

**HCR-20 VIOLENCE RISK ASSESSMENT SCHEME:  
OVERVIEW AND ANNOTATED BIBLIOGRAPHY  
(CURRENT UP TO NOVEMBER 24, 2008)**

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*Check out the Annotated Bibliography for the Sexual Violence Risk – 20 (SVR-20), at the above web address!  
SVR-20 Annotated Bibliography Prepared by Vivienne de Vogel, Ph.D. ([vdevogel@hoevenstichting.nl](mailto:vdevogel@hoevenstichting.nl))*

**\*\*\*NEW ADDITIONS\*\*\***

**(SINCE JANUARY 7, 2007)**

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2. Allen, C., & Howells, K. (July, 2008). The implementation and evaluation of a structured professional judgment risk assessment tool within a high secure forensic hospital. Paper presented at the annual conference of the International Association of Forensic Mental Health Services, Vienna, Austria.
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## **DESCRIPTION OF THE HCR-20 VIOLENCE RISK ASSESSMENT SCHEME**

The HCR-20 (Webster, Douglas, Eaves, & Hart, 1997a; see Webster, Eaves, Douglas, & Wintrup, 1995, for Version 1) is a broad-band violence risk assessment instrument with potential applicability to a variety of settings. The conceptual scheme of the HCR-20 aligns risk markers into past, present, and future. Its 10 Historical factors obviously concern the past. However, the HCR-20 contains 5 Clinical items that are meant to reflect current, dynamic (changeable) correlates of violence. The future is recognized in the 5 Risk Management items, which focus attention on situational post-assessment factors that may aggravate or mitigate risk. The HCR-20 takes its name from these three scales — Historical, Clinical, Risk Management — and from the number of items (20). Table 1 shows the items.

The HCR-20 was developed from a thorough consideration of the empirical literature concerning factors that relate to violence. It attempts to develop professional standards regarding the process and substance of risk assessments. Further, the HCR-20 integrates the experience of clinicians, and is easy to administer, understand, and score. Randy Borum (1996) recently has written about the HCR-20 that “the promise of this instrument lies in its foundation on a conceptual model or scheme for assessing dangerousness and risk; its basis in the empirical literature; its operationally defined coding system...[and] its practical use....The field eagerly awaits new data on this instrument” (p. 950).

Very complicated schemes may not be put to their intended use in the daily practice of risk assessment. Professionals who make risk assessments cannot afford the time to calculate complex weighting coefficients and discriminant function equations. As such, the HCR-20 is an attempt to merge science and practice by offering an instrument that can be integrated into clinical practice but also is empirically based and testable.

**Table 1**  
**Items in the HCR-20 Risk Assessment Scheme**

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<b>Sub-Scales</b>	<b>Items</b>
<b>Historical Scale</b>	
H1	Previous Violence
H2	Young Age at First Violent Incident
H3	Relationship Instability
H4	Employment Problems
H5	Substance Use Problems
H6	Major Mental Illness
H7	Psychopathy
H8	Early Maladjustment
H9	Personality Disorder
H10	Prior Supervision Failure
<b>Clinical Scale</b>	
C1	Lack of Insight
C2	Negative Attitudes
C3	Active Symptoms of Major Mental Illness
C4	Impulsivity
C5	Unresponsive to Treatment
<b>Risk Management Scale</b>	
R1	Plans Lack Feasibility
R2	Exposure to Destabilizers
R3	Lack of Personal Support
R4	Noncompliance with Remediation Attempts
R5	Stress

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**Note. Adapted from Webster, Douglas, Eaves, and Hart (1997a).**

## **RECEIVER OPERATING CHARACTERISTIC (ROC) ANALYSES: AN EMERGING TECHNIQUE IN RISK ASSESSMENT RESEARCH**

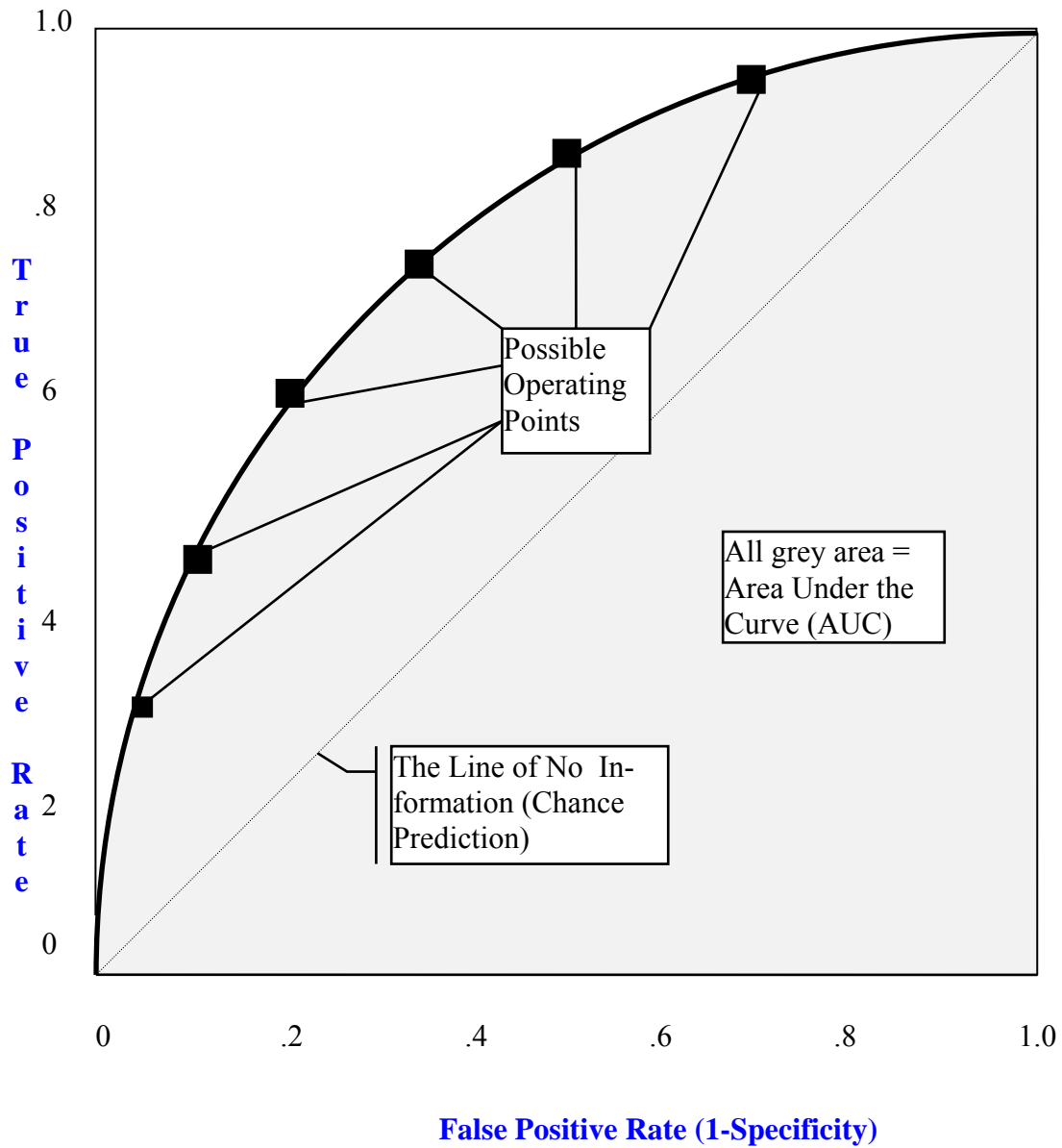
ROC statistical analysis is summarized here because several of the HCR-20 studies use this analysis, and results are reported in terms of the statistical indexes that ROC produces. Although ROCs have been used in the area of radiology (Lusted, 1978), radar signal detection, and sensory psychology since the 1950s and 1960s (Metz, 1984), they have only recently been introduced into the area of violence risk assessment (Mossman, 1994a, 1994b; Rice & Harris, 1995; Rice, 1997). They are recommended in this area because they are less dependent on the base rate of the criterion variable in the sample (in the present case, violence) than are traditional measures of predictive accuracy derived from 2 x 2 contingency tables (such as false positives and false negatives). Since correlations diminish with departures from base rates of 50%, correlational techniques are not the most effective means to estimate predictive efficiency of risk assessment schemes (Rice & Harris, 1995).

ROC curves allow for the comparison of various thresholds on the predictor measures for offering predictions of violence, an overall index of accuracy which accounts for all possible thresholds, the simple identification of the optimal threshold, and the comparison of two or more predictors (Hsiao, Bartko, & Potter, 1989; Lusted, 1978; Metz, 1984; Mossman, 1994a; 1994b; Mossman & Somoza, 1991; Vida, 1997).

The term “receiver operating characteristic” took its name because it describes the detection, or prediction, “characteristics” of the test, and the “receiver” of the data can “operate” at any given point on the curve (Metz, 1978). ROCs are meant to be applied to data that are comprised of a continuous predictor variable and a dichotomous dependent measure. They take the form of a figure (see Sample ROC, next page, for an example) with the sensitivity (true positive rate [TPR]) of the predictor plotted as a function of the false positive rate (FPR [1-specificity]) (Mossman & Somoza, 1991). For any given level of specificity, the receiver knows the sensitivity. Each point on the curve (which corresponds to a cut-off on the predictor) represents a different trade-off between sensitivity and specificity.

The area under the curve (AUC) of the ROC graph can be taken as an index for interpreting the overall accuracy of the predictor. Areas can range from 0 (perfect negative prediction), to .50 (chance prediction), to 1.0 (perfect positive prediction). A given area represents the probability that a randomly chosen person who scores positive on the dependent measure (in this study, is actually violent) will fall above any given cut-off on the predictor measure, and that an actually non-violent person will score below the cut-off (Mossman & Somoza, 1991). Thus, an area of .75 means that there is a 75% chance that an actually violent person would score above the cut-off for violence on the predictor, and an actually non-violent person would score below the cut-off. AUC values of 0.70 may be considered moderate to large, and .75 and above may be considered large.

**Figure 1**  
**A Sample ROC Curve**



## A SUMMARY OF SELECTED HCR-20 RESEARCH

STUDY/ SAMPLE	N	MEANS (SD)				VALIDITY INDICES	RELIABILITY INDICES
		HCR TOTAL	H SCALE	C SCALE	R SCALE		
<b>CIVIL PSYCHIATRIC</b>							
DOUGLAS, OGLOFF, NICHOLLS, GRANT (1999) <sup>1</sup>	193	19.0 (5.8)	9.8 (3.4)	4.1 (1.9)	5.1 (2.3)	AUCs = .76 - .80	IRR (TOTAL) = .80 (ICC)
MCNIEL ET AL. (2003)	100	18.0 (6.6)	7.1 (3.5)	6.1 (2.3)	4.8 (2.3)	AUC (TOT) = .65; (H,C,R,) = .56, .77, .58	ICC (TOTAL) = .78-.96
NICHOLLS, OGLOFF, DOUGLAS (2001) <sup>2</sup>	279	20.4 (5.6) <sup>A</sup> 16.8 (5.4) <sup>B</sup>	10.8 (3.3) <sup>A</sup> 8.2 (3.2) <sup>B</sup>	7.4 (1.5) <sup>A</sup> 6.9 (1.7) <sup>B</sup>	5.4 (2.4) <sup>A</sup> 4.8 (2.1) <sup>B</sup>	AUCs = .72 - .75 <sup>A</sup> AUCs = .66 - .80 <sup>B</sup>	SEE DOUGLAS ET AL (1999)
ROSS, HART, WEBSTER (1998) <sup>3</sup>	131	19.1 (6.2)	8.7 (4.0)	5.6 (1.9)	4.8 (2.1)	AUCs (TOT) = .68 - .75	IRR (H) = .82; $\alpha$ (H) = .74; (C) = .64
<b>FORENSIC PSYCHIATRIC</b>							
ALLEN & HOWELLS (2008)	62	20.9	14.4	4.7	3.6	AUCs = .72, .56, .72, .66 (TOTAL, H,C,R) <sup>32</sup>	
BELFRAGE (1998)	43	28.8 (6.2)	13.8 (3.3)	5.5 (2.2)	6.6 (2.0)	NA	IRR (TOTAL) = .81 $\alpha$ (TOTAL) = .95
BROWN (2001)	172	22.7 (6.5)	12.8 (3.6)	4.5 (2.5)	5.4 (2.7)		ICC(H SCALE) = .80
CLAIX ET AL (2002)	86	23.3 (6.3)	12.4 (3.8)	5.0 (2.2)	6.0 (2.0)	$\Gamma_{TOT}$ = .30 W/ ASSUALT	IRR (TOTAL) = .73
DERNEVIK (1998)	6*6	--	--	--	--	NA	IRR = .76 - .96
DERNEVIK ET AL (2001)	8 <sup>11</sup>	22.7 (6.5) <sup>12</sup> 26.3 (6.1) <sup>12</sup>	N/A	N/A	N/A	MULT R = .66 B/W HCR & FEELING CHECKLIST	N/A

*CONTINUES ON NEXT PAGE WITH MORE FORENSIC SAMPLES*

	N	MEANS (SD)				VALIDITY INDICES	RELIABILITY INDICES
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STUDY/ SAMPLE		HCR TOTAL	H SCALE	C SCALE	R SCALE		
<b>FORENSIC PSYCHIATRIC</b>							
DERNEVIK ET AL. (2002)	54	23.1 (5.8)	12.6 (3.5)	5.7 (2.1)	4.8 (1.7)	$r_{TOT} = .32$ (INPATIENT) AUC = .84 (COMMUNITY)	
DE VOGEL ET AL (2001)	60	26.1 (6.5)	14.6 (3.3)	5.3 (2.2)	6.1 (2.1)	NA	IRR (TOTAL) = .79
DE VOGEL ET AL (2004)	120	22.8 – 32.0 <sup>19</sup>	12.6 – 16.0	3.7 – 7.0	5.6 – 9.1	AUC (TOTAL) = .82 AUC (SPJ) = .79	IRR (TOTAL) = .83 IRR (SPJ) <sup>20</sup> = .73
DOLAN & FULLAM (2007)	136 <sup>33</sup>	20.5 (6.1)	10.1 (3.5)	5.91 (1.88)	4.52 (1.58)	AUCs = .72, .66, .73, .72 (TOTAL, H, C, R)	
DOLAN & KHAWAJA (2004)	70	19.4 (5.7) <sup>24</sup>	11.8 (3.7)	3.3 (2.2)	4.1 (1.5)	AUC (TOT) = .67-.85 <sup>25</sup>	
DOUGLAS ET AL. (1998)	175	24.6 (5.8)	12.5 (3.6)	5.5 (2.5)	6.6 (2.3)	Odds = 2.2 – 3.7	$\alpha$ (TOTAL) = .78 IRR (ICC) = .81
DOUGLAS ET AL. (2003) <sup>18</sup>	100	24.7 (4.6)	14.4 (2.8)	4.7 (2.0)	5.9 (1.5)	AUC (TOT) = .67-.70 AUC (SPJ) = .68-.74	IRR (TOTAL) = .85 IRR (SPJ) = .61
FUJII, LICHTON ET AL. (2004, UNDER REVIEW)	169	--	--	--	--	AUC (TOT) = .61 <sup>26</sup> AUC (SPJ) = .70	IRR (12 CASES) = .94
FUJII ET AL. (2005)	169	--	--	--	--	AUC (AA) = .58 <sup>27</sup> AUC (EA) = .64 AUC (NAH) = .73	
GRANN ET AL. (2000) <sup>6</sup>	404	N/A	11.8 (3.7)	N/A	N/A	AUCs = .66 - .71	N/A
GRAY ET AL (2004)	315	19.9 (7.0)	11.4 (4.0)	3.8 (2.4)	4.7 (2.6)	AUCs = .61, .62, .48, .62 (Total, H, C, R)	N/A
GRAY ET AL. (2007)	1,141	22.3 (6.0) <sup>31</sup> 17.9 (6.3)	12.4 (3.2) 11.2 (3.8)	5.9 (2.1) 3.0 (2.4)	4.1 (2.5) 3.7 (2.6)	AUC = .79, .81, .71, .64 (Total, H, C, R) AUC = .68, .69, .55, .63 (Total, H, C, R)	IRR (TOTAL) = .80-.88

