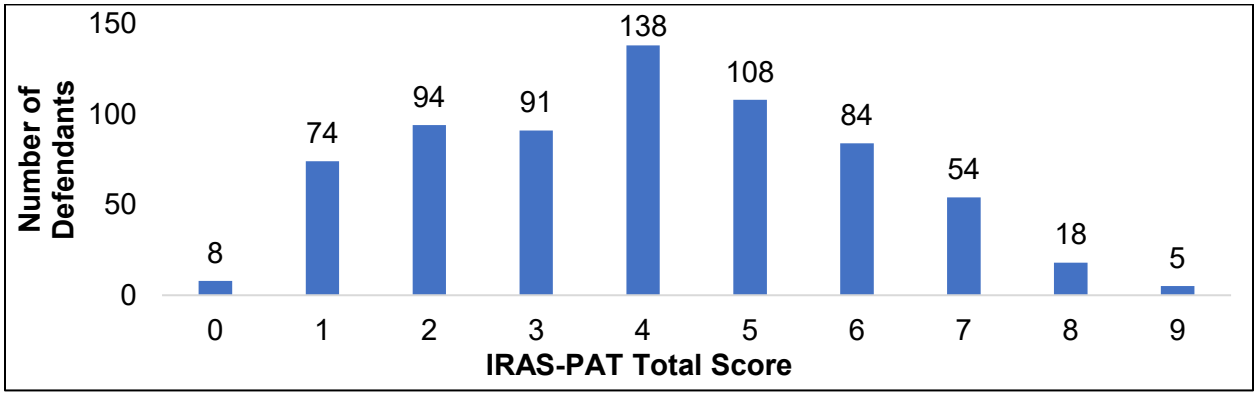

Figure 2. Frequency of IRAS-PAT Total Scores

The distribution of defendants across risk levels is presented below in Figure 3. As shown, the majority of defendants were at Moderate risk (*n* = 337, 50.0%), followed by Low risk (*n* = 176, 26.1%) and High risk (*n* = 161, 23.9%).

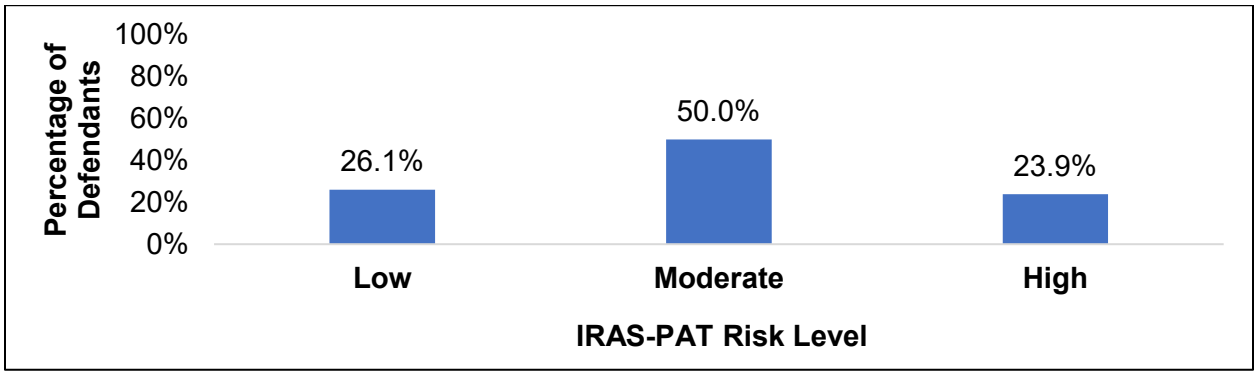

Figure 3. Frequency of IRAS-PAT Risk Level

Pretrial Misconduct Outcomes. Approximately 12.3% of the defendants (*n* = 83) failed to appear for any court hearing following release from jail but prior to case disposition. Similarly, about 12.2% of the defendants (*n* = 82) were arrested on a new charge between jail release and case disposition. One-fifth of the sample had any pretrial misconduct however (including any new arrest), with approximately 19.7% of the defendants being booked into jail for any offense (*n* = 133).

