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Domestic Violence Exploratory Study on the DVSI and SARA

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This exploratory study is an analysis of the Domestic Violence Screening Instrument (DVSI) and the Spousal Assault Risk Assessment (SARA). It is a companion report that supplements two previous studies.¹ This study is important to the efforts of Hawaii's Interagency Council on Intermediate Sanctions (ICIS), since it provides the information needed to locally evaluate the validity of the DVSI and SARA as domestic violence risk instruments (currently the DVSI and SARA are nationally-validated domestic violence instruments). The study findings will help to strengthen criminal justice services in risk assessment and risk classification; intensive case management, planning, and supervision; and the matching of identified needs to effective treatment services.

The DVSI is primarily a risk-based criminal history screening instrument that calculates a risk score that differentiates offenders by risk levels. It is administered by criminal justice professionals at intake, or at the start of probation services. The DVSI is used for case supervision, and to target appropriate, DV-specific services. On the other hand, the SARA is a tool used to assess intimate partner risk *potential*, rather than to *predict* future episodes of domestic violence (DV). Both the DVSI and SARA are nationally-validated instruments that provide information on DV risk through structured clinical interviews and assessments. The State of Hawaii uses both the DVSI and SARA to screen out low risk offenders, and to assess the likelihood of intimate partner violence, or the threat of violence. The ICIS effort is exploring the use of the SARA, DVSI, and LSI-R (Level of Service

Inventory-Revised) instruments for case-planning purposes.

Figure 1 summarizes important recidivism statistics for both the DVSI and SARA, including re-arrest rates, probabilities of re-arrest occurrence, and time-to-event recidivism projections.

DVSI:

- 28% DV recidivism (re-arrest) rate for high risk offenders.
- 76% General (re-arrest) recidivism rate for high risk offenders.
- High risk offenders are projected to commit a DV re-offense after 41 months.
- High risk offenders are projected to commit a General re-offense after 35 months.
- 58% probability of decline in DV re-arrest, if there is a one-unit decline in risk level.
- 48% probability of decline in General re-arrests, if there is a one-unit decline in risk level.

SARA:

- 32% DV recidivism (re-arrest) rate for high risk offenders.
- 66% General recidivism (re-arrest) rate for high risk offenders.
- 51% of high risk offenders are projected to commit a DV re-offense after 47 months.
- 96% of high risk offenders are projected to commit a General re-offense after 58 months.
- 41% probability of decline in DV re-arrests, if there is a one-unit decline in risk level.
- 33% probability of decline in General re-arrests, if there is a one-unit decline in risk level.

Figure 1

¹ *Validation Study of the Domestic Violence Screening Instrument (DVSI) – State of Hawaii, 2003–2007, and Validation Study of the Spousal Assault Risk Assessment (SARA) – State of Hawaii, 2004–2007.*

I. Historical Development and Validation of the DVSI and SARA Risk Instruments

The DVSI, developed by the Colorado Judicial Department, was designed as a brief criminal history review of recently arrested offenders. It measures both static indicators (criminal history, spousal assault history, and past treatment services received) and dynamic indicators (severity and escalation of assault threats, employment status, and social and family dynamics). This 12-item screening instrument assesses the likelihood that intimate partner violence with a past or current relationship will take place, either repeatedly, or in escalated fashion, and based on the perpetrator's history of violence, substance use, and employment status.

The SARA, developed by Kropp, Hart, Webster, and Eaves, is marketed by the British Columbia Institute Against Family Violence. The SARA is a clinical checklist of risk factors, or reference points that assesses for risk of intimate partner abuse, or the potential for future violence. The 20-item instrument is based on existing clinical and empirical research. It includes static indicators (criminal history, spousal assault history, and past treatment services received) and dynamic indicators (psychosocial adjustment, spouse assault aversive attitudes, and severity and escalation of assault threats). The SARA's validity is dependent on well-trained professionals who possess the assessment skills to identify DV offenders that have known DV-risk factors (Kropp et al., 1994).

Several studies have validated the DVSI and SARA as appropriate risk-classification instruments for DV offenders. Williams and Houghton (2007) conducted an 18-month recidivism study on DV offenders who were administered the DVSI and SARA. This study's arrest data were compiled from information drawn by the Colorado Criminal Information Center (CCIC). Of the 1,449 offenders examined in this study, 70 percent were classified as low risk offenders (<8 DVSI score), while 30 percent were classified as high risk offenders (>7 DVSI score). The recidivism rate for DV offenders was significantly higher ($p < .001$) for high risk individuals compared to low risk individuals, a difference of 11.5%. Likewise, the SARA study examined 423 offenders over an eighteen-month recidivism period. High risk individuals (>12 SARA score) had higher DV recidivism rates than did low risk individuals (<13 SARA score), a difference of 13.7% ($p < .01$).

