

The (Twice) Failure of the Wisconsin Risk Need Assessment in a Sample of Probationers

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Howard Henderson¹ and Holly A. Miller¹

Abstract

Despite being created and validated in the 1970s and 1980s, and widely adopted by many agencies in the United States, including Texas, the Wisconsin Risk Need Assessment Instrument has yet to be examined with a contemporaneous Texas probationer sample. Due to the majority of previous research reporting poor utility, the instrument's authors proposed a new scoring system for the risk portion of the instrument in 2009 in an attempt to increase the predictive utility. This study examines the original instrument and is the first to examine the proposed reweighted risk scale's relationship to recidivism with an independent sample of 194 male probationers. Findings revealed that the original risk/need sections *and* proposed reweighted risk items failed to explain significant variance in recidivism with very few items relating to reoffense. The current results provide further evidence that the Wisconsin Risk Need Assessment should be replaced by other empirically validated risk/need instruments.

Keywords

community corrections, Wisconsin Risk Needs Assessment, postprobation recidivism, male probationers, risk assessment

The Wisconsin Risk Need Assessment instrument (now, commonly referred to as the Wisconsin) was developed in the 1970s to be utilized with parole and probation offenders in determining risk level, supervision level, and treatment needs. During the 1980s the Wisconsin was modified and criticized for its inability to be validated

¹Sam Houston State University, Huntsville, TX, USA

Corresponding Author:

Howard Henderson, College of Criminal Justice, Sam Houston State University, Huntsville, TX 77340, USA.
Email: howardhenderson@shsu.edu

(Wright, Clear, & Dickson, 1984). Despite initial evidence of poor performance in New York (Wright et al., 1984), the states of Georgia, North Carolina, and Texas opted to adopt its use for all probation agencies. Since this time, several other states have adopted the Wisconsin instrument and utilize the instrument, or some variation, to determine the risk, supervision level, and offender needs for services on probation and parole. In fact, it has been noted that the Wisconsin is the most widely adopted risk needs assessment in the United States (Jones, Johnson, Latessa, & Travis, 1999; Wright et al., 1984). Despite such widespread state agency adoption, the Wisconsin Risk Assessment Instrument has received very little research attention, unlike the Level of Service Inventory–Revised (LSI-R; Andrews & Bonta, 1995). To date, only one evaluation (Yacus, 1998) of the instrument indicated evidence of predictive utility, while the others have been unimpressive. Recently, the Wisconsin Department of Corrections (agency where the Wisconsin originated) initiated a modified version study (2009) to determine the predictive utility of the Wisconsin instrument’s risk assessment with a current sample of offenders on community supervision. Their study concurred with most research—the Wisconsin, in its current form, as well as the suggested reweighting of risk items, may not be the optimal risk/need instrument to be utilized with probation and parole offenders.

Given the recent finding (Singh & Fazel, 2010) that of 126 risk assessment instrument evaluations, none predicted significantly better than any other, coupled with the lack of research focus on the Wisconsin instrument and its widespread adoption, this study examines the predictive ability of the original risk and need sections and the suggested reweighting of the risk portion of the Wisconsin with an independent sample of Texas male probationers.

The Wisconsin Risk Need Assessment

The Wisconsin was developed to classify offenders according to their probability of successfully completing probation with scores placing them in a risk/need category of minimum, medium, and maximum risk for probation failure. The Wisconsin incorporates both static and dynamic variables, which are intended to provide the community corrections officer with a more informed decision in determining the necessary level and type of rehabilitative services that are warranted for the offender under supervision (Baird, Heinz, & Bemus, 1979; Clements, 1996).

The Wisconsin instrument consists of two major components: risk and need. Each component is scored separately for total scores in risk and need. The risk assessment scale of the Wisconsin was developed by regressing several variables, such as criminal history, onto multiple probation outcome measures (e.g., absconding, rule violations, and arrests) to determine which factors predicted the successful completion of probation (Baird et al., 1979). Eleven items were found predictive and included on the measure: number of address changes in the last year, percentage of time employed in last year, alcohol usage problems, drug problems, attitude of offender (e.g., negative thoughts), age at first conviction, number of prior periods of probation/parole supervision and

revocations of such, prior felony convictions, prior or current assaultive adjudications of guilt, and convictions of either burglary, theft, robbery, worthless checks, or forgery. As an administrative override, due to the belief that assaultive offenders have a greater likelihood of violent recidivism, the assaultive adjudications are given more weight than the other risk items (Henderson, 2006). Although in most measures utilized to predict risk for recidivism the "risk" portion consists of static or unchanging variables. The Wisconsin risk portion is comprised of both static (e.g., prior convictions) and dynamic variables (e.g., offender attitude).

The needs assessment scale of the Wisconsin was developed by including variables that supervision officers felt were critical in addressing the needs of the offenders on probation and parole (Baird et al., 1979). The needs scale of the Wisconsin is much more subjective and based on the supervision officer's perception of the offender's needs. For example, the accessing officer determines the level of alcoholic service intervention warranted by asking the offender about their alcohol dependence and by reviewing the offender's social history. A total of 12 items are included in the needs assessment: academic/vocational skills, employment, financial management, marital/family relationships, companions, emotional stability, alcohol usage problems, other drug usage problems, mental ability, health, sexual behavior, and the officer's impression of offender needs. The needs section of the Wisconsin is often not included in the scoring of overall risk, level of supervision, or assessed in most research examining the effectiveness of the instrument. Although the Wisconsin's needs portion of the instrument was originally intended to suggest needs for service and not for the prediction of probation completion or recidivism, research has indicated that utilizing both risk (static risk) and needs (dynamic risk or criminogenic need) in risk assessment yields more effective prediction and classification than utilizing one or the other type of risk (Beggs & Grace, 2010; Hanson & Bussiere, 1996; Van Voorhis, Wright, Salisbury, & Bauman, 2010).