Crosstabulations of Risk Level and Pretrial Misconduct Outcomes

Table 1 presents a crosstabulation of risk level with pretrial misconduct outcomes. Rates of re-arrest were lowest for Low-risk defendants, and highest for defendants at High risk. However, rates of any new arrest were highest for Moderate risk defendants rather than High risk defendants. Conversely, rates of any FTA were lowest for Moderate risk defendants rather than Low risk defendants. For individuals who had any FTA for any court hearing, High-risk defendants who were released into the community on average failed to appear sooner (M = 111.88 days, SD = 72.66) than Low (M = 131.4. days, SD = 163.91) or Moderate risk defendants (M = 201.97 days, SD = 152.61). Among defendants booked into jail on a new offense between release and disposition, Low risk defendants were booked sooner (M = 115.90 days, SD = 121.77) than High risk defendants (M = 132.30 days, SD = 121.88) and Moderate risk defendants (M = 153.43 days, SD = 157.85). Similarly, Low risk defendants were arrested for any offense sooner (M = 110.15 days, SD = 93.87) than High risk (M = 158.18 days, SD = 128.82) and Moderate risk (M = 172.81 days, SD = 139.29). Among all defendants, the length of time between pretrial release and case disposition was positively associated with any FTA (r[672] = .26, $p < .05$), any new arrest (r[672] = .14, $p < .05$), and any arrest (r[672] = .25, $p < .05$).

Pretrial Misconduct Outcomes	Risk Level						Comparison	
	Low		Moderate		High			
	n	%	*n*	%	*n*	%	X^2 (df)	Cramer's V
Any FTA	20	11.4	37	11.0	26	16.2	2.90 (2)	0.07
Any New Arrest	10	5.7	49	14.5	23	14.3	9.38** (2)	0.12
Any Arrest	20	11.4	74	22.0	39	24.2	10.89** (2)	0.13
Any Pretrial Misconduct (with Any New Arrest)	29	16.5	75	22.3	44	27.3	5.81 (2)	0.09
Any Pretrial Misconduct (with Any Arrest)	30	17.1	81	24.0	46	28.6	6.46* (2)	0.10

Note. *$p < .05$. **$p < .01$.

Table 1. Crosstabulations of Risk Levels and Pretrial Misconduct Outcomes

Predictive Validity Analyses

AUC of the ROC. AUC values were 0.57 (*SE* = 0.03, 95% CI: 0.50 – 0.63) for any FTA, 0.60 (*SE* = 0.03, 95% CI: 0.54 – 0.66) for any new arrest, and 0.60 (*SE* = 0.03, 95% CI: 0.55 – 0.65) for any arrest. These values correspond to a fair level of predictive accuracy for risk of any FTA, any new arrest, and any arrest.

Logistic Regression Models. We present the results of a series of logistic regression analyses modeling pretrial misconduct outcomes while controlling for time at risk in Table 2. The results showed a fair predictive validity of IRAS-PAT risk assessments across any FTA, any new arrest, and any arrest. Specifically, each 1-point increase in risk score was associated with a 1.20 times increase in the likelihood of any FTA, 1.22 times increase in likelihood of any new arrest, and 1.25 times increase in likelihood of any arrest. IRAS-PAT risk levels were able to differentiate between the likelihood of FTA for High risk defendants compared to Low risk defendants (OR = 2.25), but not for Moderate risk defendants compared to Low risk defendants. In the detection of any new arrest, defendants at both Moderate risk and High risk were similarly more likely to be arrested on a new offense relative to Low risk defendants (OR = 3.31-3.50). IRAS-PAT risk levels were slightly better at differentiating between likelihood of any arrest for High risk defendants relative to Low risk defendants (OR = 3.73) than for Moderate risk defendants relative to Low risk defendants (OR = 2.76).

