

DVI Pre-Post: Standardization Study

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Abstract

The validity of the DVI Pre-Post (DVI-PP) was investigated in a sample of 3,250 participants. There were 344 participants who completed both pretest and posttest. The DVI-PP has six scales for measuring risk of violence tendencies, substance (alcohol and drugs) abuse, dominating or controlling others and stress coping problems. Pretest reliability analyses showed that all DVI-PP scales had alpha reliability coefficients of between .86 and .93. DVI-PP scales successfully discriminated between two groups: offenders with 2 or more domestic violence arrests scored significantly higher than offenders who had 1 or no such arrests. The Violence Scale identified 98.6% of the offenders who admitted to being violent. The Control Scale identified all of the offenders who admitted dominating or controlling others. The Alcohol and Drugs scales identified all participants who admitted alcohol and drug problems. DVI-PP classification of risk was shown to be within 2.7% of predicted risk range percentile scores for all DVI-PP scales. This study demonstrates that the DVI-PP is reliable and valid.

DVI Pre-Post: Standardization Study

The DVI Pre-Post (DVI-PP) is an automated computerized assessment instrument designed for domestic violence offender assessment at intake (pre-treatment) and post-treatment intervals. It enables comparison of offender status prior to, during and upon treatment completion. The DVI-PP can be re-administered to the same offender at 30 day intervals or at important decision making points in the treatment program, e.g., intake, referral and continuation or completion of treatment. The DVI-PP provides objective and accurate problem identification, aids in decision-making regarding the type of intervention needed, changes in inpatient-outpatient status, continuation or completion of treatment and it helps determine effectiveness of treatment. The DVI-PP promotes provider accountability, utilization review and substantiation of decision making.

DVI-PP comparison reports compare pretest results with posttest results. The comparison report is an objective and standardized procedure for evaluating offender change, program effectiveness and outcome. The DVI-PP was derived from the Domestic Violence Inventory (DVI). The DVI is a domestic violence offender risk and needs test that has been shown to be reliable, valid and accurate. The DVI and DVI-PP help evaluate violence prone offenders, substance (alcohol and other drugs) abusers, controlling individuals and the emotionally disturbed. They can be used to measure the severity of domestic violence offender problems in judicial, correctional and probation systems. DVI-PP users usually identify client risk, substance (alcohol and other drugs) abuse and client need prior to recommending intervention, supervision levels and/or treatment.

The DVI Pre-Post (DVI-PP) is a multidimensional test that was developed to meet the needs of domestic violence offender screening and assessment. The DVI-PP has six scales that measure violence (lethality) tendencies (Violence Scale), controlling attitudes and behaviors (Control Scale), alcohol and drug abuse severity (Alcohol & Drugs Scales) and emotional or mental health problems (Stress Coping Abilities Scale). In addition, the Truthfulness Scale measures offender truthfulness, denial and problem minimization while completing the test. Truthfulness Scale scores are used to truth-correct other scale scores.

This study validates the DVI-PP in a sample of domestic violence offenders who were tested in court and community service programs. The data for this study was obtained from the agencies that used the DVI-PP in their assessment programs. Two methods for validating the DVI-PP were performed in this study. The first method (discriminant validity) compared scale scores between two offender groups. Group 1 consisted of offenders who had one or no domestic violence arrest. Group 2 consisted of offenders who had two or more domestic violence arrests. It was hypothesized that multiple offenders (Group 2) would score significantly higher than offenders who had 0 or 1 arrest (Group 1). Multiple offenders would be expected to score higher on the Violence Scale because having a second domestic violence arrest is indicative of a serious violence problem.

The second validation method (predictive validity) examined the accuracy at which the DVI-PP identified violence prone and controlling offenders, problem drinkers and problem drug abusers. In the DVI-PP, problem behavior is obtained from the offenders' responses to criterion test items. Offenders who have been in AA and NA/CA would be expected to score in the corresponding scale's problem range. The following test items were used as criteria, "I go to Alcoholics Anonymous or Rational Recovery meetings because of my drinking." "I attend Narcotics Anonymous or Cocaine Anonymous meetings because of my drug problem."