In a study by Skilling (2002), 400 SARAs were administered by Hennepin County researchers in Minneapolis, Minnesota. The author used the published cut-off score of 20, which differentiated high risk offenders from low risk offenders. The SARA revealed good item-by-item internal consistency ($r = .80$), which was

found to be higher than the DVSI's internal consistency ($r = .70$), which revealed greater item-to-item reliability than the DVSI. It additionally provided a more in-depth evaluation of the clients' psychosocial adjustment and spousal assault histories. The SARA also provided a reasonably strong assessment of the clients' potential for committing a new offense (Skilling 2002). Finally, Skilling observed reasonably strong correlation ($r = .65$) between the DVSI and SARA scores. This indicates that the use of both instruments is warranted, especially in dealing with issues that govern resource needs, time-management efforts, or case-planning enhancements.

Despite the established validity of the DVSI and SARA, there are a number of limitations found in the current body of research. The multiple studies of Kropp (2002); Grann, Martin, & Wedin (2002); Skilling (2002); and Stewart, Kropp, & Lee (2005) revealed difficulties in establishing appropriate cut-off scores for high risk and low risk DV offenders. Although the SARA has adequate predictive validity in distinguishing high risk from low risk offenders, derived from differences in recidivism rates, it has marginal predictive value in differentiating between risk groups (e.g., low, medium, and high).

Additionally, current research offers little evidence that the DVSI, SARA, or any other validated DV-risk assessment instrument can successfully predict intimate partner re-violence. In Gondolf (2002), risk markers (offender characteristics that are predictive of re-assault) have weak predictive power, even when adding interacting risk factors to the model. Finally, risk assessment instruments that possess a high degree of risk-item sensitivity remain problematic for instrumentation improvement, i.e., increasing the instruments' predictive power beyond known risk markers. The risk of false positives (non-offenders with high risk markers), and false negatives (re-offenders with low risk markers) remain problematic for both the DVSI and the SARA.

II. Statistical Analysis

This study's major objective is to evaluate the DVSI's and SARA's performance in Hawaii. A recidivism study provides the research data needed to validate the DVSI and SARA as predictive risk instruments for domestic and intimate partner offenses.

The Hawaii database includes 1,917 DVSI and 249 SARA records collected from Fiscal Years 2003 through 2007 (Table 1). In total, 492 DVSI records were identified for a three-year follow-up recidivism study (DVSI assessments administered prior to July 2004), and 249 SARA records were identified for a three-month follow-up study (SARA assessments administered prior to May 2007). The small sample size, due to the recent compilation of the SARA data, necessitated a short follow-up period.

Table 1: Selected Demographic Statistics (2003-2007)

(n=1,917)	DVSI		SARA	
	Frequency	Pct.	Frequency	Pct.
Gender				
Male	1,676	87.4%	214	90.3%
Female	241	12.6%	23	9.7%
Age Range				
18 – 29 years old	504	26.3%	42	19.6%
30 – 39 years old	658	34.3%	71	33.2%
40 – 49 years old	535	27.9%	73	34.1%
50+ years	220	11.5%	28	13.1%
Ethnicity				
Caucasian	341	17.8%	47	18.9%
Hawn/part-Hawn	566	29.5%	83	33.3%
Filipino	305	15.9%	43	17.3%
Samoan	105	5.5%	10	4.0%
All Others	600	31.3%	66	26.5%

Note: Approximately 30-33% of the DV offenders are Hawn/part-Hawn, while 87-90% are Male, and 20-26% are Single.

The recidivism study examines DV offenders by locally-normed, criminogenic-risk levels. The study's recidivism (re-arrest) period was defined as the elapsed time between the offenders' DVSI/SARA assessment dates and the re-arrest dates. Offender re-arrests are based on the following definitions for DV recidivism and General recidivism:

DV Recidivism (DV-related offenses)²:

1. Abuse or Assault of a Household or Family Member
2. Terroristic Threatening
3. Harassment
4. Temporary Restraining Order and/or a violation of a TRO
5. Violation of a Protective Order

General Recidivism (General offenses):

1. Probation Revocation
2. General non-household/non-family member felonies
3. Property Crimes
4. Drug Arrests
5. Criminal Contempt of Court

A. Comparative Recidivism Analysis between the DVSI and SARA

The primary objective of this study is to determine the predictive validity of the DVSI and SARA as risk classification instruments for DV offenders. A valid instrument should predict, with all other factors being equal, a higher recidivism rate for high risk offenders and

a lower recidivism rate for low risk offenders. This is achieved by analyzing the risk classification structure of the DVSI and SARA, and whether or not these DV risk instruments can accurately distinguish offenders by risk levels, based on locally-defined cut-off scores. A recidivism analysis is critical to this study because it will help to determine whether the defined cut-off scores within each risk group possess statistically significant differences in re-arrest rates.