Predictor	Pretrial Misconduct Outcomes														
	Any FTA					Any New Arrest					Any Arrest				
	Estimate	*SE*	Wald X^2	OR	95% CI	Estimate	*SE*	Wald X^2	OR	95% CI	Estimate	*SE*	Wald X^2	OR	95% CI
Total Score															
IRAS-PAT	0.18	0.06	8.02**	1.20	[1.06, 1.35]	0.20	0.06	9.97**	1.22	[1.08, 1.37]	0.22	0.05	17.72***	1.25	[1.13, 1.39]
Time at Risk	<0.01	<0.01	44.14***	1.00	[1.00, 1.00]	<0.01	<0.01	15.30***	1.00	[1.00, 1.00]	<0.01	<0.01	45.14***	1.00	[1.00, 1.00]
Risk Level															
High (Low)	0.81	0.34	5.64*	2.25	[1.15, 4.38]	1.25	0.41`	9.57**	3.50	[1.58, 7.76]	1.32	0.32	16.90***	3.73	[1.99, 6.98]
Moderate (Low)	0.13	0.31	0.18	1.14	[0.62, 2.08]	1.17	0.37	10.19**	3.21	[1.57, 6.58]	1.02	0.29	12.66***	2.76	[1.58, 4.83]
Time at Risk	<0.01	<0.01	44.05***	1.00	[1.00, 1.00]	<0.01	<0.01	15.79***	1.00	[1.00, 1.00]	<0.01	<0.01	49.95***	1.00	[1.00, 1.00]

Note. *p < .05. **p < .01. ***p < .001. OR = odds ratio. *N* = 674.

Table 2. Logistic Regression Models of IRAS-PAT Total Scores and Risk Level Predicting Pretrial Misconduct Outcomes

Survival Models. We show the survival model results in Table 4. As shown, each 1-point increase in IRAS-PAT score was associated with a 1.21, 1.24, and 1.23 times increase in the hazard of any FTA, any new arrest, and any arrest, respectively. Across pretrial misconduct outcomes, risk levels were more discriminating in predicting the hazard of rearrest outcomes (HR range: 2.51 – 3.88) versus any FTA (HR range: 1.18 – 2.34). Across all outcomes, High risk defendants had a greater hazard of pretrial misconduct relative to Low risk defendants.

Predictor	Pretrial Misconduct Outcomes														
	Any FTA					Any New Arrest					Any Arrest				
	Estimate	*SE*	Wald X^2	HR	95% CI	Estimate	*SE*	Wald X^2	HR	95% CI	Estimate	*SE*	Wald X^2	HR	95% CI
Total Score															
IRAS-PAT	0.19	0.06	11.24***	1.21	[1.08, 1.35]	0.21	0.06	14.44***	1.24	[1.11, 1.38]	0.21	0.04	22.64***	1.23	[1.13, 1.34]
Risk Level															
High (Low)	0.85	0.30	8.07**	2.34	[1.30, 4.21]	1.36	0.38	12.80***	3.88	[1.85, 8.17]	1.24	0.28	20.29***	3.47	[2.02, 5.95]
Moderate (Low)	0.16	0.28	0.34	1.18	[0.68, 2.03]	1.16	0.35	11.14***	3.19	[1.61, 6.29]	0.92	0.25	13.26***	2.51	[1.53, 4.11]

Note. $^{**}p < .01$. $^{***}p < .001$. HR = hazard ratio. $N = 674$

Table 4. Cox Regression Survival Models of IRAS-PAT Total Scores and Risk Levels Predicting Pretrial Misconduct Outcomes

We present the survival curves by IRAS-PAT risk level and outcome in Figure 4. Each line represents the proportion of defendants who did not experience that outcome for each day of case processing time in the community. Typically, we would like to see good separation in each line to suggest that each risk level is associated with a different hazard of pretrial misconduct across the case processing period. As shown, there was little difference in survival curves for Low and Moderate risk defendants for any FTA, and also little difference in survival curves for Moderate and High risk defendants for any new arrest or any arrest.