In regards to violence and control, offenders direct admissions of problems were used as the

criteria. The violence test item used was, “Two or more of the following are true: violent, hostile, explosive, dangerous, threatening.” The control test item was, “I have a forceful personality and usually dominate and control others.”

For the predictive validity analyses, offenders were separated into two groups, those who admitted problems and those who did not admit to problems. Then, offender scores on the relevant DVI-PP scales were compared. It was predicted that offenders who attended AA or NA/CA would score in the problem risk range (70th percentile and above) on the Alcohol and/or Drugs Scales. Similarly, offenders who admitted being violent or controlling others would score in the problem risk range on the Violence and Control Scales, respectively. Non-problem was defined in terms of low risk scores (39th percentile and below). The percentage of offenders who admitted problems and also scored in the 70th percentile range and above was considered a correct identification of problems. High percentages of offenders who admit problems and had elevated problem risk scores would indicate the scales were valid.

Method

Subjects

There were 3,250 participants tested with the DVI-PP at intake (pretest). Data for this study was provided by the agencies that used the DVI-PP. Test data were collected during the year 2002. There were 2,774 males (85.4%) and 476 females (14.6%). Age of the participants for the most part ranged from 20 through 49 as follows: 19 & Under (4.7%); 20-29 (35.0%); 30-39 (36.6%); 40-49 (18.1%); 50-59 (3.9%) and 60 & Over (1.5%). The demographic composition of the participants was as follows. Race/Ethnicity: Caucasian (56.8%); Black (10.8%), Hispanic (21.1%), Native American (3.7%) and Other (7.7%). Education: Eighth grade or less (3.4%); Some high school (19.7%); High school graduate/GED (55.1%); Some college (16.6%) and College graduate (5.3%). Marital Status: Single (43.8%); Married (37.0%); Divorced (11.8%); Separated (7.1%) and Widowed (0.2). There were 334 of these participants who completed both the DVI-PP pretest and posttest.

The participants' criminal histories were obtained from their DVI-PP answer sheets. The participants reported this information although the staff were to verify the information provided. 83 percent of the participants or 2,699 offenders reported having one or no domestic violence arrest. 2,270 or 81.8 percent of the males had one or no arrest. 429 or 90.1 percent of the females had one or no arrest. These offenders were designated as Group 1. Twelve percent of the participants had two domestic violence arrests, three percent had three arrests and two percent had four or more domestic violence arrests. The offenders with two or more domestic violence arrests (multiple offenders) were designated as Group 2. There were 551 offenders or 17 percent of the participants in Group 2. 504 or 18.2 percent of the males were multiple offenders and 47 or 9.9 percent of the females were multiple offenders.

Nearly twenty-seven percent of the participants had been arrested for assault. Over 17% of the participants had one alcohol arrest, 7 percent had two arrests and 11 percent had three or more arrests. Nearly twelve percent of the participants had one drug arrest, three percent had two arrests and 2.4 percent had three or more arrests.

Procedure

Participants completed the DVI-PP pretest as part of their intake evaluation for domestic violence offenders in court service and community service programs. The DVI-PP was administered to participants for the purpose of selecting appropriate levels of intervention and before treatment was initiated. DVI-PP posttest questions are identical to the pretest questions.

The DVI-PP contains six measures or scales. These scales are briefly described as follows. The Truthfulness Scale measures the truthfulness, denial and minimization of the respondent while taking the DVI-PP. The Alcohol Scale measures severity of alcohol use or abuse. The Drugs Scale measures severity of drug use or abuse. The Control Scale measures controlling behaviors that affect self and others. In social psychology control is often a synonym for power and influence. Control refers to the process of regulating, restraining or controlling others. The Violence Scale measures offender proneness to commit violence. It measures the use of force to injure, damage or destroy. The Stress Coping Abilities Scale measures ability to cope with stress, anxiety and pressure. Stress exacerbates mental health symptomatology. This scale is a non-introversive screen for established (diagnosable) emotional and mental health problems.