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*HCR-20 Review and Annotated Bibliography*

STUDY/ SAMPLE	N	MEANS (SD)				VALIDITY INDICES	RELIABILITY INDICES
		HCR TOTAL	H SCALE	C SCALE	R SCALE		
<b>FORENSIC PSYCHIATRIC</b>							
GRAY, TAYLOR, SNOWDEN (2008)	887	18.3 (6.7)	11.3 (3.7)	3.2 (2.4)	3.7 (2.6)	AUC = .70, .68, .57, .63 (Total, H,C,R) <sup>34</sup>	
GREVATT ET AL (2004)	44	19.4 (3.5) <sup>29</sup>	13.2 (3.2)	6.1 (2.0)	N/A	Inpat. AUCs = .56, .54, .60 (HC, C, R)	N/A
HILTERMAN ET AL (2002)	62	25.2 (7.5)	--	--	--	r <sub>tot</sub> = -.37 w/BSI Direct Aggression Scale	IRR (TOTAL) = .98 (H,C,R,) = .92, .91, .95
LINDSAY ET AL. (2008)	212	--	12.1 (4.4)	4.4 (.8)	3.0 (1.8)	AUCs = .72, .68, .67, .62 (TOTAL, H,C,R)	IRR = 89.4%, 93.1%, 82.7% (H, C, R) <sup>35</sup>
MCDERMOTT ET AL. (2008)	108	23.8 (6.2)	--	--	--	AUCs = .67, .55, .64, .67 (TOTAL, H,C, R) <sup>36</sup>	IRR (R) = .86
MORRISSEY ET AL. (2007)	73	22.5 (4.5)	--	--	--	AUC (TOT) = .68; .77 <sup>37</sup>	
MÜLLER-ISBERNER & JOCKEL (1997)	100	NA	11.5 (3.6)	5.2 (1.9)	NA	NA	M KAPPA (H) = .89 M KAPPA (C) = .49
MÜLLER-ISBERNER ET AL. (1999)	220	24.9 (5.9)	12.0 (3.4)	5.3 (2.2)	7.6 (1.9)	PEARSON R <sub>TOT</sub> .20 - .40	KAPPA (HCR) = .72
NICHOLLS ET AL. (1999) <sup>10</sup>	125	20.0 (5.3)	11.2 (3.6)	5.1 (2.5)	3.2 (1.2)	AUCs (TOT) = .68 - .77 PEARSON r = .31 - .46	N/A
PHAM (2001)	80	--	--	--	--	AUC (TOTAL) = .78	N/A
PHILIPSE (2002)	69	--	--	--	--	AUC (TOTAL) = .67 AUC (MODIFIED) <sup>21</sup> = .90	IRR (TOTAL) = .90
ROSS ET AL. (2001) <sup>17</sup>	103	20.2 (5.6)	12.7 (3.5)	3.5 (2.1)	4.1 (2.3)	AUC (TOTAL) = .57; .76	N/A
SCHARIN (1999) <sup>6</sup>	49	--	--	--	--	ODDS = 9.63	N/A

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*HCR-20 Review and Annotated Bibliography*

STUDY/ SAMPLE	N	MEANS (SD)				VALIDITY INDICES	RELIABILITY INDICES
		HCR TOTAL	H SCALE	C SCALE	R SCALE		
<b>CORRECTIONAL</b>							
STRAND & BELFRAGE (2001)	63 <sup>B</sup>	24.8 (7.0) <sup>B</sup>	12.9 (3.6) <sup>B</sup>	5.1 (2.6) <sup>B</sup>	6.7 (2.9) <sup>B</sup>	NO DIFFERENCE B/W MEN AND WOMEN ON SCALES	KENDALL'S TAU-B = .67
	85 <sup>A</sup>	25.5 (7.9) <sup>A</sup>	13.8 (4.2) <sup>A</sup>	5.0 (2.5) <sup>A</sup>	6.7 (2.8) <sup>A</sup>		
STRAND ET AL. (1999)	40	26.4 (8.0)	14.4 (4.4)	5.2 (2.5)	6.8 (2.7)	AUC (TOTAL) = .80; COHEN'S $d$ = 1.19	KENDALL'S TAU-B = .69
TENGSTRÖM (2001)	106	--	--	--	--	AUC (H) = .76	N/A
THOMSON ET AL. (2008)	140	--	13.4 (7.1)	--	--	AUC (H) = .53; .79 <sup>30</sup>	
URHEIM ET AL (2003)	51	23.5 (6.8)	13.8 (4.3)	5.9 (1.9)	3.9 (2.0)	AUCs = .82, .77, .73, .76 <sup>29</sup>	
VINCENT (1998) <sup>8</sup>	125	22.3 (6.3)	11.2 (3.6)	5.0 (2.6)	6.1 (2.1)	ODDS 2.45	N/A
WHITTEMORE (1999)	172					WALD = 9.86	
WINTRUP (1996) <sup>4</sup>	80	NA <sup>5</sup>	NA	NA	NA	M r = .30	NA
<b>CORRECTIONAL</b>							
BELFRAGE, FRANSSON, & STRAND (2000)	41	26				COHEN'S $d$ = 1.70 FOR TOTAL, 1.00 FOR H, 1.14 FOR C, AND 1.22 FOR R	N/A
COOKE ET AL. (2001) <sup>14</sup>	250	?	10.9	?	?	AUC <sub>TOT</sub> = .69 - .74 AUC <sub>VRAG</sub> = .67 - .73 AUC <sub>PCL-R</sub> = .65 - .72	ICC <sub>1</sub> = .92, .92, .74, .70 (TOT, H, C, R)
DAHLE (2002)	200	19.0 (6.5)				$r_{tot}$ = .25	TAU <sub>TOT</sub> = .80; RHO <sub>H</sub> = .93; RHO <sub>C</sub> = .73
DOUGLAS & WEBSTER (1999) <sup>4</sup>	72	NA	11.9 (3.3)	5.0 (2.0)	NA	$f_s$ = .3 - .5; M ODDS (HC) = 4.0	IRR (HC) = .80
DOUGLAS ET AL. (2003)	188	20.1 (7.9)	11.1 (3.9)	4.4 (2.5)	4.6 (2.8)	AUC (TOTAL) = .82 AUC (SPJ) = .78	IRR (TOTAL) = .93 IRR (SPJ) = .41
DOYLE ET AL. (2002)	87	NA	14.1 (3.9) <sup>22</sup>	NA	NA	AUCs (H) = .66 to .70	N/A

**HCR-20 Review and Annotated Bibliography**

			11.4 (3.9)				
DUNBAR (2003)	58	22.2 (9.9)	9.4 (5.7)	6.1 (1.9)	6.7 (2.9)	rs (TOT) = .33 TO .63	IRR = .88 TO .94 α = .86 TO 94)
GRAY ET AL (2003)	34	NA	10.2 (3.4)	5.4 (2.6)	NA	INSTIT. AUCs = .81, .77, .79 (HC, H, C)	NA
						INSTIT. rs. = .53, .43, .49 (HC, H, C)	
HOWARD (2007)	64	10.3 (3.4) <sup>38</sup>	--	--	--	AUC (CR) = .65-.68 <sup>39</sup>	IRR (CR; 21 cases) = .77-1.0
KRONER & MILLS (2001)	97	17.8 (8.3)				INSTIT. rs. = .11 TO .32	ICC = .85 (Total)
						COMM. rs = .16 TO .39	
MILLS ET AL (2007)	83	18.3 (8.4)	9.2 (4.4)	4.1 (2.2)	4.9 (2.7)	AUCs = .72, .67, .75, .71 (TOTAL, H,C,R)	
NEVES & GONCALVES (2008)	158	15.3 (6.6)	--	--	--	AUC = .81 <sup>40</sup>	
PHAM ET AL (2000)	68	20.7 (9.2)	10.4 (5.0)	4.8 (2.4)	5.2 (2.4)	AUCs = .76, .77, .74, .71 (TOT, H, C, R)	r <sub>tot</sub> = .85
STADTLAND (2008)	86	--	--	--	--	AUCs = .74, .70, .62, .79 (TOTAL, H, C, R)	
VINCENT (1998)	125	23.6 (6.7)	11.9 (3.8)	4.5 (2.5)	7.3 (1.7)	N/A	N/A
VINCENT ET AL. (2001) <sup>15</sup>	56			3.9 (2.6) <sup>R</sup>	5.8 (2.1) <sup>R</sup>	N/A	ICC <sub>1</sub> = .70 (C), .58 (R)
				4.7 (2.6) <sup>C</sup>	5.4 (2.6) <sup>C</sup>		ICC <sub>2</sub> = .82 (C), .74 (R)
CÔTÉ (2001) <sup>16</sup>	22 <sup>A</sup>	--	11.7 (4.3)	3.9 (2.2)	--	AUCs = .83, .61 (H, C)	ICC <sub>1</sub> = .88 (H), .71 (C)
	36 <sup>B</sup>	--	13.1 (3.5)	4.8 (2.5)	--	Cohen's d = .29 – 1.4	ICC <sub>2</sub> = .93 (H), .83 (C)
	19 <sup>C</sup>	--	16.0 (3.2)	4.3 (2.3)	--		
DOUGLAS & BELFRAGE (2002) <sup>7</sup>						ds = (1) .89 - 1.75; (2) .36 - .50; (3) .08 - .44	
DOYLE & DOLAN (2003)	129	--	--	--	--	AUC (Total) = .62 - .80	N/A
FREESE ET AL. (2002)	128	22.2 (6.5) <sup>23</sup>	12.8 (3.7)	3.9 (2.8)	5.6 (2.2)	Cohen's d (Total) = .77	
		17.2 (6.5)	10.4 (4.4)	3.1 (1.9)	3.8 (2.2)		

*CONTINUES ON NEXT PAGE WITH MIXED AND JUVENILE SAMPLES*

STUDY/ SAMPLE	N	MEANS (SD)				VALIDITY INDICES	RELIABILITY INDICES
		HCR TOTAL	H SCALE	C SCALE	R SCALE		
<b>MIXED SAMPLES</b>							
HODGINS ET AL. (2001) <sup>13</sup>	126					ICC <sub>1</sub> = .85-.99 b/w raters and criteria scores	ICC <sub>1</sub> = .90, .94, .89, .68 (TOT, H, C, R)
<b>JUVENILE SAMPLES</b>							
MACEachern (2001)	108	19.7 (6.6)	7.9 (3.2)	5.6 (1.9)	6.2 (2.3)	rs = .35 - .46 AUC = .73 - .79	ICC <sub>1</sub> = .86, .88, .80, .77 (TOT, H, C, R)

**Note 1.** This table does not contain all studies reported in the Annotated bibliography. Some studies supplemental to main studies were not included. Other studies were excluded from the Table if they addressed issues other than the relationship between the HCR-20 and violence. The method and results of the studies in this table are described in more detail in the annotated bibliography that follows.

**Note 2.** IRR = Interrater Reliability; HC = Total H Scale and C Scale composite when R Scale not available; Superscript “A” denotes analyses for men only; Superscript “B” denotes analyses for women only. “ψ” denotes that the sample is a sub-sample of another study, and hence the reporting of *Ms* and *SDs* is omitted.

<sup>1</sup> See also Douglas, Ogloff, & Nicholls (1997a, b)

<sup>2</sup> See also Nicholls, Ogloff, & Douglas (1997a, b). Table reports validity indices for community violence only.

<sup>3</sup> See also Klassen (1996)

<sup>4</sup> See also Douglas, Webster, & Wintrup (1996)

<sup>5</sup> The mean for the HC composite was 17.1 (*SD* = 3.8)

<sup>6</sup> These samples are a combination of forensic and correctional.

<sup>7</sup> These analyses are based on re-analysis of existing data sets across three samples, and hence *N*, descriptive characteristics, and reliability co-efficients are not provided here. The three d score ranges in the validity indices column refer to changes in C and R scores over time, and not to any relationship with violence.

<sup>8</sup> The effect size was for predicting time institutionalized, not violence.

<sup>9</sup> The effect size here was for predicting discharge from forensic hospital, not violence.

<sup>10</sup> This sample also comprises the analyses for Vincent’s (1999) forensic sample.

<sup>11</sup> Eight patients were rated by 40 clinicians, where each patient was rated by five different clinicians

<sup>12</sup> The top mean (22.7) was derived from psychologists; the bottom mean (26.3) from psychiatric nurses.

<sup>13</sup> There are 4 subsamples across different countries, with means broken down accordingly. They are not reported because of space.

<sup>14</sup> Reported here for community violence only.

<sup>15</sup> Means with superscript “R” refer to researcher-based ratings; those with superscript “C” refer to clinician-based ratings.

<sup>16</sup> In Côté (2001), superscript “A” refers to involuntarily committed civil psychiatric patients, “B” refers to forensic patients (found not criminally responsible on account of mental disorder), and “C” refers to mentally disordered offenders.

<sup>17</sup> Ross et al. (2001) overlaps in sample with Douglas et al. (1998).

<sup>18</sup> Sample overlaps with Douglas et al. (1998); Ross et al (2001); Douglas & Ogloff (2003).

<sup>19</sup> Means were provided for four different subgroups; range of means is presented.

<sup>20</sup> SPJ = Structured professional judgment of low, moderate, or high risk.

<sup>21</sup> Based on a subset of most predictive items.

<sup>22</sup> Larger mean is for the violent subgroup; smaller mean is for the nonviolent subgroup.

<sup>23</sup> Larger mean is for the violent subgroup; smaller mean is for the nonviolent subgroup.