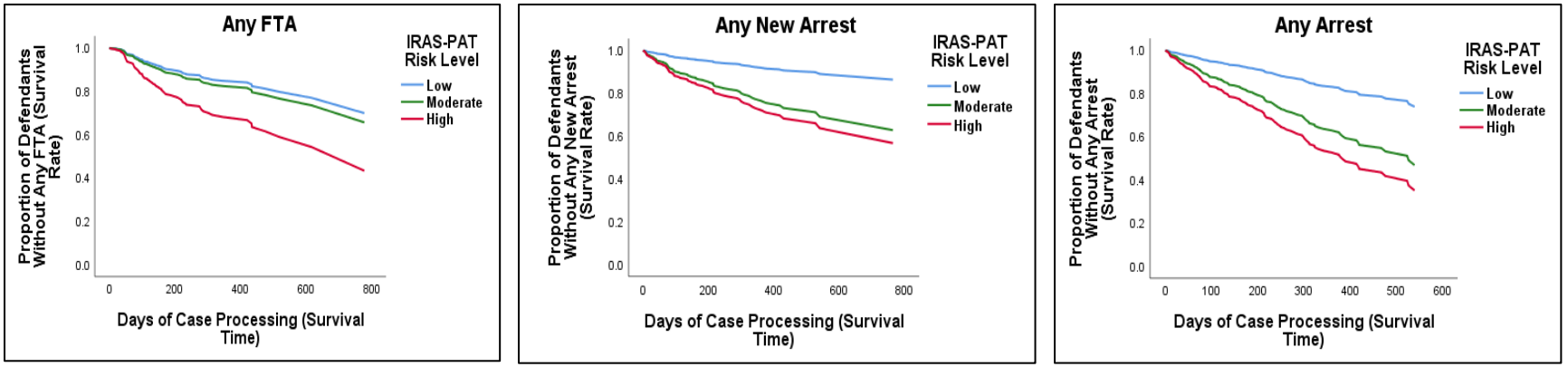

Figure 4. Survival Curves by IRAS-PAT Risk Level and Pretrial Misconduct Outcome

Item-Level Analysis

We present the results of logistic regression models of IRAS-PAT items predicting pretrial misconduct outcomes in Table 5. We ran these analyses on a sub-sample of 290 individuals who had item-level assessment information available and who were assessed following November 2017. Not all total scores recorded internally by the county could be matched to INcite assessments records to procure item-level information. As shown in Table 5, no single IRAS-PAT item contributed to the prediction of FTAs, any new arrest, or any arrest. However, these findings may reflect the relatively small number of defendants for whom we could investigate item-level performance. As a result, we conducted additional descriptive statistics, presented in Figure 5.

Predictor	Pretrial Misconduct Outcomes														
	FTA					Any New Arrest					Any Arrest				
	Estimate	*SE*	Wald X^2	OR	95% CI	Estimate	*SE*	Wald X^2	OR	95% CI	Estimate	*SE*	Wald X^2	OR	95% CI
Age at first arrest – (33+)	-0.49	1.14	0.19	0.61	[0.06, 5.76]	-0.40	1.14	0.12	0.67	[0.07, 6.25]	-0.76	0.88	0.74	0.47	[0.08, 2.63]
Number of FTAs – 1 (None)	-0.20	0.61	0.11	0.82	[0.24, 2.72]	-0.14	0.51	0.08	0.87	[0.32, 2.37]	0.11	0.43	0.07	1.12	[0.48, 2.62]
Number of FTAs – 2+ (None)	0.96	0.58	2.78	2.62	[0.84, 8.12]	0.22	0.62	0.13	1.25	[0.37, 4.24]	0.32	0.54	0.35	1.38	[0.48, 3.98]
Three+ Prior Incarcerations (No)	0.62	0.45	1.90	1.85	[0.77, 4.47]	0.34	0.41	0.68	1.40	[0.63, 3.14]	0.28	0.36	0.63	1.33	[0.66, 2.69]
Employed – Part time (Full-Time)	0.11	0.71	0.02	1.12	[0.28, 4.52]	0.62	0.56	1.25	1.86	[0.63, 5.56]	0.73	0.46	2.50	2.07	[0.84, 5.13]
Employed – Not Employed (Full-Time)	0.72	0.47	2.41	2.06	[0.83, 5.15]	0.47	0.43	1.18	1.60	[0.69, 3.71]	0.35	0.37	0.89	1.41	[0.69, 2.90]
Residential Stability (In Residence 6 Mo)	0.29	0.43	0.46	1.34	[0.58, 3.11]	0.05	0.38	0.02	1.05	[0.50, 2.24]	0.07	0.33	0.05	1.08	[0.56, 2.06]
Illegal Drug Use 6 Months (No)	0.09	0.69	0.02	1.09	[0.28, 4.22]	1.04	0.66	2.48	2.82	[0.78, 10.26]	0.74	0.54	1.85	2.09	[0.72, 6.03]
Severe Drug Use Problem (No)	-0.15	0.65	0.05	0.86	[0.24, 3.12]	-0.02	0.55	<0.01	0.98	[0.34, 2.86]	0.04	0.48	0.01	1.04	[0.41, 2.67]
Time at Risk	<0.01	<0.01	6.99**	1.00	[1.00, 1.01]	<0.01	<0.01	4.44*	1.00	[1.00, 1.00]	<0.01	<0.01	13.50***	1.00	[1.00, 1.01]