Results and Discussion

The inter-item reliability (alpha) coefficients for the six DVI-PP scales are presented in Table 1. Reliability statistics are presented for both Pretest and Posttest data. Included in this analysis were 3,250 pretest results and 334 posttest results. All scales were highly reliable. All of the alpha reliability coefficients for all DVI-PP scales at pretest were at or above 0.86. These results demonstrate that the DVI-PP is a reliable test for domestic violence offender assessment.

Pretest-posttest reliability coefficients demonstrate that the DVI-PP maintains high test-retest reliability. The DVI-PP can be re-administered because the posttest reliability coefficients indicate the scales are highly reliable.

Slight reductions in some posttest reliability coefficients indicate that offenders changed, to a varying extent, their perception of “problem.” They tend to redefine their interpretation of what constitutes a “problem.” In the case of drugs, offenders may have by and large stopped using drugs. The interval between pretest and posttest administrations varied from 3 months to 12 months. For research purposes fixed retest intervals would be desirable but were not possible in this study.

Table 1. Reliability of the DVI-PP
All coefficient alphas are significant at $p < .001$.

<u>DVI-PP SCALES</u>	<u>Pretest Alphas</u>	<u>Posttest Alphas</u>
Truthfulness Scale	.89	.90
Alcohol Scale	.91	.88
Control Scale	.89	.85
Drugs Scale	.86	.80
Violence Scale	.91	.85
Stress Coping Abilities	.93	.94

Discriminant validity results are presented in Table 2. These results show that Group 2

(multiple offenders) scored significantly higher than Group 1 (first offenders) on the Alcohol Scale, Control Scale, Drugs Scale, Violence Scale and Stress Coping Abilities Scale. Higher scores on these scales are associated with more severe problems.

Table 2. Comparisons between Group 1 (1 or no arrest) and Group 2 (2 or more domestic violence arrests) Pretest Scale Scores.

DVI Scale	Group 1		Group 2		T-value
	Mean	SD	Mean	SD	
Truthfulness Scale	8.53	6.42	7.73	5.42	t = 3.04*
Alcohol Scale	5.87	8.62	9.82	11.04	t = 7.92*
Control Scale	7.40	8.17	8.75	9.07	t = 3.23*
Drugs Scale	5.33	7.46	7.06	8.67	t = 4.35*
Violence Scale	18.56	12.47	28.29	14.21	t = 14.95*
Stress Coping Abilities	109.77	45.24	102.40	43.97	t = 3.50*

* Significant at the $p < .001$ level.

Note: The Stress Coping Abilities Scale is reversed in that the higher the score the better one copes with stress.

Table 2 shows that scale scores for Group 2 were significantly higher than scores for Group 1 on all DVI-PP scales except the Truthfulness Scale. As expected, multiple offenders scored significantly higher on the Alcohol Scale, Control Scale, Drugs Scale, Violence Scale and Stress Coping Abilities Scale than did offenders with one or no arrest. The Truthfulness Scale shows that Group 1 scored significantly higher than Group 2. Truthfulness Scale results suggest that multiple offenders did not minimize their problems or fake good when tested as much as offenders with one or no arrest. Multiple offenders may have largely stopped attempting to minimize their problems in court related settings. Having a history of arrests lessens the likelihood that a multiple offender will deny problems. Whereas offenders with one or no arrest, who are unfamiliar with court settings, consequences or assessment, may try to fake good in order to lessen the impact of their situation.

The Alcohol, Control, Drugs, Violence and Stress Coping Abilities Scales results support the discriminant validity of the DVI-PP. The offenders who were believed to have more severe problems (multiple offenders) scored significantly higher on these scales than offenders with one or no arrest. The Stress Coping Abilities Scale results indicate that offenders who have multiple domestic violence arrests demonstrate poorer stress coping skills than do offenders with one or no arrest. It is generally accepted that stress exacerbates emotional and mental health symptomatology.