- <sup>24</sup>Psychopathy Item (H7) is omitted from mean values reported for HCR-20 Total and H-scale.
- <sup>25</sup>AUCs were provided for readmission, self/collateral reports of violence, self/collateral reports of re-offending, and serious re-offending; range of AUCs is reported.
- <sup>26</sup>Validity indices reported are for inpatient violence.
- <sup>27</sup>Sample overlaps with Fujii, Lichten et al. (2004). Validity indices are for inpatient violence as a function of ethnic/racial group. AA = Asian American, EA = Euro-American, NAH = Native American part-Hawaiian
- <sup>28</sup>Total Score is for HC composite.
- <sup>29</sup>AUC values reported are for most severe episode of inpatient violence. The authors also presented AUCs for frequency.
- <sup>30</sup>AUC values represent serious incidents and violent offences. Authors present additional AUCs for any incident, any offence, frequency of incidents and frequency of serious incidents.
- <sup>31</sup>The top mean is for the intellectually disabled group and the bottom mean is for the non-intellectually disabled group
- <sup>32</sup>AUC is for any violence but AUCs are available for Level 1 and Level 2 violence
- <sup>33</sup>80 cases for follow-up
- <sup>34</sup>The reported AUC is for violent convictions. Study provides AUCs for .5, 1, 2 years follow-up for both violence and any conviction.
- <sup>35</sup>The reported IRR is % agreement
- <sup>36</sup>The reported AUC is for total aggression. AUCs are also available for staff and patient directed aggression.
- <sup>37</sup>The first AUC is for interpersonal physical violence and the second is verbal/property violence
- <sup>38</sup>CR composite
- <sup>39</sup>The reported AUC is for violent recidivism but AUCs are available for general recidivism
- <sup>40</sup>The reported AUC is for violent outcome but the study provides AUCs for general outcome, re-offending, and violation of parole/probation.

# OVERVIEW OF RESEARCH PROJECTS, PUBLICATIONS, PRESENTATIONS, AND UNPUBLISHED STUDIES

## CIVIL PSYCHIATRIC SETTINGS

### Project and Scholarly Work

McNiel, D., Gregory, A., Lam, J., Binder, R., & Sullivan, G. (2003). Utility of decision support tools for assessing acute risk of violence. *Journal of Consulting and Clinical Psychology, 71*, 945-953.

#### Summary

These authors used a pseudo-prospective design to evaluate the utility of three decision support tools for assessing acute risk of violence: the HCR-20, the PCL-SV, and the McNiel-Binder Violence Screening Checklist (VSC). 100 patients from a university-based, short-term psychiatric inpatient unit were used as participants. The design used a case-control method of sampling in which 50 individuals who had been physically assaultive were matched with 50 cases who had been nonviolent patients. For this study, the definition of violence was operationalized as physical attacks on persons. The median length of hospitalization was 9.5 days.

Inter-rater reliability as measured by ICC for the devices were: HCR-20 = .78, PCL-SV = .77, VSC = 1.0. The means from the study group were: HCR-20 total 18 ( $SD = 6.6$ ), HCR-20 H-scale 7.1 ( $SD = 3.5$ ), HCR-20 C-scale 6.1 ( $SD = 2.3$ ) and HCR-20 R-scale 4.8 ( $SD = 2.3$ ), VSC 2.1 ( $SD = 1.3$ ), PCL-SV total score 9.1 ( $SD = 5.1$ ), PCL-SV Part 1 4.7 ( $SD = 3.0$ ) and Part 2 4.5 ( $SD = 2.8$ ).

Correlational analyses showed that the HCR-20 total score was correlated with the PCL-SV total score ( $r = .61$ ;  $p < .01$ ) and with the VSC ( $r = .26$ ;  $p < .01$ ). Each of the HCR-20 scales is also correlated with the PCL-SV total score (H-scale ( $r = .56$ ;  $p < .01$ ), C-scale ( $r = .4$ ;  $p < .01$ ) and R-scale ( $r = .47$ ;  $p < .01$ )) and with the VSC (H-scale ( $r = .17$ ;  $p < .01$ ), C-scale ( $r = .34$ ;  $p < .01$ ) and R-scale ( $r = .15$ ;  $p < .05$ )).

Logistic regression analyses showed that when violence was predicted based on the total scores from the PCL-SV, the HCR-20 and the VSC, that only the VSC made an independent contribution to the violence prediction. Further regression analyses showed that when violence was predicted based on the subscale scores from the PCL-SV, the subscales of the HCR-20 and the VSC, that the Clinical

items from the HCR-20 and the VSC made independent contributions to violence prediction.

ROC analyses of the HCR-20 subscales showed AUC's of .56 for the H Scale, .77 for the C Scale and .58 for the R Scale. For the PCL:SV, the AUC for Part 1 was .66 and for Part 2 was .55. Of these subscales, only the HCR-20 Clinical items and Part 1 of the PCL-SV differed significantly ( $p < .01$ ) from the line of no information. Compared to research using the HCR-20 with long-term community follow-up, the HCR-20 had generally lower levels of sensitivity and specificity in this sample.

The discussion section details the need for risk assessment tools as well the need for tools that are more appropriate for short-term risk assessment as opposed to long-term risk assessment. However, the C scale of the HCR-20 was shown to be an important independent predictor of short-term inpatient physical violence.

### Project and Scholarly Work:

Ogloff, J. R. P., Grant, I. An Investigation of Civil Commitment and Review Panel Decision Making in British Columbia

This was a chart review study of all 279 involuntarily committed persons from a large psychiatric hospital in Western Canada who applied for Review Panel hearings in 1994. Data were collected concerning patients' demographic characteristics, family and childhood history, mental health history, criminal history, and Review Panel hearing outcomes. The majority of patients had psychotic disorders, previous psychiatric hospitalizations, and were unemployed at admission. Over half of patients had previous arrests or convictions. Patients were tracked in the community after their release for an average of 2 years. Follow-up information was gathered from re-hospitalizations to the releasing psychiatric hospital, hospitalization records from 16 general hospitals in the province, provincial correctional records, and Coroner's records.

### Scholarly Works

Douglas, K. S., Ogloff, J. R. P., Nicholls, T. L., & Grant, I. (1999). Assessing risk for violence among psychiatric patients: The HCR-20 risk assessment scheme and the Psychopathy Checklist: Screening Version. *Journal of Consulting and Clinical Psychology, 67*, 917-930.

### Summary

This study compared the predictive validity of the HCR-20 Risk Assessment Scheme (Webster, Douglas, Eaves, & Hart, 1997a; Webster, Eaves, Douglas, & Wintrup, 1995) and the Psychopathy Checklist: Screening Version (PCL:SV; Hart, Cox, & Hare, 1995). This research includes the 193 patients for whom complete measures were attainable (HCR-20; PCL:SV). Patients were followed into the community for an average of 626 days.

Violence was defined to include a demarcation between physical and non-physical aggression. Physical aggression refers to any attacks on persons. Non-physical aggression includes threats to harm a person, verbal attacks on persons, and "fear-inducing" behaviour such as attacks on objects. Violent crime was coded separately to allow for additional analyses, although typically it would also be coded as physical violence. The three types of violent outcome, then, were (1) any violence; (2) physical violence; (3) violent crime.

The AUCs produced by ROC ranged from .76 (for any and physical violence) to .80 (for violent crime). Odds ratios showed that persons scoring high on the HCR-20 (above the median) were 6 (for any and physical violence) to 13 (for violent crime) times more likely to be violent in the community than persons who scored under the median.

For the PCL:SV, AUCs ranged from .68 (for any violence) to .73 (for physical violence) to .79 (for violent crime). Effects for the PCL:SV were more variable than those for the HCR-20. The odds of violence for those above the median score of the PCL:SV also increased substantially (from approximately 4 to 13 times).

Hierarchical regression analyses revealed that the HCR-20 added to the predictive validity of the PCL:SV, but the converse was not true. Multiple regression analyses of the subscales of the HCR-20 and PCL:SV indicated that only HCR-20 scales predicted rate of violence. The H scale and R scale of the HCR-20 produced the largest effect sizes of all subscales with violence. Implications for research on risk assessment, as well as the clinical assessment and management of violence, are discussed.

Douglas, K. S., Ogloff, J. R. P., & Nicholls, T. L. (1997, June). *Assessing the risk for inpatient psychiatric vio-*

*lence*. Paper presented at the annual convention of the Canadian Psychological Association, Toronto.

### Summary

This presentation focused on risk for inpatient violence specifically. Inpatient violence was defined in a similar manner as community violence. A distinction was made between physical violence (which required physical contact with victims) and non-physical violence (which included threats of violence and fear-inducing behaviour). Approximately half of patients displayed physical aggression while hospitalized.

AUCs for the H and C Scales composite for inpatient violence ranged from .57 to .65. Odds ratios for inpatient violence averaged approximately 2.0, and for repetitive inpatient violence, 3.0. These values are smaller than those for community violence, and indicate a moderately sized relationship between the HCR-20 and repetitive inpatient violence. The AUCs for the PCL:SV for inpatient violence were similar to those for the HCR-20, ranging from .60 to .64. Odds ratios were comparable to those of the HCR-20, averaging approximately 1.75 for inpatient violence, and 3.0 for repetitive violence.

Nicholls, T. L., Ogloff, J. R. P., & Douglas, K. S. (2004). Assessing risk for violence among male and female psychiatric patients: The HCR-20, PCL:SV, and VSC. *Behavioral Sciences and the Law, 22*, 127-158.

### Summary

The focus of this research was to compare the performance of the HCR-20, PCL:SV and a violence screening measure for both civil psychiatric inpatient and community violence. Concerning violent and criminal behaviour, a greater proportion of men had histories of crime (including violent crime). On the violence outcome measures, there were no differences in the incidence of inpatient violence across genders. A greater percentage of men compared to women displayed community violence.

Males had higher mean scores on the H Scale ( $M = 10.8$ ;  $SD = 3.3$ ), C Scale coded upon admission ( $7.4$ ;  $SD = 1.5$ ), and HCR-20 Total Scores ( $M = 20.4$ ;  $SD = 5.6$ ) compared to women (H Scale  $M = 8.2$ ;  $SD = 3.2$ ; C Scale at admission  $M = 6.9$ ;  $SD = 1.7$ ); HCR-20 Total Score  $M = 16.8$ ;  $SD = 5.4$ ). Males also had higher scores on the PCL:SV.

ROC AUC values for inpatient violence showed that the HC composite, the PCL:SV, and McNeil and Binder's (1994) Screening Measure did not predict violence for males. However, for females, moderate to large effects were observed for the HC composite ( $AUCs = .62-.74$ ) and the PCL:SV ( $AUCs = .63 = .74$ ). McNeil and Binder's screening measure was weakly related to violence, predicting only verbal aggression.



For post-release community violence, a different picture emerged. For male patients, HCR-20 AUCs ranged from .72 (any violence) to .73 (physical violence) to .75 (violence resulting in criminal sanctions). PCL:SV AUCs ranged from .63 (any violence) to .70 (violence resulting in criminal sanctions) to .71 (physical violence). For females, HCR-20 AUCs ranged from .66 (physical violence) to .77 (any violence) to .80 (violence resulting in criminal sanctions). PCL:SV AUCs ranged from .51 (physical violence) to .67 (any violence) to .89 (violence resulting in criminal sanctions).

This study is important because it focuses on gender. Perhaps surprisingly, it found that the HCR-20 performed better for the prediction of inpatient violence by women than by men. Prediction of community violence was comparable between genders. Statistical comparisons were not made between genders or measures, and as such the differential predictive validity was not addressed directly. Further, analyses were not carried out for HCR-20 and PCL:SV subscales.

### See Also

Douglas, K. S., Ogloff, J. R. P., & Nicholls, T. L. (1997, August). *Violence by psychiatric patients: Validity of the HCR-20 Scheme and the Psychopathy Checklist: Screening Version*. Paper presented at the annual convention of the American Psychological Association, Chicago.

Douglas, K. S., Ogloff, J. R. P., & Nicholls, T. L. (1997, June). The role of personality disorders in community violence among civil psychiatric patients. In C. D. Webster (Symposium Moderator), *Personality disorder and violence*. Symposium presented at the Fifth International Congress of the Disorders of Personality, Vancouver, B.C., Canada.

Nicholls, T. L., Ogloff, J. R. P., & Douglas, K. S. (1997, August). *Comparing risk assessments with female and male psychiatric outpatients: Utility of the HCR-20 and Psychopathy Checklist: Screening Version*. Paper presented at the annual convention of the American Psychological Association, Chicago.

Nicholls, T. L., Ogloff, J. R. P., & Douglas, K. S. (1997, June). *Comparing risk assessments with female and male psychiatric inpatients: Utility of the HCR-20 and Psychopathy Checklist: Screening Version*. Paper presented at the annual convention of the Canadian Psychological Association, Toronto.

Ogloff, J. R. P., Douglas, K. S., Nicholls, T. N., & Grant, I. (1997, November). *Civil commitment and risk for violence in psychiatric patients*. Paper presented at the annual meeting of the Pinel Institute, Montreal, Quebec, Canada.

Ogloff, J. R. P., Nicholls, T. L., Douglas, K. S., & Grant, I. (1997, May). *Involuntary civil commitment: Risk assessment, sex differences, and review panel decision making*. Paper presented at the Annual Convention of the Law and Society Association, St. Louis, Missouri.

### Project and Scholarly Work

Hartvig, P., Alfarnes, S. A., Skjonberg, M., Moger, T. A., & Ostberg, B. (2006). Brief checklists for assessing violence risk among patients discharged from acute psychiatric facilities: A preliminary study. *Nordic Journal of Psychiatry, 60*, 243-248.

### Summary

The authors aimed to construct a brief checklist to use in civil psychiatric settings. The sample comprised all patients ( $N = 509$ ) residing at a short-term inpatient unit in Oslo, Norway during a one-year period. The final sample consisted of the 110 patients for whom complete data were available. Participants were 55 women and 55 men whose mean age was 38.3 years ( $SD = 12.9$ , range: 19-77).

The authors constructed a 33-item "preliminary scheme" (PS) measure that consisted of all the HCR-20 items except H7 Psychopathy, 6 items from the Brøset Violence Checklist (BVC; Almvik, Woods, & Rasmussen, 2000), and 8 additional items based on the authors' clinical experience and their review of the literature. PS items are scored using the same 0, 1, 2 criteria as the HCR-20. Physicians or psychologists responsible for each participant's treatment completed PS ratings at discharge. Raters were trained in use of the measure. Protocols were excluded from analyses if there were missing data on more than six items. To assess interrater reliability, eight of the raters (the total number of raters was not specified) made independent ratings of the same 15 abridged real case stories. An ICC of 0.86 for the whole instrument was obtained.

Data on patients' violence in the community was collected every three months over a one-year period. Information about violent outcome was based on patients' self report during after-care consultations and "spontaneous information from family or friends." Violence was defined as being verbally and/or physically violent towards others. Physical violence referred to any physical attack on a person. Non-physical violence was operationalized as threats to harm a person, verbal attacks and attacks on objects that could induce fear in a person nearby. However, all analyses were based on the aggregate "any violence," which included violence of either type.

The mean total score of the 33-item PS was 15.9 ( $SD = 8.2$ ; range: 4-42). Approximately one-quarter of participants ( $n = 29$ ; 26%) engaged in at least one violent act

during follow-up ( $M = 2.2$ ,  $SD = 1.6$ ; range: 1-7). There were 12 violent women and 17 violent men. Of the 29 violent patients, 13 (7 women, 6 men) had been physically violent; 14 (4 women, 10 men) had exhibited only verbally threatening behaviour; in two cases, the nature of the violent act was not specified.