In Table 2, the DVSI mean score is 6.9, compared to the SARA mean score of 10.4. The DVSI mean is within the low-medium risk class, while the SARA mean score is within the high risk class. The risk class cut-off scores were based on statistically significant differences in recidivism rates established by earlier validation studies.

Table 2: SARA and DVSI Mean Scores and Risk Classifications Normed to Hawaii Data

Mean Total Score	Domestic Violence Risk Instruments (Hawaii Data)			
	DVSI (n=442)		SARA (n=196)	
	Raw Score	Conf. Interval	Raw Score	Conf. Interval
6.9	6.7-7.2	10.4	9.9-10.8	
Risk Class	Cut-off scores	% Distrib.	Cut-off scores	% Distrib.
Surveillance	>17	4.1%	-	-
High	9-17	26.7%	>8	53.6%
Medium	7-8	13.3%	-	-
Low	6	7.2%	<9	46.4%
Administrative	<6	48.6%	-	-
Total		99.9%		100.0%
Cronbach's α	0.696		0.653	
Pearson's r	.540, p<.01			

Note: The DVSI was classified into five risk categories, beginning with the high and surveillance risk groups with scores of 9 or greater (30.8% of the records), a medium risk group with scores of 7-8 (13.3% of the records), and ending with the low and administrative risk groups with scores of 6 and less (55.8% of the records). The SARA was classified into two risk categories, including a high risk group with SARA scores of 9 or greater (53.6% of the records), and a low-medium risk group with scores of 8 or less (46.4% of the records).

The internal consistency (Cronbach's Alpha) was at the lower end of the reliability scale for both the SARA (.65) and DVSI (.70). This means that probation officers are scoring the SARA and DVSI with only marginal consistency (α>.80 needed) across related items.³ Additionally, the correlation (Pearson's r) between the SARA and DVSI was significant (r=.54) at the p<.01 level, although Skilling (2002) reported a higher (r=.65) correlation. This reveals that offenders with high or low scores on the DVSI are likely to respectively, score high or low on the SARA.

² Categories of offenses specified under DV Recidivism may include a small percentage of cases that are non-domestic encounters involving terroristic threatening, harassment, or TRO violations, etc. According to a review of cases conducted by the 1st Circuit DV Unit, approximately 15% of their caseload is non-domestic cases.

³ The Cronbach's Alpha was calculated by analyzing the individual items by the DVSI and SARA total scores. Previously published Cronbach's Alphas established by Skilling (2002) and Williams and Houghton (2007) had respective SARA and DVSI correlations of .80 and .77.

In Table 3, DVSI aggregations revealed that 20.4% of the offenders were re-arrested for DV-related offenses, while 61.3% of the offenders were re-arrested for General re-offenses. The SARA aggregations revealed that 26.0% of the offenders were re-arrested for DV-related re-offenses, while 56.1% of the offenders were re-arrested for General re-offenses. The recidivism rates for both the DVSI and SARA are comparable to Williams and Houghton's (2007) recidivism rates.

Table 3: SARA and DVSI Classification, by DV and General Recidivism Rates

Domestic Violence Risk Instruments						
		DVSI (n=442)			SARA (n=196)	
DV Recidivism	n	Re-arrests	Recidivism Rate	n	Re-arrests	Recidivism Rate
Surveillance	18	10	55.6%	-	-	-
High	118	33	28.0%	105	34	32.4%
Medium	59	12	20.3%	-	-	-
Low	32	4	12.5%	91	17	18.7%
Administrative	215	31	14.4%	-	-	-
Total	442	90	20.4%	196	51	26.0%
<i>Statistical Significance</i>		$\chi^2=23.86, p<.001$			$\chi^2=4.75, p<.05$	

		DVSI (n=442)			SARA (n=196)	
General Recidivism	n	Re-arrests	Recidivism Rate	n	Re-arrests	Recidivism Rate
Surveillance	18	16	88.9%	-	-	-
High	118	90	76.3%	105	69	65.7%
Medium	59	40	67.8%	-	-	-
Low	32	20	62.5%	91	41	45.1%
Administrative	215	105	48.8%	-	-	-
Total	442	271	61.3%	196	110	56.1%
<i>Statistical Significance</i>		$\chi^2=23.07, p<.001$			$\chi^2=8.45, p<.01$	