Given the Wisconsin instrument's purpose as a classification tool premised on assessing the likelihood of successful supervision completion, prior research has focused on parolees (Yacus, 1998), felony and misdemeanor probationers (Connelly, 2003; Eisenberg, Bryl, & Fabelo, 2009; Harris, 1994; Henderson, 2006; Henderson, Daniel, Adams, & Rembert, 2007; Schauer, 1990; Yacus, 1998), and juvenile offenders (Ashford & LeCroy, 1998). Validity estimates for the Wisconsin using correlation coefficients have ranged from .27 to .68 on measures of rearrests while on probation (Gendreau, Little, & Goggin, 1996; Harris, 1994), and from .16 to .53 on measures of supervision success (Connelly, 2003; Harris, 1994; Schauer, 1990). Previous studies (Connelly, 2003; Harris, 1994; Schauer, 1990) examining the Wisconsin instrument's Relative Improvement Over Chance (RIOC) rate have demonstrated no greater than 8% over chance predictions, with most indicating below chance accuracy. Finally, in predicting probation revocation, prior research has demonstrated that the Wisconsin instrument's RIOC has ranged from 24% to 55% (Connelly, 2003; Harris, 1994) indicating a maximum accuracy of only 5% above chance. These results indicate that a community supervision officer would often be more accurate by flipping a coin than

to utilize the Wisconsin Risk Needs scale when attempting to predict who will be at risk for probation failure.

Revision of the Wisconsin Risk Need Assessment

Based on the previous research indicating that the Wisconsin instrument generally was not performing well, the Wisconsin Department of Corrections decided to assess the current utility of the measure to determine its effectiveness and whether changes to the measure would make it a more effective predictive tool (Eisenberg et al., 2009). The evaluation sample consisted of 42,853 offenders on community supervision in 2001 and 2002. The offenders were followed for 3 years to assess recidivism rates (defined as any new offense). The total risk score, each risk variable, and risk categories were examined for predictive accuracy. Overall results were very similar (disappointing) to previous findings across the country and thus, the authors made several revision recommendations for the risk portion in an attempt to improve the Wisconsin's accuracy. The authors did not report any results or suggested changes for the needs portion of the instrument.

Eisenberg et al. (2009) reported that the original scoring of the Wisconsin risk scale misclassified too many offenders into the high-risk category. Their results indicated that 76% of the probationers and 93% of the parolees in their sample were evaluated to be high-risk. Eisenberg et al. stated that this overclassification into the high-risk category was caused by the extraordinary weight given to the assaultive risk factor (if an offender had been convicted for an assaultive offense in the last 5 years, he or she automatically received the highest risk score of 15). As stated previously, this weighting was initially suggested because of perceived threat of risk as well as liability for the agency. However, the authors recommend that this weighting be changed on the Wisconsin since it significantly reduced the correct risk classification for offenders, but most importantly, its weight was not premised on empirically supported research.

Eisenberg et al. (2009) also found significant differences between the parole and probated offenders' level of recidivism. For example, probationers classified by the Wisconsin as low-risk had a 9% recidivism rate compared to 15% for low-risk parolees. In addition, low-risk parolees had about the same recidivism rate as medium-risk probationers, and parolees at medium-risk had a higher reoffense rate than probationers classified as high-risk. As these risk classifications on the Wisconsin determine the supervision level provided, the results indicated that the Wisconsin, in its original form, may not allocate supervision resources commensurate to risk level. The authors recommend that the Wisconsin be normed separately for parole and probation offenders.

Eisenberg et al. (2009) reported that the risk items on the Wisconsin correlate with recidivism from .029 (assaultive offense in last 5 years) to .171 (age at first conviction) with the overall risk score correlating .175 when including the assaultive item and .224 without the assaultive item. Thus they recommended completely dropping the assaultive item as it clearly reduced predictive accuracy of the instrument. They also recommended that the Wisconsin be reweighted to increase its predictive power.

Given that the use of simple correlation analysis is sensitive to the variance within base rates and risk classification cutoff points, as common practice, Eisenberg et al. (2009) also present the change in the Receiver Operating Characteristic (ROC) between the original and recommended reweighting of the Wisconsin. The output of the Area Under the Curve (AUC) in the ROC ranges from .50 to 1.00, with .50 indicating that the predictability of the risk instrument in question is no better than chance. The closer the AUC gets to 1.0, the more accurate the predictions of the instrument (Shaffer, Kelly, & Lieberman, 2011). With suggested scoring changes to the Wisconsin, the Area Under the Curve (AUC) for the ROC curve analysis increased to .664 from .614 in their sample of Wisconsin offenders. Although this is an improvement, there remains much variance to be accounted for in the prediction of recidivism. The authors suggest continued assessment of the proposed revised Wisconsin instrument.

The current study

The current study seeks to extend the research knowledge that examines the Wisconsin's predictive effectiveness in an independent sample of probated Texas offenders. Effectively assessing offender's risk for recidivism is paramount from a community perspective. As communities continue to be faced with crime and high recidivism rates, the predictive ability of the Wisconsin Risk Need Assessment provides an avenue through which resources can be provided to those offenders most in need and not "wasted" on lower risk probationers. Subsequently, more focused supervision efforts may result in improved public safety. Given that Texas has approximately 450,000 probationers, any progress made to the assessment of risk and needs by the mandated instrument (the Wisconsin) may have a positive impact on the rehabilitation of offenders and the ability to more effectively predict which offenders require more supervision and services. Thus the current study will first examine the effectiveness of both the risk and needs portion of the original (presently used version) Wisconsin.

To further assess the effectiveness of the Wisconsin measure, the original Wisconsin scoring of the risk scale will be compared to the suggested revised Wisconsin system of weighting and scoring to determine if the suggested changes provide more effective prediction for this Texas offender sample. In addition, further tests will be run to determine if the predictive ability of the Wisconsin can be improved by combining the reweighted risk items with the Wisconsin's needs items. This is the first study to examine the suggested changes to the instrument outside of the state of Wisconsin.