Note. *p < .05. **p < .01. ***p < .001. OR = odds ratio. N = 290.

Table 5. Logistic Regression Models of IRAS-PAT Items Predicting Pretrial Misconduct Outcomes

Figure 5 presents the rates of pretrial misconduct separately by outcome and IRAS-PAT item response. Thus, the reader can compare how the rate of any FTA, for example (white bar), differs across individuals who were 33+ (i.e., a score of 0 on the item) or under 33 (i.e., a score of 1 on the item) at their first arrest. The difference between rates of a given outcome across scoring categories for a single outcome provides an indication of how discriminating that item is in predicting misconduct (i.e., how much greater is the rate of misconduct for an individual who has a "1" or "2" coded response on that item versus a "0" response). A discriminating item successfully distinguishes between individuals who do or do not go on to commit misconduct. As shown in Figure 5, Item 6 (Illegal drug use in past 6 months) and Item 7 (Severe Drug Use Problem) were among the most discriminating IRAS-PAT items for any arrest or any new arrest outcomes. Item 1 (Age at First Arrest) was the least discriminating overall item. Ordinally scored items (i.e., Item 2 and Item 4) were also less discriminating in predicting misconduct. Specifically, there were few differences in all misconduct rates between defendants with 0 or 1 prior FTA (Item 2). There was no difference in FTA rates between defendants who were employed full-time or part-time (Item 4).