Predictive validity results are presented in Table 3. Table 3 shows the percentage of participants who admitted to problems and who scored in the problem risk range on the selected DVI-PP scales in comparison to participants who scored in the low risk range. DVI-PP validity and accuracy statistics are presented for Pretest data. This was done because Pretest scores set the baseline performance upon which to compare Posttest scores. Comparisons of DVI-PP scale scores between Pretest and Posttest data are presented and discussed.

For the Alcohol and Drugs Scales problem behavior meant the participant attended AA or NA/CA for their drinking or drug problem. For the Control Scale, offenders' responses indicated they dominated or controlled others, and for the Violence Scale problem behavior meant admission

of being violent. Table 3 shows that Alcohol and Drugs Scales identified offenders who had drinking and drug problems. The DVI-PP Alcohol Scale identified all (100%) of the 237 youths who attended AA for their alcohol problem. These offenders were classified as problem drinkers and all of them had Alcohol Scale scores at or above the 70th percentile. The Alcohol Scale correctly identified all of the offenders categorized as problem drinkers. These results validate the Alcohol Scale.

The Drugs Scale identified all 159 offenders who attended NA or CA for their drug problem. All of these offenders, or 100 percent, had Drugs Scale scores at or above the 70th percentile. These results validate the Drugs Scale.

Table 3. Predictive Validity of the DVI-PP

DVI-PP Scale	Correct Identification of Problems
Alcohol Scale	100%
Drugs Scale	100%
Control Scale	100%
Violence Scale	98.6%

The Control Scale identified all 503 of the offenders, or 100 percent, who admitted to dominating and controlling others. The Violence Scale identified 655 of the 664 offenders or 98.6 percent who admitted having violence problems. These results validate the Control and Violence Scales.

For ease in interpreting participant risk, DVI-PP scale scores were divided into four risk ranges: low risk (zero to 39th percentile), medium risk (40 to 69th percentile), problem risk (70 to 89th percentile), and severe problem risk (90 to 100th percentile). By definition the expected percentages of participants scoring in each risk range (for each scale) is: low risk (39%), medium risk (30%), problem risk (20%), and severe problem risk (11%). Scores at or above the 70th percentile would identify participants as having problems.

The above predictive validity results lend support for using these particular percentages. The 70th percentile cut off for problem identification correctly classified nearly 100 percent of problem participants. The low risk level of 39 percent avoids putting a large percentage of participants into a “moderate” range. Putting low risk offenders into intervention programs aimed at higher risk offenders would over-burden counseling programs and may be counter-productive, unnecessarily alarm offenders and result in offenders exhibiting more problems than they originally had. This undesirable outcome of inappropriate level of intervention selection has been found in the corrections area (Andrews, D., Bonta, J. & Hoge, R. Classification for effective rehabilitation: Rediscovering Psychology. Criminal Justice and Behavior, 1990, 17, 19-52.).

Risk range percentile scores were derived by adding points for test items and truth-correction points, if applicable. These raw scores are converted to percentile scores by using cumulative percentage distributions. These results are presented in Table 4. Risk range percentile scores represent degree of severity. Analysis of the DVI-PP risk range percentile scores involved comparing the participant’s obtained risk range percentile scores to predicted risk range percentages as defined above. These percentages are shown in parentheses in the top row of Table 4. The actual percentage of participants falling in each of the four risk ranges, based on their risk range percentile scores, was compared to these predicted percentages. The differences between predicted and obtained are shown in parentheses.

As shown in Table 4, the objectively obtained percentages of participants falling in each risk range were very close to the expected percentages for each risk category. All of the obtained risk range percentages were within 2.7 percentage points of the expected percentages and many (17 of 24 possible) were within one percentage point. These results demonstrate that risk range percentile scores are accurate.