Method

Participants

The male offenders in this sample were drawn from those released in the year 2000 from a Texas probation department. The Community Supervision and Corrections Department released 775 probationers during this time period. Female offenders were

Table 1. Sample Characteristics.

Characteristics	<i>n</i>	%
Race		
White	103	52.8
Black	69	35.4
Hispanic	20	10.3
Probationary offense		
Property crime	165	85
Person crime	29	15
Level of probationary offense		
Felony	37	19.1
Misdemeanor	157	80.9

Note: Percentages will not total more than 100% due to rounding.

excluded from the analysis because the Wisconsin was developed and standardized on male offenders (Baird et al., 1979), there were only 164 females released during the year 2000, and there are currently no gender-specific validity estimates available for the Wisconsin. Since research has also determined that driving while intoxicated (DWI) offenders have different behaviors and characteristics than general offenders (e.g., Curtis, Hocror, & Pennell, 1994), this group ($n = 210$) was also excluded from analyses. In addition, 124 of the remaining offenders in the sample were transferred out of county so their records were not available. As a result, the final sample for analyses included 194 felony (19%) and misdemeanor (81%) offenders.

The sample included offenders who were White (53%), Black (35%), Hispanic (10%), and Other (1%; see Table 1). Approximately 19% of the sample did not complete high school and 81% completed either their high school education or the GED. The average length of supervision time was 21 months ($SD = 25.41$), as most of the sample was serving a term for a misdemeanor offense. The average age of the sample was 28 years ($SD = 11.34$) on release from community supervision. Sixty-four percent of the offenders have never served a prior term on probation. It should also be noted that 89% of the sample have never been convicted of a prior felony offense.

Measures

Wisconsin risk needs assessment. The 23 (11 risk; 12 needs) items on the Wisconsin are scored through offender interviews and official record review. The records include criminal history checks, presentence investigation reports, arrest reports, records of prior educational achievement, and employment verification. Information is also obtained from collateral interviews with family members, friends, and employers of the offender. Because the Wisconsin is used to determine risk and supervision level,

Table 2. Current and Proposed Risk Items,Weights, and Reoffense Percentages.

Risk factor	Categories	Current weight	Proposed weight	Current % reoffense	Proposed % reoffense	χ^2
Address changes	None	0	0	46%	46%	0.94
	One	2	1	48%	48%	
	Two or more	3	2	39%	39%	
Employment	60% or more	0	0	40%	40%	6.73*
	40%-59%	1	1	64%	64%	
	Under 40%	2	2	55%	55%	
Alcohol usage	No interference	0	0	46%	46%	0.18
	Occasional abuse	2	1	43%	43%	
	Frequent abuse	4	2	44%	44%	
Drug usage	No interference	0	0	38%	38%	7.64*
	Occasional abuse	1	1	62%	62%	
	Frequent abuse	2	2	55%	55%	
Attitude	Motivated	0	0	38%	38%	3.41*
	Dependent	3	1	45%	52%	
	Negative	5	1	64%	n/a	
Age first conviction	24 or older	0	0	30%	30%	7.12*
	20-23	2	2	47%	47%	
	19 or younger	4	4	53%	53%	
Prior probation/parole	None	0	0	36%	36%	10.8**
	One or more	4	2	0%	61%	
Prior revocations	None	0	0	61%	42%	6.41*
	One or more	4	2	42%	75%	
Prior felony convictions	None	0	0	41%	41%	7.81*
	One	2	1	73%	73%	
	Two or more	4	2	71%	68%	
	None of listed	0	0	41%	41%	
Offense	Burglary, theft, auto theft, robbery	2	2	57%	57%	4.08
	Worthless checks or forgery	3	1	33%	36%	
	One or more of above	5	2	50%	45%	
Assaultive offense last 5 years	No	0	n/a	45%	n/a	n/a
	Yes	15	n/a	44%	n/a	
Age at placement on community supervision	>40	n/a	0	n/a	38%	0.68
	20-40	n/a	2	n/a	46%	
	<20	n/a	4	n/a	47%	

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

the items of the measure were weighted according to their severity, relationship to probation/parole violations, and criminal behavior.

Table 2 indicates the original and proposed reweighted Wisconsin Risk Assessment instrument and the respective percentage of offenders who were rearrested within 5 years of being released from probation. In both models the Wisconsin’s total risk score is determined by the sum of the 11 risk items on the scale. In its current form, the Wisconsin measure classifies minimum risk as scores ranging from 0 to 7,

medium-risk as scores ranging from 8 to 14, and maximum risk as scores at 15 or above. In the suggested revised form, the Wisconsin measure classifies minimum risk as scores ranging from 0 to 8, medium from 9 to 14, and high-risk 15 and greater. In the proposed reweighted Wisconsin instrument, the item measuring whether an assaultive offense occurred within the previous 5 years of the offender being placed on probation was replaced by an item measuring the age at which the offender was initially placed on probation.

The 12 needs items that compose the Wisconsin Needs Assessment are noted in Table 3 along with the percentage of probationers rearrested within 5 years of being released from probation. Theoretically, the lower values assigned to the needs items are representative of a lesser need. Unlike the risk portion of the Wisconsin, the assigned need level is based on the officer's subjective assessment of need.

Recidivism. In this study, recidivism is operationalized as any subsequent arrest for a Class B misdemeanor or greater within 5 years of being released from the probation term during the fiscal year of 2000. Recidivism data were collected from criminal history reports.

Procedures

The data utilized in the current analyses were gathered from the Corrections Software Database, which is the system used by the Texas probation department. Additional information was gathered through file review at the probation department. Recidivism data were gathered through criminal history checks, which were cross-referenced with the NCIC–TCIC criminal history databases by a state-certified probation officer.