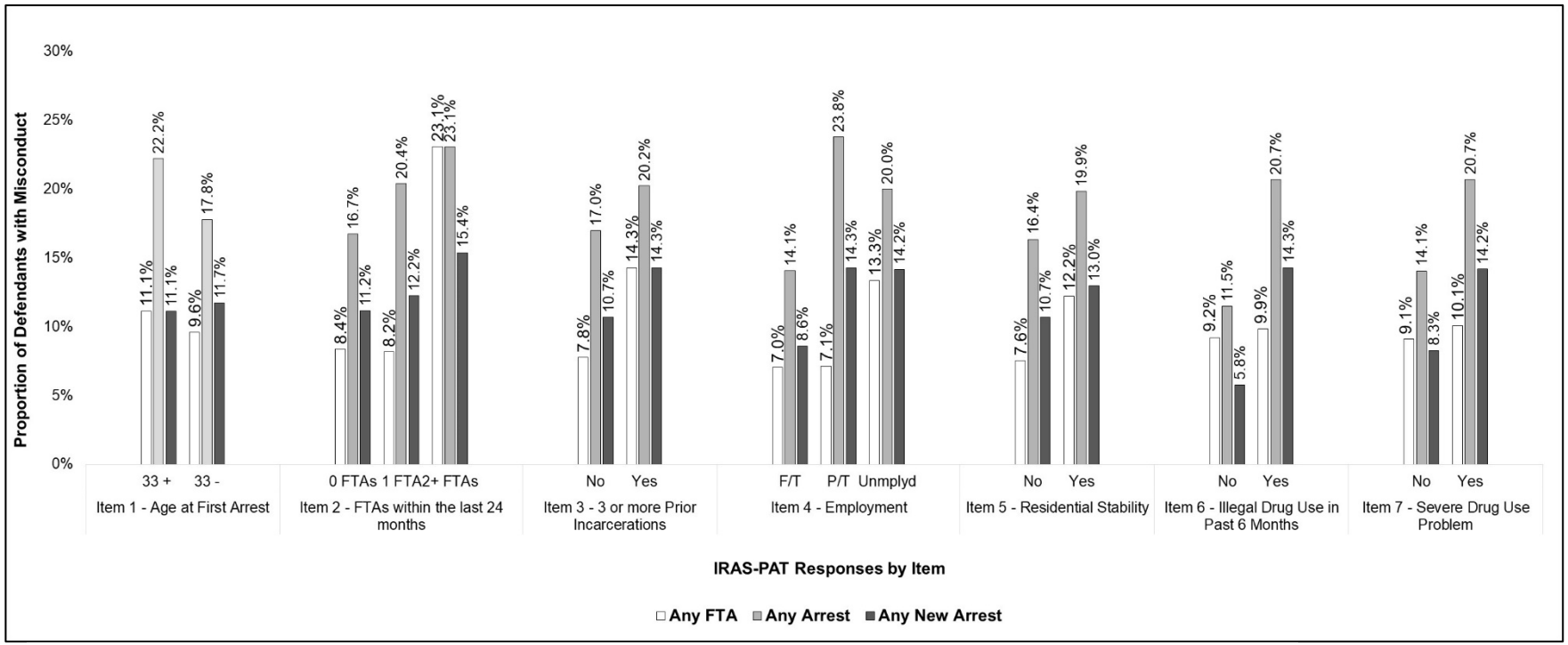

Figure 5. Rates of Pretrial Misconduct by IRAS-PAT Item Response and Outcome

SUMMARY OF FINDINGS

Overall, several findings emerged from the present investigation:

- IRAS-PAT assessments were fair predictors of any FTA, any arrest, and any new arrest risk.
- IRAS-PAT risk levels successfully differentiated between defendants at Low and High risk of pretrial misconduct for all outcomes.
- There was no difference in FTA rates between defendants assessed at Low versus Moderate risk. There were also few differences in any new arrest or any arrest rates between defendants assessed at Moderate and High risk.
- Few IRAS-PAT items uniquely predicted pretrial misconduct outcomes. However, models may have been underpowered to detect significant effects given the number of defendants who had item-level data available (n = 290).
- Roughly one-fourth of defendants classified as Moderate or High risk experienced some type of misconduct prior to the end of case disposition, relative to 17% of Low risk defendants.

DISCUSSION

The goal of this investigation was to examine the predictive validity of IRAS-PAT assessments on several pretrial misconduct outcomes in Porter County, Indiana. Overall, findings showed that IRAS-PAT assessments produced fair levels of predictive validity. Levels of predictive validity were comparable across all examined outcomes (any FTA, any arrest, and any new arrest). However, there were noticeable differences in predictive utility across risk levels and outcomes, as discussed below. We found no evidence that IRAS-PAT items uniquely predicted pretrial misconduct outcomes; however, given the small sample size for item-level analyses (n = 290), we may have not been able to detect statistically significant effects if they existed. Descriptively, findings showed that Item 6 (Illegal Drug Use in Past 6 Months) and Item 7 (Severe Drug Use Problem) showed the most ability to discriminate between those who would and would not go on to commit pretrial misconduct. We discuss these trends in more detail below.