Odds ratios (OR) for any violence for the 33-item PS ranged from 0.7 (HCR-20 R3 Lack of Personal Support) to 12.8 ("Present substance use"). The largest OR among the HCR-20 items was for H1 Previous Violence (OR = 7.0). The other items for which statistically significant ORs were obtained were: HCR-20 H2 Young Age at First Violent Incident (OR = 3.8); HCR-20 H5 Substance Use Problems (OR = 2.9); HCR-20 H10 Prior Supervision Failure (OR = 2.8); HCR-20 C1 Lack of Insight (OR = 2.7); BVC item Verbal Threats (OR = 4.8); BVC item Physical Threats (OR = 5.0); "Suspiciousness" (OR = 2.7); "Lack of Empathy" (OR = 3.3); HCR-20 R1 Plans Lack Feasibility (OR = 2.4); and HCR-20 R5 Stress (OR = 3.6).

AUC values associated with engaging in any violence were 0.71 ( $p < 0.01$ ) using the 33-item PS and 0.73 ( $p < 0.01$ ) using the 19 HCR-20 items. AUC values higher than the 0.71 associated with the whole PS were obtained when various combinations of items with significant ORs were used. More specifically, combinations of 4, 6, and 8 items yielded AUCs of 0.77, 0.77, and 0.76, respectively (all  $p < 0.01$ ). The authors argued that their data support the possibility of developing a brief screening instruments specifically for use in acute psychiatric units.

## Project Description

Webster, C.D., Hart, S. D., Eaves, D. Prospective study of the HCR-20 in a civil psychiatric setting.

This was a prospective study of 131 persons admitted consecutively to the Intensive Care Unit (ICU) of a large psychiatric hospital in Western Canada. There were 82 (63%) men and 49 (37%) women. The mean age at admission was 36 years ( $SD = 12$ ). The majority of patients were single ( $n = 105$ ; 80%). Only 10% ( $n = 13$ ) of the sample was employed at admission. The mean length of stay on the ICU was 21 days ( $SD = 12$ ). Patients had on average 6.1 ( $SD = 6.4$ ) previous psychiatric hospitalizations. Over half of the sample had schizophrenic or other psychotic disorders as admission diagnoses ( $n = 73$ ; 56%). Approximately one-fifth ( $n = 28$ ) of the sample received diagnoses of personality disorder.

The HCR-20, PCL:SV, and BPRS were completed for each patient. Research assistants coded the H scale items, and attending psychiatrists coded the C and R scale factors. Violence was measured on the unit by use of the Overt Aggression Scale. Patients were also tracked in the com-

munity. Subsequent contacts with corrections, police, and hospitals were recorded from archival sources. A research assistant also contacted community "collaterals" (persons who knew the patients and could report on their community behaviour) at three and six months post-release.

## Scholarly Works

Klassen, C. (1996). *Predicting aggression in psychiatric inpatients using 10 historical risk factors: Validating the "H" of the HCR-20*. Unpublished bachelor's honour's thesis, Simon Fraser University, Burnaby, British Columbia, Canada.

### Summary

In a subset of this sample comprising 50 patients, the 10 Historical variables of the HCR-20 and the 12 items from the PCL:SV were used to predict inpatient violence. Violence included acts of verbal aggression, self-directed aggression, and aggression toward others and objects (as measured by the Overt Aggression Scale). With respect to internal consistency of the HCR-20 H scale, Klassen reported a Cronbach's alpha of .73. Correlations between the H variables and violence averaged .30 across several outcome measures, and controlling statistically for the effects of sex. Of the individual items, substance abuse and psychopathy were most strongly related to violence. The PCL:SV performed similarly to the H Scale, correlating at .26 with ward violence. Part 2 of the PCL:SV, which measures the behavioural aspects of psychopathy, was somewhat more strongly related to ward violence (.33) than were PCL:SV Total or H scores from the HCR-20.

Ross, D. J., Hart, S. D., & Webster, C. D. (1998). *Aggression in psychiatric patients: Using the HCR-20 to assess risk for violence in hospital and in the community*. Unpublished manuscript.

### Summary

Interrater reliability for the H Scale, based on a subsample of 30 files, was .82. Cronbach's alpha for the H Scale was .74, and for the C Scale, .64. Interrater reliability for the PCL:SV Part 1, 2, and Total was, respectively, .82, .91, .91. In this study, 47% ( $n = 62$ ) of patients displayed violence toward others while hospitalized. For inpatient violence, the H Scale, C Scale, and HC composite produced AUCs with violence that were greater than chance, ranging

from .63 to .68 for any type of aggression. The largest AUC was for the HC composite. The PCL:SV AUC was .61. The HCR-20 H and C scales were related to ward violence with moderate strength in this sample. Survival analyses showed that persons who scored high on the HC composite were twice as likely (62%) to be violent by day 10 post-admission compared to persons who scored low (35%).

For the community phase of the study, 112 patients had been released by the end of the study period, and data were complete for 101 of these patients. Half of the sample displayed violent behaviour in the community, most frequently verbal aggression to others. For the HCR-20 subscales, AUCs for any aggression to others ranged from .58 (C), to .73 (R). For physical violence, the AUCs averaged approximately .63. The AUC for the HCR-20 Total score was .67. For violent crime, however, the HCR-20 AUC was .75. For the PCL:SV, the AUC for any violence and physical violence was .65, and for violent crime, .70. All AUCs are significantly greater than chance.

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## **END OF CIVIL PSYCHIATRIC STUDIES**

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**FORENSIC PSYCHIATRIC  
SETTINGS**

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**Project and Scholarly Work****Summary**

Alfarnes, S. A., Jensen, A., Bork, M. A., Hymer, K. E., Løken, E., Reitan, U., et al. (July, 2008). "The Structured Dynamic Norwegian model": Development of a new safer treatment model for psychotic aggressive patients in medium security ward. Poster presented at the annual conference of the International Association of Forensic Mental Health Services, Vienna, Austria.

The authors presented on a new treatment model at a secure hospital. In order to facilitate rehabilitation, an extra security ward was added. Patients needed to meet the inclusion criteria of suffering from a major psychotic disorder and having committed serious violent behaviour towards others to be admitted to the new ward. As their functional level improved, they were transferred to a lower level ward. As part of admittance to this new security ward, a neuropsychological evaluation, the Positive and Negative Syndrome Scale (PANSS) and the HCR-20 were completed. The patients GAF, the HCR-20 and the ADL were administered every 6 months. Biological factors, cortisol and testosterone were also monitored. The treatment process the authors proposed includes a combination of risk assessment and management, structural milieu therapy, progression ladders, anger management, cognitive behavioural therapy, psychosocial support, work therapy and psychotropic medication. The rehabilitation process begins as early as possible and focuses on patient's level of functioning and coping resources. Through this model, the authors intend to reduce violent recidivism, enhance treatment quality, and prepare for a gradual reduction of the treatment period. It is hoped that the model will inform a future Research Program on the effects of the treatment.

**Project and Scholarly Work**

Allen, C., & Howells, K. (July, 2008). The implementation and evaluation of a structured professional judgment risk assessment tool within a high secure forensic hospital. Paper presented at the annual conference of the International Association of Forensic Mental Health Services, Vienna, Austria.

**Summary**

The objective of the current study was to evaluate and promote understanding of the content and implementation of a risk assessment tool within a high security hospital. The authors developed the Structuring Clinical Judgement: Risk (SCJ: Risk) which incorporated all of the items on the HCR-20 plus 6 new subscales (Suicide, Vulnerability, Escape, Risk Scenario Planning, Tilt High Risk Summary, and Risk management Plan). The purpose of the study was to retrospectively evaluate the predictive validity of the SCJ: Risk with regards to institutional violence. Institutional violence was coded on two Levels from hospital incident files 12 months following the initial assessment. The mean age of the sample was 38 years of age. The primary diagnosis was mental retardation ( $n = 62$ ) but participants also suffered from personality disorder, schizophrenia, and several other Axis I disorders (e.g., pervasive developmental disorder). Participants were mostly Caucasian British (81%). In terms of previous violence, 58% of participants committed a violent index offence, 15% committed one incident exclusive of index, 24% committed between 2-4 violence incidents, and 13% committed 5 or more violence incidents.

During the 12 month follow-up period, 74% of participants were involved in at least one violent incident in the hospital – 57% were involved in a Level 1 incident (physical aggression or any violence resulting in injury) and 68% were involved in a Level 2 incident (general aggression such as verbal aggression or property damage). The mean scores for the HCR-20 are as follows: Total  $M = 20.87$ , H subscale  $M = 14.40$ , C subscale  $M = 4.65$ , R subscale  $M = 3.61$ . The mean scores for SCJ: Risk are as follows: Total  $M = 31.47$ , H subscale  $M = 25.03$ , S scale  $M = .56$ , V scale  $M = 1.52$ , E scale  $M = .26$ . The HCR-20 and its subscales produced moderate to large AUCs. The AUC for the HCR-20 total score was significant for any violence (.72), Level 1 (.70) and Level 2 (.76). The H subscale was not significant for any of the outcomes, the C subscale was significant for any violence (.72), Level 1 (.68) and Level 2 (.77). The R subscale was significant for any violence (.66) and Level 1 (.63). The SCJ scales were not significant for any outcomes. Only the SCJ total was significant for any violence (.68), Level 1 (.66) and Level 2 (.71).

**Project and Scholarly Work**

Belfrage, H. (1998). Implementing the HCR-20 scheme for risk assessment in a forensic psychiatric hospital: Inte-

grating research and clinical practice. *Journal of Forensic Psychiatry*, 9, 328-338.

### Summary

This was a reliability study of the Swedish translation of the HCR-20 (Belfrage & Fransson, 1997). Six clinicians rated the same 43 patients on the HCR-20 and PCL-R. Over half of the sample ( $n = 25$ ; 58%) had an index offence of homicide, and the majority (77%) had previous records for criminal offences. The mean age of patients was 40 (range = 24 - 67). The majority of patients had primary ICD-9 diagnoses of mental disorder (70%), 21% were diagnosed as personality disordered, and 9% received other diagnoses. Approximately half of the sample ( $n = 22$ ; 51%) also had substance abuse diagnoses.

Internal consistency, using Cronbach's alpha, for the H scale was .96, for the C scale was .89, for the R scale was .85. For the total score, Cronbach's alpha was .95. Multivariate interrater reliability analyses, using Kendall's  $W$ , produced the following coefficients — Total scale = .81; H scale = .85; C scale = .62; R scale = .56. The HCR-20 correlated with the PCL-R at .64. The Cronbach's alpha for the PCL-R was .95, and Kendall's  $W$  was .78.

### Project and Scholarly Work

Belfrage, H. & Douglas, K. S. (2002). Treatment effects on forensic psychiatric patients measured with the HCR-20 violence risk assessment scheme. *International Journal of Forensic Mental Health*, 1, 25-36.

### Summary

This study used both cross-sectional and prospective methods to focus on the issue of change in HCR-20 violence risk factors in forensic psychiatric patients across multiple assessment periods. The sample consisted of 150 forensic psychiatric patients from two maximum security forensic psychiatric hospitals in Sweden. The sample was all male, the majority had committed violent crimes (94%) and had been assessed on more than one occasion. For the cross-sectional analyses, the sample was divided into three groups: those who had been institutionalized up to a year, between one and two years, and more than two years. A sub-sample of 70 men was followed prospectively across three assessment periods with six months in between each assessment to further analyze change in violence risk factors.

Cross-sectional results showed that the mean scores for the C-scale and the R-scale of the HCR-20 were significantly lower the longer that patients had been hospitalized. These results were only significant for the C-scale when comparing the group which had been institutionalized for up to one year against those who had been in for over two years (C-scale  $p \leq .038$ ). The R-scale showed significant

changes between the one year group and the one-two year group ( $p = .01$ ) as well as between the one year group and the more than two years group ( $p < .001$ ).

The within-groups prospective analyses contained 70 subjects whose treatment times were much longer than those in the previous analyses. For this group, the mean scores from the C-scale dropped significantly over time both between time 1 and time 2 ( $t = 2.07$ ;  $p < .05$ ) and between time 1 and time 3 ( $t = 2.96$ ;  $p < .01$ ). However, the scores from the R-scale did not drop significantly for either time period.

### Project and Scholarly Work

Brown, L. K. (2001). *Assessing risk for elopement and breaches of conditional release in insanity acquittees*. Unpublished Ph.D. Dissertation. Simon Fraser University, Burnaby, British Columbia, Canada.

### Summary

This study evaluated the utility of the HCR-20, PCL-R, and VRAG in predicting negative outcomes of people found NCRMD. The sample comprised 172 insanity acquittees (20 women and 152 men) appearing before a criminal Review Board in British Columbia. Participants' mean age was 34.17 years ( $SD = 9.70$ ). Most (91%) had primary diagnoses of a psychotic disorder (6% organic mental disorder; 2% anxiety or other disorder; 1% substance abuse disorder). Almost half (42%) had secondary diagnoses of substance abuse or dependence and 31% were diagnosed with a personality disorder.

The C and R scales were completed by psychiatrists as part of their routine assessment prior to the Review Board Hearing. The H scale was completed by a research assistant using file material. For 67 participants, the PCL-R was completed using both an interview and file material; for the remainder of the sample, only file material was used. All instruments were completed prospectively except for the VRAG, which was coded at the end of the study period.

The mean PCL-R scores were: total = 16.51 ( $SD = 7.27$ ); F1 = 5.92 ( $SD = 3.14$ ); F2 = 8.84 ( $SD = 4.00$ ). The mean VRAG score was 0.58 ( $SD = 8.92$ ). The mean HCR-20 scores were: total = 22.67 ( $SD = 6.53$ ); H scale = 12.80 ( $SD = 3.64$ ); C scale = 4.47 ( $SD = 2.54$ ); R scale = 5.41 ( $SD = 2.71$ ).

Elopers had significantly higher scores on the H scale compared to non-elopers;  $t(109.62) = 3.58$ ,  $p = .001$ . The two groups did not have significantly different scores on the C ( $p = .548$ ) and R ( $p = .342$ ) scales. Elopers also had significantly higher PCL-R scores and were placed into higher VRAG score bins relative to non-elopers. Cox regression analyses using the HCR-20 scales, with time at

risk calculated as time spent in hospital during the study period, yielded the same pattern of results as the univariate analyses. When the individual HCR-20 items were examined, only Item H10 (prior supervision failure) was positively and significantly associated with risk of elopement. When HCR-20 scales were compared to PCL-R total scores and VRAG bin scores controlling for age, none of the variables was related significantly to risk of elopement.

There were 109 participants who were released on conditional discharge. Compared to participants not released, those who were released had significantly lower mean scores on the C scale ( $t = 6.74, p \leq .001$ ) and R scale ( $t = 9.61, p \leq .001$ ). The groups did not have significantly different H scale ( $p = .843$ ), PCL-R ( $p = .603$ ), or VRAG bin scores ( $p = .790$ ). Cox regression analyses indicated that R scale scores were associated with likelihood of release (Wald = 23.06,  $p \leq .001$ ), but H (Wald = .42,  $p = .517$ ) and C scale (Wald = .36,  $p = .550$ ) scores were not. When individual HCR-20 items were considered, negative and significant associations with release were found for previous violence, active symptoms of major mental illness, and plans lack feasibility. In another Cox regression analysis that compared the three HCR-20 scales, PCL-R, and VRAG bin scores controlling for age, a significant (positive) relation was found only for the R scale. Age was associated negatively with release.