Results

Wisconsin Risk and Need Item and Overall Score Classification Accuracy

Forty-four percent of the sample was rearrested within 5 years of being released from probation. Table 2 provides an examination of each original and proposed risk item weighting by the percentage of offenders rearrested within 5 years of being released from probation, along with a chi-square analysis of the degree to which the reweighted risk item relates to the outcome measure of rearrest. The assumption is that items on the assessment instrument classify offenders according to their likelihood of reoffending. These items and their weightings are assumed to be premised on factors that have demonstrated empirical relationships to offender reoffense rates. In theory, as the weight of the risk or needs item decreases, so does the likelihood of reoffense and, to the contrary, increases in risk/needs item weight indicate higher likelihoods of reoffense. For example, in the original Wisconsin risk instrument 38% of the motivated offenders were rearrested compared to 64% of the unmotivated offenders. Age at first conviction also demonstrated an adherence to the logic of risk items in that as the

Table 3. Current Need Items,Weights, and Reoffense Percentages.

Needs factor	Categories	Current weight	Current % reoffense
Academic/vocational skills	High school or above	-1	35.6%
	Adequate skills	0	45.4%
	Low skills	2	58.3%
Employment	Minimal skill	4	20.0%
	Satisfactory	-1	44.4%
	Secure	0	37.2%
	Unsatisfactory	3	60.7%
Financial management	Unemployed	6	42.9%
	Self-sufficient	-1	0.0%
	No current problems	0	34.1%
Marital/family relationships	Situational/minor difficulties	3	52.9%
	Severe difficulties	5	57.9%
	Strong relationships	-1	50.0%
	Relatively stable	0	43.8%
Companions	Some disorganization/Stress	3	46.9%
	Major disorganization	5	50.0%
	Good support	-1	100.0%
	No adverse relationships	0	37.9%
Emotional stability	Occasional negative relations	2	49.4%
	Almost completely negative	4	60.0%
	Well adjusted	-1	0.0%
	No symptoms	0	42.7%
Alcohol usage problems	None prohibitive symptoms	4	55.2%
	Limiting symptoms	7	50.0%
	None	0	43.6%
Drug problems	Occasional	3	48.1%
	Frequent	6	28.6%
	None	0	35.2%
Mental ability	Occasional	3	61.0%
	Frequent	5	61.5%
	Functional	0	45.6%
Health	Some assistance needed	3	33.3%
	Severely deficient	6	33.3%
	Sound physical condition	0	45.9%
Sexual behavior	Minimal illness/handicap	1	33.3%
	Serious illness/handicap	2	50.0%
	No apparent dysfunction	0	45.0%
P.O. impression of probationer's needs	Minor problem	3	33.3%
	Major problem	5	0.0%
	Well adjusted	-1	0.0%
	No-needs	0	29.2%
	High-needs	3	44.7%
	Moderate-needs	5	53.2%

offenders age at first conviction decreased, the rate of rearrest increased. The remaining nine risk item weightings failed to demonstrate an increase in the percentage of rearrest as the relative risk of rearrest increased. In short, the original Wisconsin did not delineate between the offenders' risk and their actual rate of rearrest on a majority of the risk items.

In the proposed reweighting of the risk items, the offenders' attitude, age at first conviction, prior periods of supervision, and prior revocations adhered to the expected logic of risk assessment, in that increases in risk item weight indicated an increase in the number of offenders who were rearrested. The remaining seven risk items failed to exhibit the logic of risk items in their inability to exhibit an increase in recidivism relative to the offender risk of reoffending. For example, although the weights changed for the alcohol usage item, it did not appear to help the performance of that item; offenders in each category (none, occasional, and frequent use) had approximately the same rates of recidivism.

Chi-square analyses were conducted to determine if the reweighted risk items were significantly associated with the outcome measure of rearrest. Of the 11 reweighted risk items, serving a prior probation/parole term ($\chi^2 = 10.82$, $df = 1$, $p = .00$), attitude ($\chi^2 = 3.41$, $df = 1$, $p = .04$), age at first conviction ($\chi^2 = 7.12$, $df = 2$, $p = .03$), prior revocations ($\chi^2 = 6.41$, $df = 1$, $p = .01$), employment ($\chi^2 = 6.23$, $df = 2$, $p = .04$), drug usage ($\chi^2 = 7.64$, $df = 2$, $p = .02$), and prior felony ($\chi^2 = 17.80$, $df = 1$, $p = .01$) were significantly associated with rearrest. Notably, all four of the logically aligned risk items, and three of the remaining risk items, were significantly associated with rearrest. Overall, the original and proposed risk item weightings do not demonstrate a clear delineation between risk of and actual offender rearrest in the current sample.

Table 3 provides the item weight and percentage of recidivism for the need items on the Wisconsin. Similar to the results on the risk portion of the instrument, many of the items did not perform as expected. For example, offenders who were scored as having strong marital/family relationships (weighted as -1) were as likely to recidivate as those offenders who were scored with major disorganization and stress (weighted as 5); each had a recidivism rate of 50%. In addition, the items of alcohol usage, drug problems, mental ability, and sexual behavior did not seem to discriminate effectively (or at all). Forty-five percent of the offenders who were classified as having no apparent sexual dysfunction recidivated compared to none of the offenders who were classified as having major sexual problems.

The original Wisconsin Risk Classification Instrument risk score distribution classified most of the offenders in the medium and low-risk categories representing 46% and 27%, of the total sample, respectively. After incorporating the suggested reweighted instrument, the greatest degree of change occurred among the high-risk and low-risk offender classifications. Specifically, the number of offenders classified as high-risk were reduced by 76% and those classified as low-risk increased by 94%. The number of offenders classified as medium-risk experienced an 11% reduction in the reweighting.

Table 4. Distribution of Risk Classification Groups.

Risk level	Original Wisconsin	<i>n</i> (%) Rearrested w/in risk categorization	% of recidivist	Proposed Wisconsin	<i>n</i> (%) Rearrested	% of recidivist
	<i>n</i> (%)			<i>n</i> (%)		
High-risk	51 (26.3)	31 (61)	36%	12 (6)	11 (92)	13%
Medium-risk	89 (45.9)	38 (43)	44%	79 (41)	39 (49)	49%
Low-risk	54 (27.8)	18 (33)	21%	103 (53)	37 (36)	43%

Note: Percentages will not total more than 100% due to rounding.