Overall, IRAS-PAT assessments were fair predictors of whether a defendant would have any FTA during the pretrial period. Notably, lower predictive accuracy for this outcome was driven by the fairly high proportion of Low risk defendants who had an FTA (11.4%) relative to Moderate risk defendants (11.0%). That is, IRAS-PAT assessments did not differentiate between Low risk defendants and Moderate risk defendants in likelihood of an FTA. High risk defendants, however, did have higher rates of any FTA (16.2%). These findings could reflect the overall higher charge level in the sample. There were few defendants in the sample who were booked on a misdemeanor charge only (1.8%). A large majority of the sample was booked on a felony level 6 charge (82.8%), which may suggest that the validation sample is not fully representative of the pretrial population in Porter County.

IRAS-PAT assessments were similarly accurate in predicting any arrest or any new arrest risk. Assessments were more discriminating between Moderate and High risk defendants in predicting any arrest versus any new arrest. There were few differences in rates of any new arrest between defendants assessed at Moderate and High risk. One of the challenges to implementing pretrial

risk assessments in the context of routine practice is that local operations affect not only who is eligible to be included in the validation (i.e., the representativeness of the sample) but also the unbiased measurement of pretrial misconduct outcomes (i.e., the ability of outcomes to be measured independent of external influences) (Douglas et al., 2011).

We found little evidence that the overall population of assessments (N = 1,181) differed meaningfully from the sample in this investigation (n = 674). The average assessment score in the population (M = 4.21) was comparable to the present sample, as was the variability around this mean (SD = 2.00). This suggests that influences on the measurement of pretrial misconduct risk are more likely than sample bias. Specifically, the few differences in misconduct rates between Moderate and High risk defendants could reflect the effectiveness of supervision strategies in curtailing re-arrest risk among High risk defendants, in particular. We note that the overall rate of misconduct among High risk defendants was much lower (27-29%) relative to other jurisdictions. This could reflect potential intervention during the pretrial period or overall lower rates of crime in Porter County.

Item-level findings showed several descriptive trends. Item 1 (Age at First Arrest) failed to differentiate between defendants who would and would not go on to commit misconduct. Items 6 (Illegal Drug Use in the Past 6 Months) and Item 7 (Severe Drug Use Problem) were better able to identify whether a defendant would commit a new offense or be arrested at all, though these items were less able to identify defendants who would or would not FTA. Descriptively, the item-level findings suggest that different items are driving the predictive utility for different outcomes. For example, 2+ prior FTAs, 3+ prior incarcerations, unemployment, and residential instability were all associated with elevated rates of any FTA, but not necessarily elevated risk of any arrest or any new arrest. These trends could reflect that Porter County serves a distinct pretrial population, relative to the sample used in the original ORAS-PAT development (Latessa et al., 2009).

We note multiple limitations to this investigation. First, as discussed above, not all assessments conducted by Porter County were eligible for inclusion in the validation. Through discussions with pretrial staff, we learned the IRAS-PAT additionally is conducted on individuals who are rearrested during the pretrial period as well as individuals who originally decline to be assessed but then are later ordered to pretrial supervision. As a result, many assessments represented duplicate individuals who were assessed multiple times during the study period or assessments that could not be closely linked to an episode of incarceration or the start of the pretrial period. Second, our research team was unable to measure FTAs using administrative datasets (i.e., Odyssey court records or internal pretrial data) due to limited data availability. As a result, we manually coded FTA events using Odyssey case records on MyCase (Office of Judicial Administration, 2020). Through our conversations with pretrial staff, we understood these events to be reliably recorded in case notes. However, we could not validate these data against any sort of criterion measure.

Overall, this investigation provides some support for the predictive utility of IRAS-PAT assessments in Porter County. IRAS-PAT assessments were not strong predictors of misconduct. However, assessments demonstrated consistent predictive utility across all outcomes and successfully differentiated between Low and High risk defendants for all misconduct outcomes.

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Appendix I: Risk Distribution by Race, Sex, Age, and Charge Level

Supplemental analyses were conducted to examine the distribution of risk levels and pretrial outcomes by demographic characteristics of defendants as well as highest charge level. Because there were few participants classified at High risk in specific demographic subgroups (i.e., Black defendants), we present these breakdowns for descriptive purposes only.