Of the 109 participants released, 43 were returned and one committed suicide. The following analyses consider only the first rehospitalization in those cases where there were multiple returns for the same individual. Neither univariate analyses nor Cox regression analyses indicated significant differences on any of the measures between those who were successful or failed on release. When the individual HCR-20 items were considered, a positive and significant relationship was found only for active symptoms of major mental illness. When the dependant variable was narrowed to rehospitalization following a significant security problem in the community, PCL-R (Wald = 9.41;  $p = .002$ ) and R (Wald = 3.89;  $p = .049$ ) scale scores were significant positive predictors. The H scale was significantly but negatively related to this return following a security problem (Wald = 6.89,  $p = .009$ ).

## **Project and Scholarly Work**

Claix, A., Pham, T., & Willocq, L. (2002, March). *Evaluation of the HCR-20 (Historical-Clinical-Risk management) in a Belgian forensic population*. Poster presented at the Annual Conference of the International Association of Forensic Mental Health Services, Munich, Germany.

## **Summary**

This study reported on the descriptive statistics of the HCR-20 as well as assessing the relations between the HCR-20, the PCL-R, and the Buss and Perry Aggression Questionnaire (Buss and Perry, 1992). This study used 86 French speaking male adult offenders confined in a Belgian forensic hospital.

Types of offenses measured were: violent offenses, non-violent offenses and any sex offenses. Common items between the HCR-20 and the PCL-R and the AQ were omitted. The omitted items were H7 (psychopathy), C1 (introspection) and H1 (past violent behavior) from the HCR-20.

The HCR-20 total score had adequate inter-rater reliability ( $r = .73$ ) and good internal consistency (Cronbach's alpha = .74). The inter-rater reliability for the H-scale alone was ( $r = .85; p < .01$ ) with an internal consistency alpha of .61. The inter-rater reliability for the C-scale alone was ( $r = .65; p < .05$ ) with an internal consistency alpha of .47. The inter-rater reliability for the R-scale alone was ( $r = .64; p < .05$ ) with an internal consistency alpha of .54.

The HCR-20 and the PCL-R were highly correlated across most of their scales. The total, H and C scales from the HCR-20 were all significantly ( $p < .01$ ) and highly ( $r$ 's  $> .4$ ) correlated with the PCL-R total, Factor 1 and Factor 2 scales. The HCR-20 R scale was only correlated at the  $p < .05$  level and with  $r$ 's between .22 and .25 with the PCL-R scales. Using only a sub sample of 70 men, the HCR-20 scales showed far fewer significant correlations with the AQ. The HCR-20 total score ( $r = .3; p < .05$ ) and the H-scale score ( $r = .39; p < .01$ ) were correlated with the AQ total score. The HCR-20 total score ( $r = .34; p < .01$ ) and the H-scale score ( $r = .46; p < .01$ ) were also correlated with the AQ physical aggression score. The other HCR-20 scales were not significantly related to the AQ scores.

The HCR-20 scores were correlated to a few types of violent offenses. The HCR-20 total score was correlated with violent theft ( $r = .26; p < .05$ ) and with assault and battery ( $r = .3; p < .01$ ). The H scale was also correlated with violent theft ( $r = .26; p < .05$ ) and with assault and battery ( $r = .37; p < .01$ ). The C scale was correlated with kidnapping ( $r = .26; p < .05$ ).

The HCR-20 scores were correlated to a few types of non-violent offenses. The HCR-20 total score was correlated with theft ( $r = .28; p < .01$ ). The H scale was also correlated with theft ( $r = .27; p < .05$ ) as well as drug offenses ( $r = .24; p < .05$ ).

Lastly, the HCR-20 scores were correlated with indices of homicide. The HCR-20 total score was correlated with psychotic homicide ( $r = -.74; p < .01$ ). The H scale was also correlated with psychotic homicide ( $r = -.67; p < .05$ ). The C scale was also correlated with psychotic homicide ( $r = -.64; p < .05$ ) and reactive homicide ( $r = -.56; p < .05$ ) and with instrumental homicide ( $r = .71; p < .01$ ).

### Project and Scholarly Work

Côté, G., & Crocker, A. (July, 2008). The practice in regard of risk assessment instruments. Paper presented at the annual conference of the International Association of Forensic Mental Health Services, Vienna, Austria.

### Summary

The objective of the present study was to determine whether risk assessments are used at the same frequency in cases of NCRMD (not criminal responsible by reason of a mental disorder) as they are in other legal circumstances. Between October 2004 and August 2006, 96 men were assessed using the HCR-20 prior to their Review Board hearings. The inter-rater reliability was excellent ( $ICC = .87$ ). In addition, the authors reviewed information presented by clinical psychiatrists at the disposition hearings, coding for factors from the HCR-20 that were considered to be associated with violence.

The analysis was based on the kappa between the factors identified by the research team and the factors mentioned by psychiatrist in his or her report to the Review Board, the factors discussed in the hearing, and those the Review Board considered in their decision. All the items of the HCR-20 were dichotomized on the basis of the absence (0) or presence (1 or 2) of the item. Very few of the risk factors the research team considered as potentially relevant were actually mentioned during the hearing process. Exceptions to this finding were “prior violence” and the presence of “serious mental disorders”. For the H subscale, there was little or no agreement for the majority of items; “substance use problems” had moderate agreement. Although the agreement for the C subscale was better, only two factors had moderate agreement: presence of “active

symptoms of mental illness”, and “resistance to treatment”. None of the R subscale items exhibited moderate or better agreement. The results were essentially identical even when the authors considered only forensic clinicians. However, forensic clinicians were more preoccupied with substance abuse problems ( $kappa = .72$ ) and this had implications for the justification of decisions ( $kappa = .68$ ). Overall, agreement on personality disorder and psychopathy was weak but agreement among forensic clinicians was very low, comparable to that observed among general psychiatrists. The authors concluded that, overall, there is little application of empirically supported risk assessments. But, the results could be biased given that the role of any expert is to provide an opinion, not necessary to justify the opinion which might have explained the lack of risk assessment information. In addition, patients are usually known to the Review Board and hence some information may have been omitted.

### Project and Scholarly Work

Dernevik, M. (1998). Preliminary findings on reliability and validity of the Historical-Clinical-Risk Assessment in a forensic psychiatric setting. *Psychology, Crime, and Law*, 4, 127-137.

### Summary

This was a reliability study of the HCR-20. Six clinicians each rated six patients on the HCR-20. Reliability coefficients ranged from .76 to .96.

### Project and Scholarly Work

Dernevik, M., Falkheim, M., Holmqvist, R. & Sandell, R. (2001) Implementing Risk Assessment: Clinical Judgment Revisited. In D. Farrington, C. Hollin, & M. McMurran (Eds.). *Sex and Violence: The Psychology of Crime and Risk Assessment*, Harwood Academic Press. London.

### Summary

The main goal of this study was to evaluate issues related to the process of risk assessment as it pertains to the HCR-20. Specifically, the study evaluated whether “expert” HCR-20 raters (psychologists) differed in their scores from psychiatric nurses. Second, analyses were conducted to determine the extent to which HCR-20 ratings were influenced by clinicians’ feelings towards the patient. The contextual grounding for this approach was drawn from the larger clinical and social psychological literature on biases and heuristics in decision-making.

A total of 8 male patients and 40 clinicians (psychiatric nurses) took part. On average, each patient was rated by five clinicians, and each clinician rated one patient. These patients had serious violent index offences (homicide, rape, assault, arson) and severe mental disorders, as well as personality disorders. They were on average 28 years of age.

The “Feeling Word Checklist” (FWC) was used for clinicians to rate their reactions to the patients they assessed. The FWC is based on a circumplex model with 30 items comprising four dimensions and eight scales, as follows: (1) Helpfulness vs. Unhelpfulness; (2) Closeness vs. Distance; (3) Accepting vs. Rejecting; and (4) Autonomous vs. Rejecting. The FWC predicted HCR-20 scores with  $Mult. R = .66$ , with feeling Close and Accepting relating to higher scores, and Helpfulness and Autonomy relating to lower scores.

The mean score for the nurse was 26.3 ( $SD = 6.1$ ), whereas it was lower for the “expert” raters ( $M = 22.7$ ;  $SD = 6.5$ ).

As Dernevik et al. point out, the question of whether the relationship between feelings and HCR-20 scores is evidence for biases in clinical decision-making is not clear. There were no outcome data (i.e., subsequent violence). Further, it is possible that clinicians’ feelings are correlative rather than causative of the HCR-20 ratings. Dernevik et al.’s findings, however, emphasize the importance of limiting biases and over-emphasis on personality to the greatest extent possible, and also the potential importance in professional training on the outcome of an assessment. Further, item bias was not directly assessed (i.e., differential item functioning using Item Response Theory).

### See Also

Dernevik, M., Falkheim, M., Holmqvist, R., & Sandell, R. (1999, July). Implementing risk assessment procedures in a forensic psychiatric setting: Personal relationships between assessor and the assessed using the Historical-Clinical-Risk-20 scheme. Paper presented at the International meeting of the American Psychology-Law Society (Div. 41 APA) and the European Academy of Psychology and Law, Dublin.

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### Project and Scholarly Work

Dernevik, M., Grann, M., & Johansson, S. (2002). Violent behaviour in forensic psychiatric patients: Risk assessment and different risk management levels using the HCR-20. *Psychology, Crime, and Law*, 8, 83-111.

### Summary

This was a prospective study of short-term inpatient and community violence. Participants were 54 consecutive admissions over two years to a forensic psychiatric unit. Most ( $n = 48$ ) were male. Mean age was 34.2 ( $SD = 8.92$ ). Most had violent index offences (assault,  $n = 16$ ; murder,  $n = 10$ ; great bodily harm,  $n = 4$ ; arson,  $n = 10$ ; sex offences,  $n = 6$ ; other,  $n = 8$ ). 29% had an Axis I diagnosis only (mostly schizophrenia); 14% had Axis II only; 27% had both; 9% had other combinations of diagnoses.

Predictive analyses were carried out for the whole sample, as well as across three risk management levels: *Level one:* (High RM) Time spent on a high security ward with no access to the community. *Level two:* (Medium RM) Time spent living in the hospital but with limited access to occupational and recreational activities in the community. *Level three:* (Low RM) Time spent in less secure living arrangements and having access to the community while still being monitored regularly.

For overall analyses, HCR-20 effects with inpatient violence were as follows: HCR-20 Total Score ( $r = .32$ ;  $AUC = .68$ ); H Scale ( $r = .37$ ;  $AUC = .68$ ); C, R, and PCL:SV did not predict inpatient violence. For community violence re-conviction analyses, HCR-20 Total Score  $AUC = .84$ ; PCL:SV  $AUC = .71$ . The C Scale had the highest  $AUC$  of the subscales, at  $.79$ .

In the low, medium, and high risk management conditions, the measures were most predictive in low and medium conditions, and less so in the high risk management condition. In the High Risk Management condition, only the H Scale was predictive ( $AUC = .67$ ). HCR-20 Total Score predicted with  $r = .21$  and  $AUC = .64$ . C, R, and PCL:SV did not predict. In the Medium Risk Management condition, effects were as follows: HCR-20 Total Score ( $r = .41$ ;  $AUC = .82$ ); H Scale ( $r = .34$ ;  $AUC = .83$ ); C Scale ( $r = .36$ ;  $AUC = .75$ ). R and PCL:SV were not significantly associated with violence, though had small/moderate effect sizes. In the Low Risk Management condition, HCR-20 Total Score ( $r = .50$ ;  $AUC = .71$ ); H Scale ( $r = .48$ ;  $AUC = .75$ ); R ( $r = .49$ ;  $AUC = .62$ ); C and PCL:SV did not predict.

Dernevik et al. interpreted their results as supporting the predictive validity of the HCR-20 for inpatient and community violence. The finding that the HCR-20 was less strongly related to violence in the High Risk Management than in the Medium or Low Risk Management categories, or in the community follow-up, was interpreted not as lack of validity but as effective intensive clinical risk manage-



ment in this category. This is consistent with the finding and conclusion reached by Muller-Isberner et al. (1999).

## Project and Scholarly Work

Dolan, M., & Khawaja, A. (2004). The HCR-20 and post-discharge outcome in male patients discharged from medium security in the UK. *Aggressive Behavior, 30*, 469-483.

## Summary

This study investigated the predictive validity of the HCR-20 total and subscale scores among violent patients ( $N = 70$ ) discharged to the community under fairly intensive supervision. Participants were discharged between 1992 and 2000 and had stayed in the hospital for a mean of 24 months ( $SD = 14.49$ ). Most of the sample was Caucasian (83%) and single (80%). The mean age at admission was 35.3 years ( $SD = 10.12$ ). The most common Axis I diagnosis was schizophrenia (73%) and roughly one-third of the sample had either primary or secondary diagnoses of a PD (the most common being APD, 26%). Almost half (44%) had a history of co-morbid substance misuse.

The HCR-20 was scored from comprehensive case file information at the time of discharge. Item H7 (PCL-R score) was not coded for this study. Three types of follow-up outcome data were collected blind to the initial HCR-20 scores: (1) reconvictions were coded from the Home Office Offender Index; (2) readmissions to district and forensic hospitals (readmissions could be of several types, including those under the Mental Health Act that reflected concern over an escalation in violence secondary to a relapse in mental state); and (3) self/collateral reports of violence were coded from community mental health teams' computerized records. Violence included sexual violence, punching, biting, choking, kicking, or assault with a weapon that resulted in physical injury to the victim.

Mean HCR-20 scores, with the psychopathy item omitted, were: total = 19.37 ( $SD = 5.7$ , range = 9-31); H-scale = 11.82 ( $SD = 3.65$ , range = 6-18); C-scale = 3.34 ( $SD = 2.20$ , range = 0-10); R-scale = 4.07 ( $SD = 1.45$ , range = 1-7).

The mean length of stay in the community was 59 months ( $SD = 37.64$ ). There was a significant negative relationship between time in the community and HCR-20 total score ( $r = -.48$ ,  $p = .0001$ ), H-scale ( $r = -.29$ ,  $p = .014$ ), C-scale ( $r = -.57$ ,  $p = .001$ ), and R-scale ( $r = -.37$ ,  $p = .001$ ).

For the following analyses, median splits were performed and high and low scores refer to scores above and below the median, respectively. No significant associations were detected between high and low total scores on the HCR-20 and re-offending ( $\chi^2 = 2.71$ ,  $p = .10$ ) or violent re-offending ( $\chi^2 = 1.72$ ,  $p = .18$ ). Likewise, none of the sub-

scales demonstrated a significant association with reconviction. However, the number of readmissions was correlated significantly with HCR-20 total score ( $r = .40$ ,  $p = .0001$ ), C-scale ( $r = .26$ ,  $p = .026$ ), and R-scale ( $r = .31$ ,  $p = .007$ ), but not H-scale. Chi-square analyses indicated a significant association between high total scores and all subscales for any form of readmission and especially for readmission under the Mental Health Act (MHA). For incidents of violence reported by participants or their carers, there was a significant association with high HCR-20 total scores ( $\chi^2 = 10.19$ ,  $p = .006$ ), H-scale ( $\chi^2 = 16.13$ ,  $p = .001$ ), and C-scale ( $\chi^2 = 7.46$ ,  $p = .008$ ). This association nearly reached significance for the R-scale ( $\chi^2 = 3.06$ ,  $p = .08$ ).