Table 5. Distribution of Needs Classification Groups.

Needs level	Original Wisconsin	<i>n</i> (%) rearrested w/in needs categorization	% of recidivist
	<i>n</i> (%)		
High-risk	9 (4.6)	4 (44.4)	2.1%
Medium-risk	65 (33.5)	36 (55.4)	18.6%
Low-risk	120 (61.9)	47 (39.2)	24.2%

As indicated in Table 4, given the original weighting of the Wisconsin instrument, 44% of the recidivists were classified as medium-risk, 36% were high-risk, and 21% of all recidivists were low-risk. After reweighting the items, the medium-risk offenders would remain the largest group (49%) of recidivists, while the percentage of low-risk recidivist would now represent 43% of all recidivists and the high-risk offender recidivist would decrease to represent only 13% of all offenders rearrested.

Table 5 portrays the classification of the probationer’s needs classification relative to the outcome measure of rearrest within 5 years of being released from probation. It must be noted that the 12 needs items are subjectively determined by the officer. In other words, the probation officer makes a professional judgment about the degree and extent of the probationers’ drug problem, motivation for improvement, and mental health status. In this analysis, 61.9% of the probationers were classified as low-needs, 33.5% were medium-needs, and 4.6% were high-needs. Twenty-four percent of all probationers rearrested were low-risk. No reweighting of the needs items has been proposed.

To test the differences in error rates among the risk levels of the originally weighted Wisconsin Risk Instrument in relation to the proposed weighting, contingency tables were run. Table 6 presents the contingency table results comparing the original and reweighted Wisconsin error rates of the high-risk and low-risk offenders. The 15 or higher risk cutoff score of the original and proposed weighted Wisconsin indicates that 39% and 8%, respectively, were overclassified. In other words, by reweighting the risk items, there was a 95% reduction in the number of false positives.

Table 6. Wisconsin Risk Assessment Instrument Original and Proposed Classification Errors.

	Predicted risk							
	Original high-risk		Proposed high-risk		Original low-risk		Proposed low-risk	
	Wisc ≥ 15		Wisc ≥ 15		Wisc ≤ 7		Wisc ≤ 8	
	False positive		False positive		False negative		False negative	
	(Overclassification error)		(Overclassification error)		(Underclassification error)		(Underclassification error)	
	%	N	%	N	%	N	%	N
Rearrest	39.2	20	8.3	1	67.9	36	64.1	66

After reweighting the Wisconsin instrument, the number of underclassified offenders increased by 83%. Utilizing the originally weighted Wisconsin, 68% assessed low-risk offenders were oversupervised and 64% of the reweighted low-risk offenders did not receive services that were undoubtedly warranted. It is apparent that the proposed weighting would reduce the number of offenders receiving unnecessary supervision and/or services, but appears that there would be similar percentages of offenders not receiving needed services and/or adequate levels of supervision as indicated by the percentage of false negatives in both the originally weighted and proposed Wisconsin instrument within this sample. Unfortunately, false negatives provide the greatest threat to public safety and to dismantling the intentions of agency resources and fiscal allocations (Vess, 2009). Nevertheless, reweighting the risk items has the greatest likelihood of reducing false positive error rates.

Predictive Validity

To determine the predictive validity of the original Wisconsin Risk Needs Assessment Instrument in comparison to the proposed reweighted Wisconsin risk items, several bivariate correlations were estimated (see Tables 7 and 8). The originally weighted and reweighted total risk scores were positively and significantly related to recidivism at the .01 level, at .25, and .29, respectively. Despite this statistically significant relationship, the original and reweighted total risk scores explained no more than 8% of the variance in recidivism.

From the originally weighted Wisconsin risk instrument, the total risk score and risk classifications were significantly and positively associated with recidivism. Several (63%) of the risk assessment items were also significantly associated with recidivism including the percentage of time the offender was employed in the previous 12 months, degree of drug use problems, the offender’s attitude toward change and the

Table 7. Bivariate Correlations Between Original Wisconsin and Proposed Weighting and Recidivism.

Original risk item weighting	Outcome measure	Proposed risk item weighting	Outcome measure
Total risk score	0.25**	Proposed total risk score	0.29**
Supervision level	0.21**	Supervision level	0.25**
Address changes	-0.04	Address changes	-0.05
Employment	0.15*	Employment	0.15*
Alcohol usage	-0.03	Alcohol usage	-0.03
Drug usage	0.16*	Drug usage	0.16*
Motivation to change	0.15*	Motivation to change	0.13
Age at first conviction	0.19**	Age at first conviction	0.19**
Prior parole/probation terms	0.24**	Age at placement on supervision	0.05
Prior revocations	0.18*	Prior parole/probation terms	0.24**
Prior felony convictions	0.19**	Prior revocations	0.18*
Prior juvenile convictions	0.09	Prior felony convictions	0.20**
Assaultive conviction w/in last 5 years	-0.01	Prior juvenile convictions	0.07

*p < .05. **p < .01.

Table 8. Bivariate Correlations Between Needs Items and Recidivism.

Original risk item weighting	Outcome measure
Total needs score	0.19%**
Supervision level	-0.12%
Academic/vocational skills	0.08%
Employment	0.16%*
Financial management	0.20%**
Marital/family relationships	0.03%
Companions	0.11%
Emotional stability	0.08%
Alcohol usage problems	0.00%
Drug problems	0.24%**
Mental ability	-0.06%
Health	-0.04%
Sexual behavior	-0.03%
P.O. impression of needs	0.14%

*p < .05. **p < .01.

rehabilitative ideals and actions of the probation department, the age at first adjudication, the number of prior periods served on probation and parole, the number of prior probation/parole revocations, and the number of prior felony convictions. However, in a Pearson correlation analysis the strongest association between a single risk item and recidivism was between prior times on probation/parole and the outcome measure of rearrest, though fairly weak ($r = .24$), and explaining only 6% of the variance in recidivism.