Results

Race. Overall, there were some differences in rates of misconduct between Black and White defendants across risk levels and outcomes. Black defendants assessed at Low risk had slightly higher rates of all outcomes relative to White defendants assessed at Low risk. Conversely, White defendants assessed at Moderate risk had higher rates of any FTA and any arrest misconduct relative to Black defendants assessed at Moderate risk, though there were few between-group differences for any new arrest at Moderate risk. Black defendants assessed at High risk had higher rates of any FTA relative to White defendants assessed at High risk, but there were few noticeable differences in any new arrest or any arrest outcomes. See Table 6.

Pretrial Misconduct Outcomes	Risk Level					
	Low		Moderate		High	
	Black	White	Black	White	Black	White
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Any FTA	3 (13.6)	17 (11.1)	5 (7.5)	32 (11.9)	5 (20.8)	21 (15.3)
Any New Arrest	2 (9.1)	8 (5.2)	9 (13.4)	40 (14.9)	4 (16.7)	19 (13.9)
Any Arrest	5 (22.7)	15 (9.8)	11 (16.2)	63 (23.4)	6 (25.0)	33 (24.1)

Table 6. Crosstabulations of Risk Levels and Pretrial Misconduct Outcomes by Race

Sex. As shown in Table 7, Low and Moderate risk male defendants typically had higher rates of pretrial misconduct for all outcomes relative to Low and Moderate risk female defendants. However, female defendants classified at High risk had higher rates of any FTA, but not any new arrest or any arrest, relative to male defendants classified at High risk.

Pretrial Misconduct Outcomes	Risk Level					
	Low		Moderate		High	
	Male	Female	Male	Female	Male	Female
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Any FTA	18 (13.1)	2 (5.1)	32 (12.8)	5 (5.8)	17 (14.3)	9 (21.4)
Any New Arrest	8 (5.8)	2 (5.1)	41 (16.4)	8 (9.2)	19 (16.0)	4 (9.5)
Any Arrest	16 (11.7)	4 (10.3)	62 (24.8)	12 (13.8)	29 (24.4)	10 (23.8)

Table 7. Crosstabulations of Risk Levels and Pretrial Misconduct Outcomes by Sex

Age. For the purposes of comparison, we grouped defendants ages 17-35 as well as defendants who were 36 and older. As shown in Table 8, the younger age group had higher rates of all pretrial misconduct outcomes across all risk levels.

Pretrial Misconduct Outcomes	Risk Level					
	Low		Moderate		High	
	17-35	36+	17-35	36+	17-35	36+
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Any FTA	13 (12.4)	7 (9.9)	26 (11.4)	11 (10.2)	17 (15.2)	9 (18.4)
Any New Arrest	7 (6.7)	3 (4.2)	39 (17.0)	10 (9.3)	16 (14.3)	7 (14.3)
Any Arrest	14 (13.3)	6 (8.5)	56 (24.5)	18 (16.7)	26 (23.2)	13 (26.5)

Table 8. Crosstabulations of Risk Levels and Pretrial Misconduct Outcomes by Age

Charge level. Charge level was coded based on the highest charge at booking (misdemeanor or felony). As shown in Table 9, there were few misdemeanor-level defendants overall in the sample. Thus, these rates may not reflect stable estimates of misconduct among defendants with misdemeanor-level charges.

Pretrial Misconduct Outcomes	Risk Level					
	Low		Moderate		High	
	Misdemeanor	Felony	Misdemeanor	Felony	Misdemeanor	Felony
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Any FTA	1 (20.0)	19 (11.1)	1 (20.0)	36 (10.8)	0 (0.0)	26 (16.4)
Any New Arrest	1 (20.0)	9 (5.3)	2 (40.0)	47 (14.2)	1 (50.0)	22 (13.8)
Any Arrest	2 (40.0)	18 (10.5)	2 (40.0)	72 (21.7)	1 (50.0)	38 (23.9)

Table 9. Crosstabulations of Risk Levels and Pretrial Misconduct Outcomes by Charge Level