ROC curve analyses were used as another index of predictive validity. The AUC for the HCR-20 total score for re-admission under the MHA was .85 ( $p < .001$ ,  $CI = .76 - .95$ ). AUC values also were significant for self/collateral reports of violence (AUC = .76,  $p < .001$ ,  $CI = .65-.87$ ) and re-offending (AUC = .71,  $p < .05$ ,  $CI = .56-.87$ ). The AUC value for serious re-offending was not significant (AUC = .67,  $p = .15$ ,  $CI = .47-.88$ ). All three scales predicted readmission under the MHA (AUC values ranging from .65 to .78), with highest values obtained for the H-scale.

Kaplan-Meier survival analyses revealed significant relationships between above-median HCR-20 scores and poor survival in the community. Log rank values were: MHA readmission = 27.73 ( $p < .001$ ); self/collateral reported violence = 17.14 ( $p < .001$ ); re-offending = 3.85 ( $p < .05$ ); and violent re-offending = 5.08 ( $p < .05$ ). The authors noted (but did not provide a quantitative summary) that when survival analyses were used to examine time at risk in the community, they found evidence that the C-scale and R-scale outperformed the H-scale.

The discussion section highlights reasons that may have contributed to the finding of a significant relationship between HCR-20 scores and readmission but not reconviction (e.g., high level of supervision, hospital policy pertaining to re-admittance at time of deterioration in mental state/increase in risk of violence).

**Project Description: Webster, C. D., Hart, S. D., & Eaves, D. Prospective study of the HCR-20 in a forensic psychiatric setting.**

This is a prospective study. The HCR-20 was coded on 175 consecutive persons who were coming before a Criminal Review Board for release from dispositions of Not Criminally Responsible an Account of Mental Disorder (NCRMD). The PCL-R was coded with the use of interviews by trained assistants. Psychiatrists who were responsible for providing the Board with a release assessment completed the Brief Psychiatric Rating Scale (BPRS), as well as the Clinical and Risk Management scales of the HCR-20, as part of their assessments. The H scale was coded by assistants on the basis of file and interview information.

The mean age at admission was 33.0 ( $SD = 9.6$ ). The sample was primarily male ( $n = 133$ , 88.7%). The vast majority of participants were unemployed at admission ( $n = 139$ , 92.7%). Schizophrenia was the predominant admission Axis I diagnosis ( $n = 96$ , 64%). Forty-one patients (27.4%) of the patients received an admission diagnosis of personality disorder. Most patients had been hospitalized in the past ( $n = 132$ , 88%), and the majority had previous charges for violent offences ( $n = 90$ , 60%). Finally, most patients had a violent index offence ( $n = 129$ , 86%). Violence was measured in the hospital with the Overt Aggression Scale, and in the community with arrests records and re-admission to the forensic institute.

## Scholarly Works

Douglas, K. S., Klassen, C., Ross, D., Hart, S. D., Webster, C. D., & Eaves, D. (1998, August). *Psychometric properties of HCR-20 violence risk assessment scheme in insanity acquittees*. Poster presented at the Annual meeting of the American Psychological Association, 1998, San Francisco.

## Summary

The HCR-20 violence risk assessment scheme was coded on 175 consecutive insanity acquittees appearing before a criminal Review Board. The purpose of the study was to provide data on the descriptive, normative, and reliability characteristics of the HCR-20, and on its relationship to conceptually-related concurrent measures and indexes. The alpha co-efficients for the HCR-20 Total, H scale, C scale, and R scale scores, respectively, were .78, .69, .77, and .77. Other indexes also supported the structural reliability of the HCR-20 (i.e., *MIC*; *CITC*). For the H Scale, inter-rater reliability was good ( $ICC_1 = .81$ ;  $ICC_2 = .90$ ). Inter-rater reliability was not available for the other HCR-20 scales. Test-retest analyses showed that the C and R scales changed (declined) across repeated assessments, as they are expected to.

The HCR-20 was related strongly to the PCL-R, correlating at .60. The H Scale was most strongly related (.76 with PCL-R Total), while the C and R Scales were related with small effect sizes ( $r_s = .18$  and  $.16$ , respectively). The H

Scale was more strongly correlated with Factor 2 of the PCL-R, while the C and R Scales were more strongly correlated with Factor 1. The HCR-20 and its scales were related to psychopathology (Brief Psychiatric Rating Scale; various factors). In a conceptually meaningful way. Generally, the C Scale was most strongly related, the R Scale next strongly related, and the H Scale generally unrelated.

Finally, the HCR-20 was related to an index of violence (past violent crimes). Items on the HCR-20 dealing with past violence were removed to avoid inflation of correlation co-efficients. Persons scoring above the median of the HCR-20 were significantly more likely than those scoring below the median to have previous violent convictions, previous assault charges, and juvenile records.

Douglas, K. S., & Ogloff, J. R. P. (2003). Multiple facets of risk for violence: The impact of judgmental specificity on structured decisions about violence risk. *International Journal of Forensic Mental Health, 1*, 19-34.

## Summary

The conceptual risk assessment literature describes risk as multi-faceted (i.e., likelihood; severity; imminence; nature; targets) and calls for decision-makers to make decisions about these various facets. However, no research has been conducted to evaluate whether such highly specific judgments can be made reliably or accurately. This study evaluated whether highly specific judgments of violence could be made with reasonable reliability and incremental validity over more general judgments. For this study, the authors used the HCR-20 as the primary measure of violence risk. The sample consisted of 100 adults who had been found not criminally responsible by reason of insanity and were released from a maximum-security forensic institution into the community in 1996. The HCR-20 (Version) 2 was recoded from the original 175 participants described above because Version 1 had originally been used. The majority of the sample was male ( $n = 89$ ). For this study, the definition of violence was categorized into three groups: any violence, physical violence, non-physical violence, and violence that resulted in criminal charges. Violence was measured from two sources: official criminal recidivism data and records of readmission to forensic psychiatric services.

The inter-rater reliability was calculated using ICCs. For the omnibus (general) structured clinical risk ratings on the HCR-20, the  $ICC_1$  was .61. Reliability was lower for more specific judgments – from low to moderate for judgments of various severities of violence ( $ICC_1 = .27-.37$ ). Reliability was low to moderate for ratings of violence targets ( $ICC_1 = .40-.47$ ). Lastly, reliability was low to moderate for time frame of violence of up to one year ( $ICC_1 = .31-.42$ ).

Only a limited number of the specific judgments about future violence were capable of being evaluated due to low base rates, low reliability or lack of ability to collect outcome information. The short-term risk judgment produced a small but significant point biserial correlation with violence at 12 months ( $r = .2$ ;  $p = .02$ ). A partial point biserial correlation between short-term risk judgments and 12-month violence holding the general risk assessment constant was .06. Risk judgments of minor violence showed a significant point biserial correlation with non-physical violence ( $r = .23$ ;  $p = .012$ ). The partial point biserial correlation holding omnibus risk judgment constant was non-significant. Risk judgments of severe violence showed a significant point biserial correlation with physical violence ( $r = .27$ ;  $p = .003$ ). The partial point biserial correlation holding omnibus risk judgment constant was non-significant.

The findings showed that more specific judgments of various facets of violence risk that are called for in the literature were not made with as much reliability and accuracy as more general judgments.

Douglas, K. S., & Ogloff, J. R. P. (2003). The impact of confidence on the accuracy of structured professional and actuarial violence risk judgments in a sample of forensic psychiatric patients. *Law and Human Behavior, 27*, 573-587.

### Summary

The purpose of the study was to evaluate the relationship between confidence and accuracy of risk estimates made using a structured professional judgment (SPJ) and an actuarial approach. The impetus for the study was previous research (McNiel, Sandberg, & Binder, 1998) in which probabilistic clinical predictions of inpatient violence by civil psychiatric patients were influenced by clinicians' confidence in their judgments.

The sample comprised 100 forensic psychiatric patients in western North America who had been found to be not criminally responsible for criminal offenses (previously reported on by Douglas, Ogloff, & Hart, 2003). The mean age at admission was 35.30 years ( $SD = 9.84$ ) and participants primarily were single (67%), unemployed (93%), and had an admission diagnosis of schizophrenia (73.5%; 24.0% personality disorder; 18.4% mood disorder; 5.1% substance use/abuse disorder; 3% 'other'). Most participants had a past violent charge (91.9%) and almost half had a past violent conviction (48.5%). The majority (79.0%) had a violent index offense.

The HCR-20 was coded archivally by two masters-level clinicians who were blind to outcome. Raters made actuarial predictions of risk (the sum of the HCR-20 items for each scale) and SPJ predictions of risk (final risk judgments of low, moderate, or high risk). They rated their

confidence in their HCR-20 judgments on a 1-10 scale, where confidence was defined as "the rater has a feeling of certainty or reliance or trust about the correctness of the rating." A median split was applied to create a low confidence group (who scored at or below the median) and a high confidence group (who scored above the median).

Four categories of violence were coded from criminal and hospital readmission records: (1) physical violence (physical contact by the perpetrator or use of a weapon); (2) nonphysical violence (verbal threats and fear-inducing behavior); (3) criminal violence (violence that led to arrests or convictions); and (4) any violence (an omnibus category that included all violence).

A striking contrast emerged between effects of SPJs across the high and low confidence groups, with point biserial correlations ( $r_{pb}$ ) and AUCs in the former typically being large and significant but in the latter being not significant. Correlations for any, physical, nonphysical, and criminal violence for the high confidence group were .62, .54, .48, and .43 and for the low confidence group were .14, .18, .10, and .03, respectively. AUC values for the any, physical, nonphysical, and criminal violence for the high confidence group were .86, .82, .82, and .84 and for the low confidence group were .58, .63, .58, and .52, respectively. Cox regression analyses, which control for time and uneven follow-up periods, yielded a nonsignificant model fit for the low confidence group using 'any violence' as the outcome criteria. However, in the high confidence group there was a roughly ninefold increase in the hazard of violence that occurred between low and moderate and between moderate and high risk ratings.

A similar set of analyses was carried out for the three actuarial judgments (one for each scale). In the low confidence group, all  $r_{pb}$  and AUC values across the four violence categories were nonsignificant and generally small, whereas for the high confidence group the values generally were larger and were significant for the H- and C-scales (but not for the R-scale).

Indices of variability for scale scores and final risk ratings were highly comparable between the high and low confidence groups, which provided evidence against the possibility that the results could be attributed to differential variance of the predictors between the two confidence groups. Several possible explanations for the strong relationship observed between confidence and accuracy are discussed.

Douglas, K. S., Ogloff, J. R. P., & Hart, S. D. (2003). Evaluation of a model of violence risk assessment among forensic psychiatric patients. *Psychiatric Services, 54*, 1372-1379.

**Summary**

This study tested the inter-rater reliability and criterion-related validity of structured violence risk judgments made with one application of the structured professional judgment (SPJ) model of violence risk assessment, the HCR-20 violence risk assessment scheme. Participants were taken from a larger, ongoing prospective study examining the predictive validity of the HCR-20. From the larger study, 116 of 175 patients released from forensic hospitalization between 1996-1997 were originally chosen to participate. The HCR-20 was completed on a random sample of 100 of the 116 forensic psychiatric patients. All of the 100 had been found not guilty by reason of insanity and were subsequently released into the community.

For this study, violence was operationally defined as actual, attempted or threatened physical harm to others. Acts of violence were divided into broad categories of: any violence, physical violence and non-physical violence. Raters were two masters-level clinicians. Raters gathered information from clinical-legal files of participants as they existed at time of discharge. Violence in the community was coded both from criminal records and clinical files after discharge from the hospital.

The mean HCR-20 total score was 24.7 ( $SD = 4.64$ ). For the H-scale the mean was 14.4 ( $SD = 2.79$ ), for the C-scale it was 4.68 ( $SD=2.02$ ) and for the R-scale it was 5.88 ( $SD = 1.49$ ). The *ICC* for the H-scale ranged from .41 (H4) to 1.0 (H7). For the total H scale it was .90. The *ICC* for the C-scale ranged from .34 (C5) to .69 (C3) (total C scale = .79), and for the R-scale, the *ICC* ranged from .01 (R5) to .54 (R3) (total R scale = .47). *ICC* for the HCR-20 total score was .85. As for agreement on final risk ratings, raters agreed on 70% of all cases, with no instances of low/high risk errors ( $ICC = .61$ ).

*AUC* values for the HCR-20 structured clinical judgments (low, moderate, or high risk) were statistically significant for each outcome criterion. Effects for the HCR-20 clinical judgments were moderate to large in size, depending on the violence index (any violence,  $AUC = .69, p < .01$ ; physical violence,  $AUC = .74, p < .01$ ; non-physical violence,  $AUC = .68, p < .05$ ). For the HCR-20 total score, the *AUC* for any violence was .67,  $p < .05$ ; for physical violence was .70,  $p < .05$  and for non-physical violence was .67,  $p < .05$ . For the H-scale, the *AUC*s were not significant. For the C-scale, the *AUC* for any violence was .68,  $p < .05$ ; for physical violence it was .70,  $p < .05$  and for non-physical violence it was .68,  $p < .05$ . For the R-scale, the *AUC*'s were not significant.

Kaplan-Meier survival analyses showed that persons judged to be at high risk were more likely to be violent, and to be so sooner than others. Cox regression analyses showed that HCR-20 risk ratings were most strongly related to violence, over and above actuarial scores.

The discussion section reiterates the findings and explores the implications of these results for using structured clinical judgments in risk assessments.

Ross, D. J., Hart, S. D., Eaves, D., & Webster, C. D. (1999, November). *The relationship between the HCR-20 and BC Review Board decisions on the release of forensic psychiatric inpatients*. Paper presented at the International Conference on Risk Assessment and Risk Management, Vancouver, British Columbia, Canada.

**Summary**

This presentation compared the H, C, and R scores of those patients who had been released by the Review Board to those who had not. While the H scale score did not differ between groups, C and R scale scores did. Among those discharged, the C scale score was 3.4, compared to 5.9 among those not released. Similarly, the R scale score was significantly lower among those released (4.0) compared to those not released (7.3).

Ross, D. J., Hart, S. D., Eaves, D., & Webster, C. D. (2001, April). *The relationship between the HCR-20 and community violence in a sample of NCRMD outpatients*. Paper presented at the Founding Conference of the International Association of Forensic Mental Health Services, Vancouver, British Columbia, Canada

**Summary**

This presentation reported the results of prospective analyses of the prediction of post-release violence among 103 released forensic patients followed for six months. The *AUC* value between "any aggression" and total score was .76. For H, C, and R, it was .60, .74, and .75. *AUC* values for PCL:SV total, Part 1, and Part 2 were .64, .57, and .66. For physical aggression, the *AUC* values were smaller: .57, .57, .60, and .61 for HCR-20 total, H, C, and R scale scores. They were larger for PCL:SV total, Part 1, and Part 2 scores: .77, .75, and .70. As with Dernevik et al. (2002) and Müller-Isberner et al. (1999), Ross et al. (2001) suggested that risk management strategies could be responsible for the lower effects observed for more serious violence and HCR-20 scores. As with the other studies, however, this hypothesis remains untested. It is important to point out that the lower effects for more serious violence does not necessarily reflect a trend across studies, as other reports have failed to observe this (Douglas et al., 1999).

**Project and Scholarly Work**

Dowsett, J. (2005). Measurement of risk by a community forensic mental health team. *Psychiatric Bulletin*, 29, 9-12.