Note: The DVSI data reveal that as risk levels increase, DV and General recidivism rates correspondingly increase (except for the low risk offenders re-arrested for DV re-offenses), at the $p<.001$ level of statistical significance. The differences in DV recidivism rates across risk levels are represented by Surveillance (55.6%), High (28.0%), Medium (20.3%), and Low (12.5%). The SARA revealed that 32.4% of the high risk offenders were re-arrested for DV re-offenses, compared to 18.7% of the low risk offenders ($p<.05$). Similarly, 65.7% of the high risk offenders were re-arrested for General re-offenses, compared to 45.1% of the low risk re-offenders ($p<.01$).

The estimates depicted in Table 4 reveal increasing recidivism rates, as risk levels increase. These projections, for both the SARA and DVSI, are true not only for DV recidivism, but also for General recidivism. Recidivism projections for the DVSI are identical to the actual recidivism rates established in Table 3. However, the SARA recidivism projections (see Table 4) have lower recidivism rates than the actual rates depicted in Table 3. Table 4 reveals that the differences in DV recidivism rates are statistically significant for high risk offenders (51.2%), compared to low risk offenders (39.1%). Table 4 also depicts the number of months within which an offender is projected to re-offend (for both DV and General recidivism), after completing initial DVSI and SARA assessments.

Table 4: DVSI and SARA Recidivism Analysis (Survival Analysis – Kaplan Meier)

	DV Recidivism		General Recidivism	
	DVSI (n=442)	SARA (n=196)	DVSI (n=442)	SARA (n=180)
Percent of Offenders Projected to Recidivate				
Surveillance	55.6%	-	88.9%	-
High	28.0%	High (>8); 51.2%	76.3%	High (>8); 95.7%
Medium	20.3%	-	67.8%	-
Low	12.5%	Low (<9); 39.1%	62.5%	Low (<9); 94.6%
Administrative	14.4%	-	48.8%	-
Average	20.4%	-	61.3%	-
Significance Level	Log Rank=27.3, $p<.001$	Breslow=4.39, $p<.05$	Log Rank=23.3, $p<.001$	Log Rank=4.50, $p<.05$
Average # of Elapsed Months to Recidivism				
Surveillance	39.2	-	35.3	-
High	40.8	High (>8); 46.8	36.3	High (>8); 57.9
Medium	40.5	-	40.5	-
Low	32.7	Low (<9); 42.9	36.8	Low (<9); 58.3
Administrative	39.3	-	39.3	-
Average	40.8	-	40.5	-

Note: The Kaplan Meier (Survival) Analysis provides a time-to-event projection of offender re-arrests. Risk classification differences in DV and General recidivism rates are statistically significant, respectively, for both the DVSI ($\chi^2=27.3, 23.3, p<.001$), and SARA ($\chi^2=4.4, 4.5, p<.05$). With respect to offenders projected to recidivate, the average time to re-arrest, based on the DVSI is 41 months for both DV and General recidivism. On the other hand, high risk offenders with SARAs were re-arrested at 47 months for DV recidivists, and 58 months for General recidivists.

Line graphs of DV recidivism for both the DVSI (Chart A) and SARA (Chart B) reveal that the survival curves for each risk level diverge from each other along the *Cumulative Survival* and *Months Primary Only Re-arrests* axis. In Chart A, the divergent patterns show significant separations in risk survival. In the time-to-event analysis, high risk offenders with DVSI are projected to recidivate after 41 months, as compared to 33 months for low risk offenders. On the other hand, projections for Surveillance (39.2 months), Medium (40.5 months), and Administrative (39.3 months) did not significantly differ from each other. The divergent survival patterns depicted in Chart B are also significantly different. High risk offenders are projected to recidivate at 47 months from receiving a SARA assessment, as compared to 43 months for low risk offenders.