After reweighting the risk items on the instrument as suggested, fewer of the risk items demonstrated a significant correlation with rearrest. Only the items of time employed in the last 12 months, drug usage problems prior to the current probationary/parole term, age at first conviction, number of prior probation/parole supervision, number of prior probation/parole revocations, and the number of prior felony convictions were significant. All of these relationships were relatively weak, never explaining more than 8% of recidivism variance as determined by the Pearson correlation analysis.

In terms of the needs assessment portion of the instrument, the total needs score was significantly associated with rearrest at the .01 level. The needs supervision/classification level demonstrated a nonsignificant relationship with the outcome measure of rearrest. Only 25% of the needs items (employment, financial management, and drug problems) were significantly related to recidivism and accounted for no more than 6% of the variance in recidivism.

Bivariate correlations receive criticism because of their assumption that the outcome variable is evenly distributed. If this was the case, half of the offenders would recidivate and half would not. It is possible that the slightly skewed distribution of recidivism in this sample (55% of the sample were arrested and 45% were not) would bias the correlation coefficient and, as a result, make it more difficult to compare this study's results to others (see Mossman, 1994 and Shaffer et al., 2011). Despite the perceptually almost equal distribution of the dependent variable (rearrest), the use of the AUC provides an (a) additional safeguard for determining the accuracy of the Wisconsin instrument in predicting recidivism and (b) ability to compare instrument predictability across various risk instruments. To determine the predictive validity of the Wisconsin's total score, the AUC in a receiver operating characteristic (ROC) analysis was conducted. It has become common practice to utilize ROC curves to determine the risk instruments ability to predict a dichotomously measured outcome measure. The ROC graphically plots the sensitivity against the specificity. The Area Under the Curve (AUC) represents the likelihood of a rearrested probationer will score higher on the risk score than an offender who was not rearrested (Rice & Harris, 1995). AUCs of .50 indicate that the instrument under question predicts no better than chance, with increasing accuracy indicative of AUCs closer to 1.0.

As indicated in Table 9, the AUC values for the original risk and needs items, as well as the reweighted risk items, were positively significant at the .01 significance level, despite only being slightly better than chance predictions. The AUC for recidivism was .63 for the total original risk score and improved to .66 for the total reweighted risk score. Similar AUC findings for the needs items indicated an AUC of .62. AUC

Table 9. Receiver Operating Characteristics of the Total Risk and Needs Scores with Recidivism.

Predictors	Arrest	
	AUC	95% CI
Original Wisconsin total risk score	.63**	[.55, .71]
Proposed Wisconsin total risk score	.66**	[.58, .73]
Total needs score	.62**	[.54, .70]

***p* < .01.

analysis indicates that the original Wisconsin risk and needs score and the proposed Wisconsin risk score were all only marginally predictive of the outcome measure. The findings also suggest that the proposed Wisconsin risk score only slightly improves the predictability over the original Wisconsin risk score.

Regression analysis. The first set of analyses examined the predictive validity of the original and reweighted Wisconsin risk items regressed on the measure of recidivism (see Table 10). Regression analysis indicated that the original and proposed weighting of the instrument were minimally, positively, and significantly associated with the outcome variable. Age at first arrest was the only significantly related original Wisconsin risk item associated with rearrest. For every year there was a reduction in the age of first conviction, the likelihood of rearrest increased by 23.2%. In other words, as the offenders' age at the time of their initial criminal conviction decreased the more likely they were to be arrested postcompletion of probation. Interestingly, after reweighting the risk items, none of the assessment items indicated a significant relationship with the outcome variable. Despite the before mentioned finding, the percentage of variance explained by the original Wisconsin weighting accounted for only 17.8% and the proposed Wisconsin accounted for 17.4%. The risk assessment instrument under question leaves approximately 82% of the variance in offender rearrests postcompletion of probation unexplained.

To examine the ability of the needs items to predict rearrest, a second model was run with only the Wisconsin need items. Similar to the risk items, the needs items are minimally statistically significant (*SE* = .138, *p* < .05; model χ^2 = 21.169). Only the financial management, β = .24, *SE* = .10, *Exp(B)* = 1.27, *p* < .01, and drug problem, β = .26, *SE* = .11, *Exp(B)* = 1.29, *p* < .01, items were statistically significant. Nonetheless, the needs assessment portion of the Wisconsin leaves 86.2% of the variance in rearrest unexplained.

The final regression analysis was to determine the contribution of the needs items to the overall prediction of probationer rearrest within 5 years of being released from probation. In the initial block we examined the predictive validity of the reweighted total risk score; in the second block the total needs score was added. For rearrest within 5 years of being released, the reweighted total risk score was minimally predictive

Table 10. Regression Analysis of Old and New Wisconsin Risk Items with Recidivism.

Original Wisconsin and arrest				Proposed Wisconsin and Arrest			
Original Wisconsin risk items	B	SE	Exp (B)	Proposed Wisconsin risk items	B	SE	Exp (B)
Address changes	-0.177	0.129	0.838	Address changes	-0.287	0.206	0.75
Employment	0.303	0.234	1.354	Employment	0.306	0.234	1.358
Alcohol usage	-0.032	0.12	0.969	Alcohol usage	-0.045	0.241	0.956
Drug usage	0.296	0.231	1.345	Drug usage	0.301	0.223	1.352
Motivation to change	0.143	0.094	1.154	Motivation to change	0.399	0.318	1.491
Age at first conviction	0.209*	0.097	1.232	Age at first conviction	0.208	0.111	1.231
Prior parole/probation terms	0.125	0.093	1.133	Age at placement on supervision	0.243	0.188	1.276
Prior revocations	0.129	0.181	1.138	Prior parole/probation terms	0.245	0.357	1.277
Prior felony convictions	0.193	0.222	1.213	Prior revocations	0.322	0.309	1.38
Prior juvenile convictions	0.164	0.159	1.178	Prior felony convictions	0.292	0.288	1.34
Convictions for assaultive offense within last 5 years	0.001	0.051	1.001	Juvenile conviction adjudications	0.007	0.166	1.007
Constant	-1.315	0.425	0.269	Constant	-1.314	0.456	0.269
Nagelkerke R ²		0.178		Nagelkerke R ²		0.174	
Model χ^2		27.72*		Model χ^2		26.846*	

* $p < .05$.

resulting in $\beta = .16$, $SE = .04$, $\text{Exp}(B) = 1.16$, $p < .01$; final model $\chi^2 = 16.42$. The addition of the needs items did not incrementally increase, $\beta = .03$, $SE = .02$, $\text{Exp}(B) = 1.03$; final model $\chi^2 = 1.69$, the predictability of the Wisconsin Risk Needs Assessment Instrument.