### Summary

The predictive validity of the HCR-20 (version 2) was evaluated prospectively among a complete caseload of patients ( $N = 47$ ) managed by a community forensic team. The sample primarily was male ( $n = 11$ ; 91%) and African-Caribbean ( $n = 35$ ; 74%). Many participants had a history of violence in the community ( $n = 43$ ; 92%) or in an inpatient setting ( $n = 23$ ; 49%).

Data for all participants were collected over a three-month period by the author, who had worked clinically with some of the patients, via file review and an interview with each participant's keyworker (who typically was a community psychiatric nurse). No direct contact with the participant occurred in the course of data collection. The PCL-R was completed for a subset of participants ( $n = 33$ ). Mean HCR-20 scores were: Total ( $M = 21.65$ ,  $SD = 6.15$ ); Historical ( $M = 13.40$ ,  $SD = 3.31$ ); Clinical ( $M = 4.11$ ,  $SD = 2.32$ ); Risk Management ( $M = 4.33$ ,  $SD = 2.27$ ). The range of mean item scores on the Historical scale was 1.19 (H10) to 1.87 (H6). The range of mean item scores on the Clinical scale was .54 (C3) to 1.22 (C1). The range of mean item scores on the Risk Management scale was .41 (R1) to 1.48 (R2).

Recidivism data were collected 2.5 years after the HCR-20s were scored. Outcome data were based on file records and information collected from clinical staff. Eight participants were charged or convicted of a new offence. Mean total scores of recidivists ( $M = 29.4$ ) and non-recidivists ( $M = 21.2$ ) were statistically significant ( $p < .05$ , independent  $t$ -test). Re-offending of two participants appeared to be linked closely to deteriorated mental state. Among the other six participants, all of whom maintained their mental stability, re-offending appeared to be related to instrumental violence, substance misuse, and antisocial personality characteristics. Implications for targeting specific types of patients for forensic services (versus generic services) were discussed.

### Project and Scholarly Work

de Ruiter, C., & Hildebrand, M. (2007). Risk assessment and treatment in Dutch forensic psychiatry. *Journal of Psychology*, 63, 166-175.

### Summary

In this article, the authors review the possible legal statuses for mentally disordered offenders in the Netherlands as well the relevant literature on treatment and risk assessment. In the Netherlands, mentally disordered offenders are often involuntarily committed to a hospital

under a TBS orders (for offenders who at the time of the crime were mentally disordered and who are a risk to the public). A TBS order is indefinite.

In terms of risk assessments and research, the authors reviewed studies of the HCR-20. The HCR-20 produced moderate to large AUCs when predicting community violence. The authors also reviewed the HKT-30, a Dutch risk assessment tool developed in the Netherlands which includes 11 historical items, 13 clinical and dynamic items and 6 future items scored on a five point scale. Studies revealed it performs as well and sometimes better than the HCR-20 specifically in terms of the final risk judgment.

### Project and Scholarly Work

de Vogel, V. & de Ruiter, C. (2005). The HCR-20 in personality disordered female offenders: A comparison with a matched sample of males. *Clinical Psychology and Psychotherapy*, 12, 226-240.

### Summary

The predictive validity of the Dutch version of the HCR-20 was examined in a forensic psychiatric sample of 42 women admitted between 1985 and 2003. A sample of 42 male forensic psychiatric patients, also admitted between 1985 and 2003 and matched on birth year, type of index offense, ethnicity, and type of psychopathology, was used as a comparison group.

The HCR-20 was coded on the basis of file information. For the women, ratings were made retrospectively for 15 cases and prospectively for 27 cases. Good interrater reliability was observed for the women for the total score, H-scale, and final risk judgment ( $n = 27$ ; ICCs = .75, .82, .74) and moderate for the C-scale and R-scale (ICCs = .55, .51). For the men, half the ratings were retrospective and half were prospective. Good interrater reliability was observed for the total score, H-scale, C-scale, and final risk judgment ( $n = 28$ ; ICCs = .77, .82, .70, .69).

There were significant mean differences between the genders on several HCR-20 items but the total and scale scores were comparable. For women, mean scores were: HCR-20 total (25.9,  $SD = 5.5$ ); H-scale (14.0,  $SD = 2.9$ ); C-scale (5.4,  $SD = 2.0$ ); R-scale (6.6,  $SD = 1.9$ ). For men, mean scores were: HCR-20 total (27.1,  $SD = 6.5$ ); H-scale (14.9,  $SD = 3.0$ ); C-scale (5.4,  $SD = 2.3$ ); R-scale (6.8,  $SD = 2.1$ ). With respect to the HCR-20 final risk judgments, women were judged as moderate risk significantly more often, whereas men were judged as high risk significantly more often. The three most frequently coded 'other considerations' differed for each gender. For men they were financial problems, lack of prospects for the fu-

ture, and violent fantasies whereas for women they were forming a new intimate relationship, care for children, and prostitution.

Analyses of the predictive validity included two types of violence collapsed into a single outcome variable: (1) violent recidivism (operationalized with the HCR-20 definition of violence) after discharge was obtained from official judicial records for the “retrospective participants” and (2) data on inpatient violence was obtained from daily hospital information bulletins that detailed any disruptive incidents (incidents were coded only if they were acts of physical violence directed towards other persons). Values for all HCR-20 indices were higher for men than women. For men, AUC values for HCR-20 total and scale scores ranged from .75 to .88 and  $r$ s ranged from .42 to .62. For women, AUCs ranged from .52 to .63 and  $r$ s ranged from .07 to .22. Values for final risk judgments were higher than values for the HCR-20 total and scale scores across both men (AUC = .91,  $r$  = .70) and women (AUC = .86,  $r$  = .57). Predictive indices for the PCL-R generally were lower than for the HCR-20.

Results indicate the predictive ability of the HCR-20 may be maximized when judgments of final risk are used rather than an actuarial approach wherein individual risk factors are summed.

### Project and Scholarly Work

de Vogel, V. & de Ruiter, C. (2004). Differences between clinicians and researchers in assessing risk of violence in forensic psychiatric patients. *The Journal of Forensic Psychiatry and Psychology*, 15, 145-164.

#### Summary

This research project assessed whether clinicians and researchers differ in their violence risk assessment of the same patients and whether raters' feelings towards the patients plays into their risk assessments. This study used the Dutch version of the HCR-20 on 60 patients (53 men and 7 women) in a Dutch psychiatric forensic hospital. The groups which coded the HCR-20 were comprised of 5 independent researchers, 7 treatment supervisor and 32 group leaders. The treatment supervisors were mostly clinical psychologist or psychotherapists. The group leaders were a diverse group with most having relevant higher vocational or academic training.

The mean HCR-20 scores were: Total score = 26.1 ( $SD$  = 6.5), H-scale = 14.6 ( $SD$  = 3.3), C-scale = 5.3 ( $SD$  = 2.2), R-scale = 6.1 ( $SD$  = 2.1). The inter-rater agreement was measured by  $ICC$ . The  $ICC$  between all three groups for the HCR-20 Total score was .79. For the H-scale the  $ICC$  was .82, the C-scale was .64, the R-scale was .57 and the final clinical risk judgment  $ICC$  was .65. Inter-rater agree-

ments between subgroups of raters was equivalent to that of all three groups together.

In terms of differing scores by rater type, Group leaders rated significantly lower scores on the H-scale, Risk management items, and HCR-20 Total scores. There were no significant differences in the mean scores between the researchers and the treatment supervisors except for structured clinical risk judgments. Treatment supervisors more often judged patients as “low risk” compared to researchers.

Researchers stated that they spent about 120 minutes per risk assessment, group leaders spent about 30 minutes and supervisors about 15 minutes per assessment. Also, researchers stated that they based their assessments predominantly on file information, whereas group leaders and treatment supervisors mostly relied on personal experiences with the patient.

Correlations between HCR-20 scores and a measure of feelings towards the patients showed many significant correlations. The HCR-20 total score was correlated with measures of patient's: helpfulness ( $r$  = -.28;  $p$  < .01), unhelpfulness ( $r$  = .38;  $p$  < .01), distant ( $r$  = .2;  $p$  < .05), accepting ( $r$  = -.19;  $p$  < .01), rejecting ( $r$  = .34;  $p$  < .01), and controlled ( $r$  = .46;  $p$  < .01). The HCR-20 risk judgment was correlated with measures of patient's: helpfulness ( $r$  = -.34;  $p$  < .01), unhelpfulness ( $r$  = .33;  $p$  < .01), close ( $r$  = .19;  $p$  < .5), distant ( $r$  = .4;  $p$  < .01), accepting ( $r$  = -.23;  $p$  < .01), rejecting ( $r$  = .34;  $p$  < .01), and controlled ( $r$  = .37;  $p$  < .01).

Stepwise multiple regression analyses showed that feelings of being controlled or manipulated by a patient significantly predicted high HCR-20 scores. 21% of the variance in the HCR-20 Total score was explained by feelings of being controlled by the patient. Also in stepwise regressions, feelings that the patient was close and distant predicted high risk judgments whereas feelings that the patient was helpful predicted low risk judgments. Together these three explained 23% of the variance in risk judgments.

### Project and Scholarly Work

de Vogel, V., & de Ruiter, C. (2006). *Structured professional judgment of violence risk in forensic clinical practice: A prospective study into the predictive validity of the Dutch HCR-20*. *Psychology, Crime, & Law*, 12, 321-336.

#### Summary

This prospective study examined differences in accuracy between researchers ( $n$  = 9), treatment supervisors ( $n$  = 8), and group leaders ( $n$  = 59) with respect to individual ver-

sus consensus ratings and structured final risk versus actuarially based risk judgments. The sample comprised 127 men (a subset of whom were reported on previously; see de Vogel & de Ruiter, 2004) whose mean age at admission was 32.9 ( $SD = 9.6$ , range = 17-66). The index offenses were: 44% (attempted) homicide, 33% sexual offenses, 16% other violent offenses such as robbery, 7% arson. Mean length of stay in the hospital was 3.7 years ( $SD = 2.4$ , range = 0-12). More than half of the participants had abused substances in the past (8% alcohol, 15% drugs, and 44% multiple substances) and most had received previous psychiatric treatment.

Participants varied in terms of their treatment phase at the time the HCR-20 was coded. For participants who were commencing their first unsupervised leave from the hospital ( $n = 9$ ), entering the transmural treatment phase ( $n = 28$ ), or already were in the transmural treatment phase ( $n = 24$ ), the R-scale was coded for the outside context. For participants who were newly admitted to the hospital ( $n = 49$ ) and for existing inpatients ( $n = 17$ ), the R-scale was coded for the context inside (risk of inpatient violence).

Raters coded the HCR-20 between January 2001 and June 2004 for each case independently and agreed upon a consensus score and a final risk judgment during a case conference. For 19 (15%) patients, more than one HCR-20 rating was completed because there was a change in their treatment phase. The most recent risk assessment was used for those participants.

Outcome data were obtained from daily information bulletins published in the hospital that report on inpatient violence and violence that occurred outside the hospital (e.g., for patients who were in the transmural treatment phase). The definition of physical violence was the same as that used in the HCR-20 manual. The mean follow up period was 21.5 months ( $SD = 10.9$ , range = 1-37). For individuals under mandated treatment conditions, data on violent recidivism was not obtained after the court order expired ( $n = 20$ ; mean follow up period after discharge for this subgroup = 15 months,  $SD = 8.8$ , range = 4-34).

Group leaders gave significantly lower total and R-scale scores ( $p < .05$ ) compared to researchers and treatment supervisors. There were no significant differences in mean HCR-20 scores between researchers and treatment supervisors. The mean HCR-20 consensus scores were higher (but not significantly so) than the mean HCR-20 scores of the three individual rater groups. Mean total scores were: researchers = 26.1 ( $SD = 6.1$ ), treatment supervisors = 25.8 ( $SD = 6.1$ ), group leaders = 24.1 ( $SD = 5.8$ ), consensus = 26.8 ( $SD = 5.6$ ). Mean H-scale scores were: researchers = 14.5 ( $SD = 3.1$ ), treatment supervisors = 14.3 ( $SD = 3.4$ ), group leaders = 14.0 ( $SD = 3.4$ ), consensus = 14.8 ( $SD = 3.1$ ). Mean C-scale scores were: researchers = 5.3 ( $SD = 2.1$ ), treatment supervisors = 5.3 ( $SD = 2.2$ ), group leaders

= 5.0 ( $SD = 2.0$ ), consensus = 5.5 ( $SD = 2.1$ ). Mean R-scale scores were: researchers = 6.3 ( $SD = 2.2$ ), treatment supervisors = 6.2 ( $SD = 2.2$ ), group leaders = 5.3 ( $SD = 2.2$ ), consensus = 6.4 ( $SD = 1.9$ ).

There were no significant differences between the rater groups in final risk judgments. The percentages of low HCR-20 final risk judgments were: 24% researchers, 30% treatment supervisors, 21% group leaders, and 28% consensus. The percentages for judgments of moderate risk were: 45% researchers, 46% treatment supervisors, 43% group leaders, and 48% consensus. The percentages for judgments of high risk were: 31% researchers, 24% treatment supervisors, 35% group leaders, and 24% consensus.

AUC values for physical violence for the total score were: researchers = .79 ( $SD = .05$ ), treatment supervisors = .81 ( $SD = .05$ ), group leaders = .75 ( $SD = .05$ ), consensus = .85 ( $SD = .04$ ). AUC values for the H-scale were: researchers = .73 ( $SD = .06$ ), treatment supervisors = .74 ( $SD = .06$ ), group leaders = .75 ( $SD = .06$ ), consensus = .77 ( $SD = .05$ ). AUC values for the C-scale were: researchers = .76 ( $SD = .06$ ), treatment supervisors = .75 ( $SD = .05$ ), group leaders = .66 ( $SD = .06$ ), consensus = .80 ( $SD = .05$ ). AUC values for the R-scale scores were: researchers = .74 ( $SD = .06$ ), treatment supervisors = .71 ( $SD = .05$ ), group leaders = .63 ( $SD = .07$ ), consensus = .79 ( $SD = .05$ ).

AUC values for the final risk judgment were: researchers = .77 ( $SD = 2.2$ ), treatment supervisors = .75 ( $SD = .05$ ), group leaders = .64 ( $SD = .07$ ), consensus = .86 ( $SD = .04$ ). Group leaders compared to researchers had a significantly lower AUC value for the final risk judgment ( $\chi^2(1, N = 127) = 6.3, p < .01$ ). Group leaders' ratings compared to consensus ratings were significantly lower for the C-scale, R-scale, total score, and final risk judgment ( $\chi^2(1, N = 127) =$  respectively 6.8, 4.9, 4.6 and 20.1,  $p < .05$ ). The AUC value for the HCR-20 consensus final risk judgment was significantly higher than the individual final risk judgment of researchers, treatment supervisors and group leaders ( $\chi^2(1, N = 127) =$  respectively 6.9, 5.3, and 20.1,  $p < .01$ ).