Chart A: Survival Curve of DV Re-Offenses with DVSI

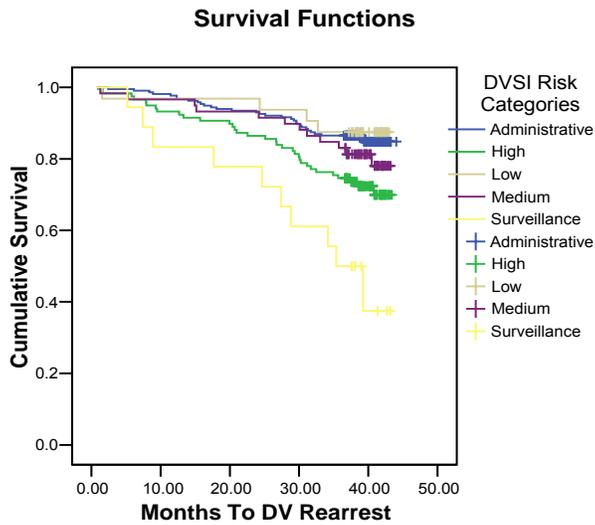


Chart B: Survival Curve of DV Re-Offenses with SARAs

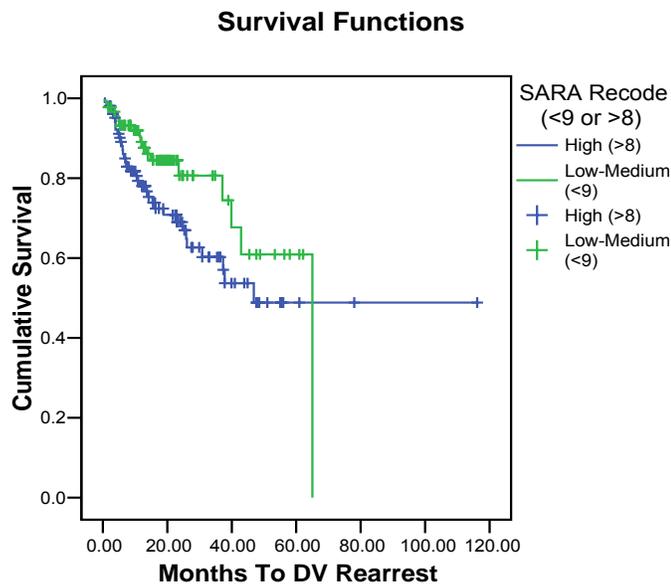


Table 5 and Table 6 depict respective recidivism probabilities for DV recidivists and General recidivists for the DVSI and SARA. It reflects statistically significant changes in recidivism risk, with respect to the multiple risk levels. The relative risk of recidivism indicates declining risk reduction probabilities for each and every risk level for both DV and General recidivism.

Also, the Receiver Operator Characteristics (ROC) coefficients provide statistical measures in predicting the instruments' abilities to correctly classify DV offenders into discrete risk groups.⁴ A perfect ROC of 1.0 represents zero classification errors (highest degree of risk selection sensitivity and selectivity), while an ROC of less than 0.5 represents a meaningless risk classification prediction.

Table 5 reveals statistically significant relative risk probabilities as offenders move downward through risk levels. The greatest risk probability captured in the DVSI is an 80% decline in DV-recidivism risk for medium-to-low risk level offenders. The data also reveal a 70.4% decline in General recidivism risk for low-to-administrative risk level offenders. With respect to ROCs, the DVSI total score has low, but statistically significant predictive coefficients of .63 ($p < .001$) for DV recidivists, and .65 ($p < .001$) for General recidivists.

Table 5: DVSI Probability Analysis Using Cox Regression and Predictive Analysis

DVSI Risk Level (n=442)	Regression Coefficient (B)	Standard Error (SE)	Chi Sq. (Wald)	Signif.	Recidivism "Odds" Ratio (Exp B)	Relative Recidivism Risk (1 - Exp B)	Predictive Validity (ROCs)
DV Recidivism							
Administrative (0-5)	-1.61	0.36	19.5	0.0	0.2	80.0%	
Low (6)	-1.79	0.59	9.1	0	0.168	83.2%	.628*
Medium (7-8)	-1.27	0.43	8.78	0	0.281	71.9%	
High (9-17)	-0.87	0.36	5.81	0.02	0.419	58.1%	
General Recidivism							
Administrative (0-5)	-1.22	0.27	20.38	0.0	0.296	70.4%	
Low (6)	-0.81	0.34	5.85	0.02	0.443	55.7%	.648*
Medium (7-8)	-0.66	0.3	4.91	0.03	0.518	48.2%	
High (9-17)	-0.34	0.27	1.6	0.21	Not Sig.		

* $p < .001$, ** $p < .01$

Note: There is a 58.1% probability that DV related re-arrests (recidivism risk) will decline from surveillance to high risk level. Additionally, there is an 71.9% probability of decline from high-to-medium risk; an 83.2% probability of decline from medium-to-low risk; and an 80% probability of decline from low-to-administrative risk.

Table 6 reveals statistically significant relative risk probabilities for the SARA. There is a 41% probability that DV-related re-arrests (recidivism risk) will decline, if offenders are assessed downward from high to low risk levels. Likewise, there is a 33% probability that General re-arrests will decline, as offenders are assessed downward from high to low risk levels. With respect to ROCs, the SARA total score has low, but statistically significant predictive coefficients of .61 ($p < .05$) for DV recidivism, and .63 ($p < .01$) for General recidivism.