Discussion

Despite widespread utilization among probation and parole departments across the nation and being mandated in some states for risk and needs assessment, research has indicated that the Wisconsin is a poor predictor for offender classification, risk of probation/parole failure, and recidivism. The extant literature examining the utility of the Wisconsin has been so disappointing that the authors in the state of Wisconsin completed a large-scale analysis on the measure in an attempt to reweight the risk items and classification levels of the instrument to provide more accurate and helpful results (Eisenberg et al., 2009). This research examined the predictive accuracy of the Wisconsin risk and needs items within a sample of Texas probationers utilizing an extended follow-up time of 5 years. In Texas, the Wisconsin is mandated for risk and need assessment in most probation and parole departments by its probation governing authority. However, as is the case in most other states which utilize the Wisconsin, little research has assessed the accuracy within Texas. In addition, the current study

Table 11. Regression Analysis of Wisconsin Needs Items on Recidivism.

Wisconsin needs items	B	SE	Exp (B)
Academic/vocational skills	-0.022	0.154	0.978
Employment	0.020	0.105	1.020
Financial Management	0.237**	0.103	1.267
Marital/family relationships	0.039	0.113	1.040
Companions	0.016	0.149	1.017
Emotional stability	0.105	0.097	1.111
Alcohol usage problems	-0.025	0.098	0.975
Drug problems	0.255**	0.106	1.290
Mental ability	-0.222	0.182	0.801
Health	-0.383	0.480	0.681
Sexual behavior	-0.121	0.435	0.886
P.O. impression of needs	0.013	0.135	1.013
Constant	-1.023	0.395	0.0359
Nagelkerke R ²		0.138	
Model χ^2		21.169*	

*p < .05. **p < .01.

compared the original version of the risk and needs sections to the newly proposed risk method of scoring and classifying offenders provided by the instrument’s authors in 2009.

The results of the current study demonstrated five primary findings: (a) the original Wisconsin is not an effective risk/need instrument, (b) that after reweighting the instrument there was a significant degree of change in offender classification among low and high-risk offenders, (c) the reweighting did not increase the explanatory power of the instrument, (d) 82% of the variance in explaining rearrest remains unexplained, and (e) the needs portion did not significantly add to the overall predictive accuracy of the instrument. Similar to previous research on the original Wisconsin, the current results demonstrated that the risk and needs items do not perform as intended nor account for significant variance in postprobation recidivism.

In the reweighting of the Wisconsin Risk Assessment Instrument, the percentage of high and low-risk offenders exhibited the greatest degree of change. The high-risk categorization demonstrated a 76% decrease in the number of offenders in this risk classification, while the low-risk offender group increased by 94%. Although previous research (Eisenberg et al., 2009) on the impact of risk item reweighting has demonstrated a reduction in the numbers of offenders in the high-risk categorization and an increase in the middle and low-risk groups, our research demonstrated that the low-risk group had the greatest percentage of increase in actual offenders within this risk level. Results also indicated that the percentage of change in recidivism among risk classifications between the original and reweighted groups of high-risk rearrest

Table 12. Post Hoc Hierarchical Regression for Recidivism by Reweighted Total Risk and Total Needs Scores.

Rearrest	β (SE)	Exp (B)	Overall	
			χ^2	Exp (B)
Block 1 Reweighted total risk score	0.163 (.043)	1.177**	16.423**	1.155
Block 2 Total needs score	0.027 (.020)	1.027	1.693	1.027

Note: The regression model includes the suggested reweighted total risk as the only predictor in Block 1 and added the total needs score in Block 2. B (SE) and the significance of Exp (B) are indicated for each predictor variable, and χ^2 values are reported for the overall model after each block, as opposed to the change in χ^2 .

** $p < .01$.

decreased from 36% to 13% and the low-risk group increased from 20% to 43%. These results suggest that reweighting the Wisconsin has an impact on the offender levels of supervision, among mostly the high and low-risk categorizations. Similar to all risk assessment instruments, the Wisconsin should not differentially over- or under-classify offenders for recidivism. This over- and underclassification of offenders is known as false positives and false negatives, respectively. In the practice of risk assessment, false positives (overclassification errors) are those offenders predicted to be at a higher risk of reoffending but who do not recidivate. False negative (underclassification errors) are those cases in which the offender was predicted not to reoffend, but actually does. For a corrections department, false positives and false negatives present serious administrative and community level challenges. High rates of false positives ultimately mean that offenders receive unwarranted restrictions on their individual freedoms and departments are drained of valuable resources that could be otherwise utilized on offenders who would be better served. On the other hand, high rates of false negatives provide an even greater challenge to agencies in charge of protecting the well-being of society. False negatives create a situation whereby offenders who are in dire need of services are overlooked and undersupervised. In the end, these offenders do not receive the resources that have demonstrated an ability to reduce their likelihood of recidivating (Krebs, Strom, Koetse, & Lattimore, 2009). The practical reality is that false positives and false negatives fall victim to the dynamic nature of human behavioral motivating factors and, as a result, no risk instrument will predict with 100% accuracy. Nonetheless, there should not be a difference in the rates of error between risk classification groups. In other words, the error rates should be similar for high, medium, and low-risk offenders. The current results suggest that, given the high rate of false negatives, departments may seriously threaten the notion of public safety by way of undersupervising offenders if utilizing the newly suggested weighting of the Wisconsin.