**Table 4. Accuracy of DVI-PP Risk Range Percentile Scores
DVI Pretest Scale Risk Ranges (N = 3,250)**

DVI Pretest Scale	Low Risk (39% predicted)	Medium Risk (30% predicted)	Problem Risk (20% predicted)	Severe Problem (11% predicted)
Truthfulness	37.7 (1.3)	28.8 (1.2)	22.7 (2.7)	10.8 (0.2)
Alcohol	37.7 (1.3)	30.7 (0.7)	20.6 (0.6)	11.0 (0.0)
Control	37.9 (1.1)	31.7 (1.7)	20.2 (0.2)	10.2 (0.8)
Drugs	39.7 (0.7)	30.7 (0.7)	19.3 (0.7)	10.3 (0.7)
Violence	38.6 (0.4)	29.4 (0.6)	21.5 (1.5)	10.5 (0.5)
Stress Coping	39.1 (0.1)	30.0 (0.0)	20.0 (0.0)	10.9 (0.1)

There were 334 offenders for whom both pretest and posttest data were available. Mean or average scale score for each DVI-PP scale for these offenders is presented in Table 5. These results indicate that all scales were statistically significantly different. Posttest scale scores were, on average, significantly lower than pretest scale scores for these offenders.

All DVI-PP scale comparisons demonstrate that posttest scale scores are lower than pretest scale scores. The offenders showed improvement on all DVI-PP treatment scales after having been in treatment. However, the pretest-posttest intervals were not the same for all offenders. It is likely that higher pretest-posttest intervals would result in higher or greater differences between pretest and posttest scores

The largest pre-post scale score differences occurred on the Violence and Stress Coping Abilities Scales. The Alcohol, Drugs and Control Scales also demonstrated significant pre-post scale score differences. These treatment measures demonstrate that clients benefited from having been in treatment. Violence Scale results dramatically reveal that offenders positively changed their opinions of violence and behavior toward others. This is an important step in reducing the likelihood that offenders will commit similar offenses in the future.

Table 5. Pretest-Posttest Scale Comparisons (N=344)

DVI-PP Scales	Pretest Mean Score	Posttest Mean Score	T-value	Level of significance
Truthfulness Scale	8.27	4.07	t = 8.43	p<.001
Alcohol Scale	6.38	4.50	t = 5.18	p<.001
Control Scale	7.85	4.89	t = 7.33	p<.001
Drugs Scale	4.98	3.62	t = 4.40	p<.001
Violence Scale	21.10	14.08	t = 12.20	p<.001
Stress Coping Abilities	104.17	125.78	t = 9.08	p<.001

Note: Scores on the Stress Coping Abilities Scales are reversed in that higher scores are associated with better stress coping abilities. There were 344 clients included in this analysis.

Conclusion

This study demonstrated that the DVI-PP is a reliable and valid assessment test for domestic violence offenders. Reliability results showed that all six DVI-PP scales were highly reliable. Reliability is necessary in screening tests for accurate measurement of offender risk and needs. These results indicate that the DVI Pre-Post could be used for domestic offender risk and needs assessment whether or not offenders are tested again at posttest.

Discriminant validity analyses demonstrated that multiple offenders (had prior domestic violence arrests) scored significantly higher than offenders with one or no arrest. Predictive validity analyses demonstrated that the DVI-PP identified domestic violence offenders who had violence, control and substance abuse problems. The Violence Scale identified offenders who admitted having domestic violence problems. The Control Scale correctly identified offenders who admitted dominating and controlling others. The Alcohol and Drugs Scales correctly identified offenders who were in or desired treatment for alcohol and drugs, respectively. Furthermore, obtained risk range percentages on all DVI-PP scales very closely approximated predicted percentages. These results support the validity of the DVI-PP.

One of the most important decisions regarding a domestic violence offender is what supervision level and/or intervention program is appropriate for the offender. The DVI-PP can be used to tailor intervention (levels of supervision and treatment) to each domestic violence offender based upon their assessment results. Low scale scores are associated with low levels of supervision as well as intervention and treatment, whereas high scale scores relate to more intense intervention/treatment recommendations and levels of supervision. Placing domestic violence offenders in appropriate treatment can enhance the likelihood that an offender will complete treatment, benefit from program participation and change their violent behavior.

Benefits of intervention and treatment programs are seen in lower DVI-PP scale scores on the Violence, Control and Stress Coping Abilities Scales. Lower scale scores at posttest indicates that intervention and treatment positively affected offenders' attitudinal, emotional and behavioral adjustment. DVI-PP scale scores provide some insight into outcome results.