⁴ The ROC analysis measures the strength of association between classification groups and a bivariate response variable (DV re-arrests vs. no DV re-arrests). This analysis involves a summarized selection procedure that analyzes instrument sensitivity (true positives/re-offense occurrence) and specificity (true negatives/no re-offense).

Table 6: SARA Probability Analysis Using Cox Regression and Predictive Analysis

SARA Risk Level (n=196)	Regression Coefficient (B)	Standard Error (SE)	Chi Sq. (Wald)	Signif.	Recidivism "Odds" Ratio (Exp B)	Relative Recidivism Risk (1 - Exp B)	Predictive Validity (ROCs)
DV Recidivism							
Low-Med. (<9)							
High (>8)	-0.535	0.3	3.22	0.07	0.586	41%	.614**
General Recidivism							
Low-Med. (<9)							
High (>8)	-0.417	0.2	4.43	0.04	0.659	33%	.633*

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

However, despite the DVSI's and SARA's predictive validity, there are statistical uncertainties regarding the risk of making classification errors.⁵ The current classification system for both the DVSI and SARA has limited predictive value due to the potential risk of making classification errors. Type 2 errors (false negatives) occur when the classification system fails to identify high risk re-offenders. In distinguishing low risk from high risk offenders, there is a 39% chance of making a classification error for both the DVSI and SARA.

B. DVSI and SARA Item-by-Item Recidivism Analysis

Research can be helpful in identifying inventory items, or risk markers, that are predictive of recidivism, measured by the DV Recidivism Rate. Table 7 and Table 8 reveal SARA and DVSI inventory items based on either a positive response or a negative response to the item. The DVSI instrument has twelve nationally validated inventory items. The chi-square analysis for Hawaii data (n=249) reveals no inventory items that have significant statistical differences in recidivism rates between offenders with a positive response versus a negative response to the risk item. However, two items identified in Table 7 reveal higher recidivism rates for positive responders, as compared to negative responders.

Table 7: Valid DVSI Items, by DV Recidivism Rates

DVSI Inventory Items (n=442)	DV Recidivism Rate		
	(+)	(-)	Pct. Change
	Response	Response	
Prior Non-Domestic Violence Convictions	33.70%	20.00%	13.70%
Current Employment Status	35.50%	22.10%	13.40%

Note: Prior Non-domestic Violence (13.7% higher recidivism), and current Employment Status (13.4% higher recidivism) reveal higher recidivism rates when respective risk items with positive responses are compared to risk items with negative responses. The Percent Change is determined by subtracting the (-) Response from the (+) Response. However, the differences in recidivism rates are not statistically significant after conducting a chi-square analysis.

The SARA instrument has twenty nationally-validated inventory items. The chi-square analysis of Hawaii data (n=196) reveals seven inventory items that have statistically significant differences in recidivism rates when comparing offenders with a positive response versus offenders with a negative response (Table 8).

Table 8: Valid SARA Items, by DV Recidivism Rates

SARA Inventory Items (n=196)	DV Recidivism Rate		
	(+)	(-)	Pct. Change
	Response	Response	
Past Violation of "No Contact" Orders	37.80%	17.20%	20.6%**
Past Assault of Family Members	34.50%	17.60%	16.9%**
Prior Arrests for Assaults, Harassment, Menacing	34.40%	19.30%	15.1%**
Past Physical Assault	30.80%	16.20%	14.6%**
Personality Disorder w/Anger, Impulsivity, Instability	42.90%	21.80%	21.1%***
Any History of Domestic Violence Related Restraining Orders	37.50%	19.20%	18.3%**
Did Victim Have a Restraining Order Against Defendant at Time of Offense	47.50%	66.30%	18.8%**

*p<.001, **p<.01, ***p<.05

Note: The Percent Change is determined by subtracting the (-) Response from the (+) Response. Past violation of "no contact" orders (20.6% higher recidivism); past assault of family members (16.9% higher recidivism); prior arrests for assaults, harassment, menacing (15.1% higher recidivism); and past physical assault (14.6% higher recidivism) have significantly greater recidivism (p<.01) when the respective risk items are present after conducting a chi-square analysis.

C. Correlations between the LSI-R Sub-Domains and the SARA and DVSI Instruments

The LSI-R is a validated criminogenic instrument that has high predictive validity for General recidivism. Unfortunately, there is little research on how well the LSI-R sub-domains correlate (statistical association) with other assessment trailers, such as the SARA or DVSI. However, probation officers can distinguish DV offenders who are at high risk for non-DV re-offenses, by identifying high-scoring LSI-R sub-domains.