When examining bivariate correlations between the risk items and rearrest, 64% of the original risk items and only 45% of the reweighted items were found to be significantly

associated with the outcome measure of rearrest. In the regression analysis, only the originally weighted Wisconsin instrument had an item (age at first conviction) that was significantly and positively related to the outcome variable. Similar to the recent findings of Eisenberg (2009) that the risk item reweighting did not significantly improve the amount of variance explained, our findings revealed that the original and reweighted instrument explained only 17.8% and 17.4% of the variance, respectively.

Although our results are similar to previous findings on the utility of the Wisconsin, several limitations could have affected our results. First, due to the relatively small sample size ($n = 194$), it would be difficult to accurately generalize the findings to other community supervision departments. However, recent findings (Blair, Marcus, & Boccaccini, 2008; Hanson & Morton-Bourgon, 2007; Shwalbe, 2008; Singh & Fazel, 2010) have indicated that in risk assessment research, an increase in sample size does not have a significant impact on effect size. This limitation must also be contextualized by the numerous findings, which have warned of the unvalidated acceptance of risk instruments by probation departments without the determination of its applicability to that jurisdiction (Andrews & Bonta, 1994; Gendreau et al., 1996).

Another notable limitation of this study, as is the case with most risk validations, is that there is no measure for the level of services received between the initial assessment of risk and the occurrence of recidivism. As a result, findings may be as much about the unknown level of services received, than they are about the ability of the risk instrument to predict recidivism. In addition, utilizing preexisting data in the offender probation files (and database) did not allow examination of accurate Wisconsin scoring. Results could be due to inaccurate or inconsistent scoring among the community supervision officers administering the Wisconsin.

Despite these limitations, the results of this study yield yet more evidentiary support for the ineffectiveness of the Wisconsin Risk Needs assessment instrument. Because of its inability to properly classify offenders, predict rearrest, minimize error, and explain acceptable levels of variance in the outcome measure, the Wisconsin instrument must seriously be considered for discontinued use. A case can be made that the Wisconsin violates the principled notion of equal justice for those offenders that are misclassified, as evidenced by the 80% plus variance that remains to be explained by the instrument when seeking to explain rearrest. Unfortunately, the Wisconsin Risk Needs Assessment instrument plays a significant role in agency resource allocation as it guides the suggested level of supervision and rendered rehabilitative services.

Second, in its current use, the assessment instrument relies heavily on the risk items despite research, which indicates the increased predictive ability of the risk needs items concurrently. To effectively manage the massive number of offenders, agencies must utilize an instrument that will provide them an improved likelihood of proactively determining those at increased odds of probation/parole failure and recidivism. There are several instruments that have been developed, or are currently being developed, that indicate much stronger reliability and validity evidence. For example, the

LSI-R (Andrews & Bonta, 1995) has several years of research that indicates it is a strong measure to assess offender risk and need. In fact, the LSI-R is considered to be one of the best methods of assessing risk for needs-based case management (Andrews & Bonta, 2006; Brown, St. Armand, & Zamble, 2009; Henderson, 2006; Schlager & Pacheco, 2011). The LSI-R is considered a third generation risk assessment that is grounded in both theory and support for predictive accuracy (Gendreau et al., 1996). In addition, the Inventory of Offender Risk, Needs, and Strengths (IORNS; Miller, 2006a) is acquiring data that indicates this self-report measure may be an efficient and effective tool to assess risk and offender treatment/management need. The IORNS includes assessment of several constructs that are related to recidivism and desistance from criminal behavior including criminal orientation, psychopathy, alcohol/drug problems, negative family and friend influence, anger regulation, and personal resources (Miller, 2006a). Early validity examinations of the IORNS with prerelease, general, female and male, probated, and sexual offenders indicated good internal consistency of the scales, validity across race, good convergent validity with the LSI-R and other scales that predict recidivism (Miller, 2006a, 2006b). Miller (2006b) and Bergeron and Miller (2011) reported initial predictive validity with a group of general offenders being released to half-way houses and consistency of the IORNS' factor structure over administrations.

Conclusion

The Wisconsin Risk Needs Assessment instrument was adopted by Texas in the early 1980s. However, as opposed to more recently developed risk/need measures (e.g., LSI-R and IORNS), there have been very few evaluations of its reliability and predictive utility, both within Texas and around the country. In addition, the Wisconsin is mandated for use in a state with the largest probation population in the United States, with over 440,000 offenders currently being supervised. Previous research that has examined the Wisconsin's utility has been discouraging. So discouraging in fact, that the authors have suggested a revised weighting and scoring system in an attempt to improve the measure's classification accuracy. The current findings are consistent with previous research, both with the original and suggested changes; the Wisconsin Risk Needs instrument does not provide the classification and predictive accuracy that community supervision departments warrant for the most efficient use of resources ultimately seeking to protect the public's interest, which have become critical in this era of budget cuts and increased program fidelity in the contextual reality of correctional decision making. Therefore, it is recommended that agencies discontinue the use of the Wisconsin Risk Needs Assessment.

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Author Biographies

Howard Henderson, PhD, is an assistant professor in the College of Criminal Justice at Sam Houston State University. He received his PhD in criminal justice from Sam Houston State University. His research interests are focused on predictive risk assessment and correctional program evaluations.

Holly A. Miller, PhD, is an Assistant Dean of Undergraduate Programs and Professor in the College of Criminal Justice at Sam Houston State University. She received her BA. from Bethel College in St. Paul, Minnesota and her PhD. in clinical psychology from Florida State University. She teaches, consults, and conducts research in the areas of malingered psychopathology, assessment and treatment of offenders, psychopathy, sexual offenders, and diversity issues in criminal justice.