⁵ The risk classification cut-off scores in the DVSI are expected to correctly group DV and General offenders by risk level 61% the time, while General re-offenses are expected to correctly classify General offenders 63.3% of the time. With respect to the SARA, the risk classification cut-off scores are expected to correctly group DV offenders by risk level 61.8% of the time, while General re-offenses are expected to correctly classify this group 59.9% of the time.

Furthermore, identifying LSI-R sub-domains that are correlated with the SARA or DVSI scores can assist the PO with case planning. The availability of multiple instruments for case assessment purposes can help to identify offenders with high risk potential, initiate comprehensive case planning, and facilitate the matching of offenders' criminogenic risk patterns to available treatment programs.

It is important to analyze the item-by-item correlations between risk assessment instruments, such as the SARA, DVSI, and LSI-R. Correlation analysis allows administrators and probation officers to study the effects of individual risk items against other validated risk instruments. The small number of LSI-Rs matched to the administered SARAs and DVSI may lack correlational reliability. However, the exploratory nature of this study will help probation officers understand the relationship between the LSI-R sub-domains and the SARA/DVSI total scores.

Table 9 depicts LSI-R sub-domains that have significant statistical correlations with the SARA ($r=.43$) and DVSI ($r=.43$) scores. The numbers of matched offenders between the (LSI-R and the DVSI, $n=52$) and the (LSI-R and SARA, $n=77$) represent a small group of offenders. Of the ten LSI-R sub-domains, only three are significantly correlated with the DVSI, while six are significantly correlated with the SARA. Consequently, the LSI-R can be used in conjunction with the SARA and DVSI for both case-planning purposes and the application of intensive case-management strategies for high risk offenders.

Table 9: LSI-R Sub-domains Correlated with the SARA and DVSI

LSI-R Sub-domains	SARA	DVSI
	(Total Score) n=77	(Total Score) n=52
Alcohol/Drugs	.380*	.334**
Attitudes/Orientation	.281**	.274**
Education/Employment	.261**	.293**
Accommodation	.375*	Not Sig.
Criminal History	.341**	Not Sig.
Financial	.232**	Not Sig.
Family Marital	Not Sig.	Not Sig.
Leisure/Recreation	Not Sig.	Not Sig.
Companions	Not Sig.	Not Sig.
Emotional/Personal	Not Sig.	Not Sig.
Pearson Correlation (with LSI-R risk score)	.433 ($n=107, <.01$)	.434 ($n=81, p<.01$)

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

Note: The LSI-R sub-domains of Alcohol/Drugs (.38, .33), Attitudes/Orientation (.28, .27), and Education/Employment (.26, .29) have statistically significant respective correlations with the SARA and DVSI. Also, Accommodation (.37), Criminal History (.34), and Financial (.23) are statistically significant for the SARA only.

III. Summary and Conclusions

A. Summary

This study examines the utility of the DVSI and SARA as DV risk instruments. Summary analyses reveal that nearly 90% of the offenders are male, approximately 57% are under 40-years old, and 47% are either Hawaiian/part-Hawaiian or Filipino.

The DV offender is at risk not only for DV-related re-offenses, but also for General re-offenses, such as technical violations for failing to comply with protective orders or other non-DV criminal arrests. An important objective of this study is to examine Hawaii's growing body of DV-offender data. There are currently two DV trailers administered by the State of Hawaii. These trailers are risk instruments that (1) screen DV offenders by utilizing static risk indicators (DVSI), and (2) identify dynamic risk indicators that support case-planning efforts with high risk offenders (SARA).

The following findings summarize the important statistical measures found in both the DVSI and SARA instruments.

DVSI:

- mean score is 6.9
- 51.4% of the DV offenders have a DVSI score of 6 or above (low risk level)

SARA:

- mean score is 10.4
- 53.6% of the DV offenders have a SARA score of 9 and above (high risk level).

Previous studies published by the Department of the Attorney General have validated both instruments' ability to accurately classify DV offenders by risk levels. Statistical tests reveal that both the DVSI as a screening instrument and the SARA as a case-planning instrument can accurately differentiate and distinguish risk levels for both DV and General re-offenders. Statistical analyses using the Kaplan Meier (survival analysis) approach examine the explanatory powers and statistical strengths of both the SARA and DVSI instruments (see Table 4).

- The divergent survival curves were statistically significant for DV and General recidivism on both the SARA and DVSI. Additionally, the relative risk (odds ratios) for both the SARA and DVSI were statistically significant (see Table 5 and Table 6). Cox regression further validates the predictive strength of both instruments using probability analysis and ROCs.

An item-by-item analysis of the DVSI and SARA instruments reveals that the DVSI items depicted below are responsive to changes in recidivism rates (with respect to Pct Change in (+) Responses and (-) Responses, despite the lack of statistical significance found in this relationship. However, the SARA items depicted below have statistically significance regarding the SARAs responsive to recidivism rate (see Table 7 and Table 8).

DVSI:

- Prior Non-Domestic Violence Convictions (13.7%)
- Current Unemployment (13.4%)

SARA:

- Personality Disorder w/Anger (21.1%)
- Past Violation of "No Contact" Orders (20.6%)
- Current Restraining Order on Violator (18.8%)
- History of DV-related Restraining Orders (18.3%)

Of the six risk markers identified in this study, three are static factors, and three factors are dynamic. The LSI-R sub-domains also provide important associations with the SARA and DVSI scores (see Table 9). However, as the small number of subjects may result in some unreliable findings, interpretation of the findings should be used with caution. The findings reveal six significantly correlated LSI-R sub-domains with the DV trailers' scores – critical for case-planning and assessment purposes.

- Alcohol/Drugs (.38, .33)
- Attitudes/Orientation (.28, .27)
- Education/Employment (.26, .29)
- Accommodation (SARA=.38; DVSI not sig.)
- Criminal History (SARA=.34; DVSI not sig.)
- Financial (SARA=.23; DVSI not sig.)

B. Conclusions

In conclusion, the DVSI and SARA in Hawaii reveal predictive validity as DV risk classification instruments. Both instruments also have predictive validity for General recidivism, particularly the DVSI, which reveal validity at multiple-risk levels (Administrative, Low, Medium, High, and Surveillance). The DVSI and SARA have low internal consistency (Cronbach's $\alpha < .70$) and inter-instrument reliability (Pearson's $r = .54$). Additionally, both DVSI and SARA scores are correlated with LSI-R scores, particularly the SARA, although there is a cautionary note with these findings due to the small sample size. For service-planning purposes, probation officers can jointly use the LSI-R and SARA, which would be helpful in referring offenders to effective program services, thus hopefully reducing DV and General recidivism risk.

This study also revealed, to some degree, the DVSI's and SARA's predictive powers as DV risk instruments. However, further research is needed to obtain greater statistical confidence in the SARA, due to both the small number of completed SARAs and the short follow-up period (three months). Additionally, only a small number of POs are completing the SARA according to recommended policy; a quality check of the data revealed that only 38% of the offenders who met the criteria for a SARA (DVSI score 6 and above) were actually administered the instrument. Another critical limitation is the failure of the probation officers to use the SARA instrument's victim tab. The research by Gondolf (2002, p. 174), Campbell et al. (2003), and Roehl et al. (2005) revealed the importance of the victims' own assessment of risk, and more importantly, the perception of lethality risk. Consequently, the lack of a victim assessment will reduce the value of efficacious case planning, and the need for intensive case management.

This exploratory study has some methodological limitations. The limited number of (n size) SARAs administered, and the lack of LSI-Rs limits the instrument's predictive validity. DV-recidivism is based on offenses that may include non-domestic or non-intimate partner relationships. The current database (based on the CJIS download) rarely indicates the offenders' relationship to the victims. The CJIS does have a victim field in its database, but it is a rarely used variable field that is often left blank. Currently, limitations in data collection procedures do not distinguish offenses, (i.e., terroristic threatening, assault, harassment, etc.) committed against a household member versus a non-household member. However, the data used to analyze DV-recidivism are from offenders who were administered the DVIS and/or SARA. As a result, nearly all the cases analyzed in this study have a domestic violence issue or concern, based on the POs assessments.

Additional research is also needed to identify critical factors that contribute to the assessment of lethality risks. Past studies cited in the literature review fail to reveal the relationship between perpetrator criminogenic risks and lethality potential. These risk factors include the perpetrators' employment status, homicidal/suicidal ideations and threats, generalized aggression, substance abuse, and depressive symptoms (Campbell et al., 2003). Additionally, annual recidivism studies are needed to validate the DV classification system, and increase its accuracy by reducing classification errors.

Finally, there is a need for ICIS to review Hawaii's domestic violence policies and procedures, due to the problems with administering the SARA, and other case-planning issues that make it difficult to target appropriate treatment to DV offenders.

IV. References

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Domestic Violence Recidivism Study on the DVSI and SARA, State of Hawaii, 2003 – 2007 is available electronically at the ICIS web site:
<hawaii.gov/icis>.