Correlations for the HCR-20 total score were: researchers = .35, treatment supervisors = .36, group leaders = .30, consensus = .43. Correlations for the H-scale were: researchers = .27, treatment supervisors = .28, group leaders = .29, consensus = .32. Correlations for the C-scale were: researchers = .31, treatment supervisors = .31, group leaders = .19, consensus = .36. Correlations for the R-scale were: researchers = .29, treatment supervisors = .27, group leaders = .16, consensus = .35. Correlations for the final risk judgment were: researchers = .35, treatment supervisors = .33, group leaders = .19, consensus = .49. All  $p$  values  $< .01$  for consensus, researchers, and treatment super-

visors and at least  $< .05$  for group leaders (except R-scale,  $p = .16$ ).

Participants who scored above the median (27) relative to those below the median had significantly more had significantly more incidents of physical violence (Kaplan Meier log rank = 15.8,  $p < .001$ ; odds ratio = 21.6, 95% CI = 2.8-167.2). Cox regression analyses with the three scales entered on the first block and final risk judgment entered on the second using the forward conditional method resulted in a significant model fit ( $\chi^2(3, N = 127) = 22.9, p < .001$ ) at Block 1. HCR-20 final risk judgment demonstrated incremental validity as there was significant improvement to the model's fit at Block 2 ( $\chi^2$  change (1,  $N = 127$ ) = 6.8,  $p < .01$ ).

AUC values and Pearson correlations were used to examine the predictive validity of consensus ratings for physical violence of the HCR-20 items. Items 2, 4, 5, and 7 from the H-scale, items 11, 12, 14, and 15 from the C-scale, and items 16, 17, and 19 from the R-scale had significant AUC values and correlations. Significant AUC values ranged from .67-.74 and significant correlations ranged from .21-.32. Cox regression analysis with all items included yielded a significant model ( $\chi^2(20, N = 127) = 43.7, p < .01$ ). Using the forward conditional method to determine which HCR-20 items were significant predictors of incidents of physical violence produced a final model in which items 2 ( $e^B = 6.4, 95\% \text{ CI} = 1.5\text{-}28.0$ ), 15 ( $e^B = 3.4, 95\% \text{ CI} = 1.5\text{-}8.1$ ), and 17 ( $e^B = 3.4, 95\% \text{ CI} = 1.2\text{-}10.0$ ) were significant predictors of incidents of physical violence.

The HCR-20 total score and final risk judgments were significantly predictive for both verbal abuse (total score: AUC = .72, SE = .05,  $r = .36, p < .01$ ; final risk judgment: AUC = .65, SE = .05,  $r = .28, p < .01$ ) and verbal threat (total score: AUC = .79, SE = .05,  $r = .36, p < .01$ ; final risk judgment: AUC = .71, SE = .05,  $r = .31, p < .01$ ).

## Project and Scholarly Work

de Vogel, V., de Ruiter, C. Hildebrand, M., Bos, B. & van de Ven, P. (2004). Type of discharge and risk of recidivism measured by the HCR-20: A retrospective study in a Dutch sample of treated forensic psychiatric patients. *International Journal of Forensic Mental Health, 3*, 149-165.

## Summary

The authors investigated the predictive validity, inter-rater reliability and survival rates while using the HCR-20 and PCL-R. The sample consisted of 120 patients discharged from a Dutch forensic psychiatric hospital between 1993 and 1999. The patients had a mean duration of treatment of 58.7 months and there was an average follow-up period

of 73 months for this study. There were four different ways of discharge for these patients: transmural ( $N = 30$ ; termination of treatment by court in line with hospital's advice and after a resocialization phase), conform advice ( $N = 30$ ; termination of treatment by court in line with hospital's advice without resocialization phase), contrary to advice ( $N = 30$ ; termination of treatment by court against the hospital's advice) and readmission to another institution ( $N = 30$ ; readmission to another institution).

Inter-rater reliability was measured using ICC's. The ICC for the HCR-20 total score was .83. For the H-scale it was .89, for the C-scale it was .76, for the R-scale it was .58, and for the structured final risk judgment it was .73.

The mean scores for the HCR-20 and PCL-R by type of discharge were as follows. Transmural means were: PCL-R total (15.4), HCR-20 total (22.8), H-scale (12.6), C-scale (3.7), R-scale (6.5). Conform means were: PCL-R total (17), HCR-20 total (22.8), H-scale (12.8), C-scale (4.3), R-scale (5.6). Contrary means were: PCL-R total (20.2), HCR-20 total (27.6), H-scale (14.6), C-scale (5.4), R-scale (7.6). Readmission means were: PCL-R total (25.3), HCR-20 total (32), H-scale (16), C-scale (7), R-scale (9.1).

For the H-scale there were significant differences between the transmural and conform means as compared to the contrary mean ( $p < .05$ ) and the contrary mean as compared to the readmission mean ( $p < .05$ ). For the C-scale there were significant differences between the transmural and conform means as compared to the contrary and readmission means ( $p < .05$ ). For the R-scale there were significant differences between the transmural and conform means as compared to the contrary and readmission means ( $p < .05$ ). For the HCR-20 total score there were significant differences between the transmural and conform means as compared to the contrary and readmission means ( $p < .05$ ). For the PCL-R total score, there were significant differences between the transmural and conform means as compared to the contrary mean ( $p < .05$ ) and the contrary mean as compared to the readmission mean ( $p < .05$ ).

Significant differences were found in the level of risk judgments given across the four discharge types. For the HCR-20, low risk judgments were given significantly more often to transmural and conform groups than to the readmission group ( $p < .05$ ). Use of the HCR-20 also led to more moderate risk judgments for the transmural, conform and contrary groups as compared to the readmission group ( $p < .05$ ). Lastly for the HCR-20, this measure led to more high risk judgments for the transmural and conform groups as compared to the contrary and readmission groups ( $p < .05$ ). Using a cut-off of 26 on the PCL-R, there were higher judgments of risk given to those in the contrary and readmission groups as compared to the transmural or conform groups ( $p < .05$ ).



Results showed that there were no significant differences between the transmural and conform or contrary groups in terms of violent recidivism. The conform group had a lower reconviction rate for violent offenses ( $p < .05$ ), and the readmission group had a higher reconviction rate for violent offenses than the other three groups ( $p < .01$ ).

The predictive validity of the HCR-20, PCL-R and clinical judgment for violent offending were calculated using AUCs and Pearson's correlations. AUC's: HCR-20 total score (.82;  $p < .001$ ), H-scale (.80;  $p < .001$ ), C-scale (.77;  $p < .001$ ), R-scale (.79;  $p < .001$ ), Risk judgment (.79;  $p < .001$ ), PCL-R total score (.75;  $p < .001$ ), PCL-R with cut-off of 26 or greater (.65;  $p < .01$ ) and unstructured clinical judgment (.68;  $p < .01$ ). Correlations: HCR-20 total score (.52;  $p < .01$ ), H-scale (.47;  $p < .01$ ), C-scale (.46;  $p < .01$ ), R-scale (.47;  $p < .01$ ), Risk judgment (.51;  $p < .01$ ), PCL-R total score (.43;  $p < .01$ ), PCL-R with cut-off of 26 or greater (.39;  $p < .01$ ) and unstructured clinical judgment (.32;  $p < .01$ ).

The authors conclude that the HCR-20 structured final judgment was significantly more accurate than unstructured clinical judgment in predicting violent recidivism ( $p < .05$ ). The HCR-20 was also significantly more accurate than the PCL-R in predicting violent recidivism ( $p < .05$ ) except when the item H7 (psychopathy) was removed from the HCR-20 total score ( $p = .08$ ).

## Project and Scholarly Work

de Vogel, V., de Ruiter, C., & Vandeputte, C. (2001, November). *Implementation of the HCR-20 and SVR-20 in a Dutch forensic psychiatric hospital*. Paper presented at the International Conference, Violence Risk Assessment and Management: Bringing Science and Practice Closer Together. Sundsvall, Sweden.

### Summary

This research project assessed the reliability and predictive validity of the HCR-20 and the SVR-20 (Sexual Violence Risk-20). The project also assessed who would be the most suitable to perform risk assessments. The study used 60 patients (53 males, 7 females), assessed them initially before their entrance into a transmural phase and then again in the transmural phase.

The mean HCR-20 scores were: Total score = 26.1 ( $SD = 6.5$ ), H-scale = 14.6 ( $SD = 3.3$ ), C-scale = 5.3 ( $SD = 2.2$ ), R-scale = 6.1 ( $SD = 2.1$ ). Inter-rater reliability was assessed using ICCs. Across assessors, treatment leaders and group leaders together, the ICCs were as follows: HCR-20 total score (.79), H-scale (.82), C-scale (.64), R-scale (.57), and final structured risk judgment (.65). In terms of differing scores by rater type, those who were assessors gave the

highest HCR-20 scores, with treatment supervisors giving the next highest and group leaders giving the lowest. Significant differences only existed, though, between assessors and group leaders.

Inpatients' H, C, R and Total scores were higher than those in the transmural phase. Inpatient final risk judgments were higher than when in the transmural phase.

## Project and Scholarly Work

Dietiker, J., Dittmann, V., & Graf, M. (2007). Gutachterliche risikoeinschätzung bei sexualstraftätern. Anwendbarkeit von PCL-SV, HCR-20+3 und SVR-20 [Risk assessment of sex offenders in a German-speaking sample. Applicability of PCL-SV, HCR-20+3, and SVR-20]. *Nervenarzt*, 78(1), 53-61.

Abridged abstract (English translation of the study not available):

In the present study, 64 sex offenders in Switzerland were retrospectively rated with the PCL-SV, the HCR-20 +3 and the SVR-20. These participants are part of a larger study by the Forensic Department of the Psychiatric University. The risk assessments were coded based on prior risk assessment reports as well as criminal reports. The scores on the PCL-SV, HCR-20 +3 and the SVR-20 were compared to prior scores on the Structured Risk Assessment of Basel. Results of this study confirm the utility of PCL-SV, HCR-20+3 and SVR-20 in a German-speaking sample of sex offenders. The authors conclude the risk assessment instruments should be used primarily with anti-social and physically aggressive sex offenders.

## Project and Scholarly Work

Dolan, M., & Fullam, R. The validity of the Violence Risk Scale second edition (VRS-2) in a British forensic inpatient sample. *Journal of Forensic Psychiatry & Psychology*, 18, 381-393.

### Summary

In this study, the authors investigated the psychometric properties of the Part A baseline assessment component of the Violence Risk Scale second edition (VRS-2; Wong & Gordon, 2000). Participants were 136 male inpatients at the Edenfield Medium Secure Unit in Manchester, UK who were admitted to the unit between 1995 and July 2003. The VRS was coded based on admission notes. The HCR-20 was completed on a subsample of 80 cases that were then followed-up in 12 months.

The mean age of the sample was 35.5 years ( $SD = 9.45$ ). The majority were Caucasian (80.1%). Primary diagnoses included schizophrenia (76.4%), schizoaffective disorder (10.3%), affective disorder (3.7%), personality disorder

(4.4%), and organic brain syndrome (0.7%). The majority of participants had been referred from prison (55.1%). However, 18.4% had been transferred from a high security hospital, 14.7% from non-forensic district services, 10.3% from the courts or probation services, and 1.5% from the forensic community service. The vast majority (97%) had been charged with or convicted of a criminal offence. Of these, 34.6% had an index offence of wounding, 14.0% homicide, 12.5% arson, 7.4% sexual assault, 8.1% theft, 2.2% public order offences, and 2.9% possession of offensive weapons. A further 15.4% had multiple index offences recorded, all of which included a violent offence. Four had no criminal conviction but had been admitted because of unmanageable violence in district services.

Both demographic information and some historical information was collected from case files. These same files, admission summaries, index forensic assessment reports, and pre-admission court reports (available at admission) were used to score the VRS-2 and the HCR-20. The VRS-2 and the HCR-20 were scored independently by researchers, blind to each other's ratings. Data on outcome (episode of physical violence towards others) were examined by a third researcher to avoid any potential bias. The VRS-2 contains an item assessing institutional violence: this item was rated based on violence in other settings prior to the index admission to the secure unit. The inter-rater reliability of the VRS-2 was based on a comparison of 23 cases rated previously by another rater and the current rater. The intraclass correlation coefficients were satisfactory, with alphas of .96, .85, and .89 for the VRS-2 static, dynamic, and total scores respectively.

The VRS-2 total scores had a mean of 41.0 ( $SD = 11.3$ ). The static item scores had a mean of 8.17 ( $SD = 3.8$ ). The dynamic item had a mean of 32.9 ( $SD = 8.9$ ). The means of the HCR-20 were: Total  $M = 20.5$ ,  $SD = 6.1$ , 4-32; H subscale  $M = 10.1$ ,  $SD = 3.5$ , 2-18; C subscale  $M = 5.91$ ,  $SD = 1.88$ , 1-10; R subscale  $M = 4.52$ ,  $SD = 1.58$ , 0-8. Correlations between the two measures were all highly significant. Participants who had engaged in institutional violence during the 12 month follow-up period had higher mean VRS-2 total, subscale scores, HCR-20 and subscale scores than the non-violent group. Comparison of the predictive accuracy of both measures indicated that they had moderate predictive accuracy (VRS-2  $AUCs = .62-.72$ ; HCR-20 Total, H, C,  $R AUCs = .72, .66, .73, .67$ ). Overall, the dynamic scales in both measures had greater predictive accuracy than the more static scales. A logistic regression analysis indicated that the subscale scores from both measures were significant contributors to the prediction of institutional violence, however, only the C subscale was a significant predictor in the forward entry model.

## Project and Scholarly Work

Fujii, D., Lichten, A., & Tokioka, A. (under review). *Structured professional judgment versus actuarial data in violence risk prediction using the Historical Clinical Risk Management-20*. Manuscript submitted for publication.

### Summary

The accuracy of actuarial predictions of inpatient violence using a cut-off score of 27 on the HCR-20 versus clinicians' structured professional judgments (SPJ) was compared. The HCR-20 was administered by three doctoral level psychologists within the first week of arrival to 169 patients (138 men and 31 women) admitted consecutively to a state hospital between February 2002 and January 2003. The most common admission diagnoses were schizoaffective (18%) and paranoid schizophrenia (16%). The inter-rater reliability coefficient for 12 cases was .94. Episodes of inpatient violence (operationalized by the definition of violence in the HCR-20 manual) were recorded from hospital event records for a minimum of three months post-admission.

For actuarially derived predictions, the hit rate = 71%, sensitivity = 30% (12/40), specificity = 86% (95/111), positive predictive power (PPP) = 43% (12/28), negative predictive power (NPP) = 77% (95/123), and AUC = .61 (range: .51-.72). SPJ-based predictions (patients were rated either as high risk or low/moderate risk) generally were higher: hit rate = 77%, sensitivity = 45% (18/40), specificity = 88% (105/120), PPP = 55% (18/33), NPP = 83% (105/127), and AUC = .70 (range: .56-.77).

A step-wise regression was completed using the number of violent inpatient episodes as the criterion variable and overall HCR-20 scores and five-level SPJ predictions (low, low-moderate, moderate, moderate-high, and high) as the predictor variables. SPJ-based predictions added incremental validity over actuarial predictions (an increase in  $r^2$  from .036 to .092,  $p < .05$ ), whereas the reverse was not true.

The study also reports on clinicians' predictions regarding the situational contexts in which violence might occur for each participant based on his or her historical background. Results provide support for the use of the SPJ approach in making predictions of inpatient violence among forensic psychiatric patients.

Fujii, D. E. M., Tokioka, A. B., Lichten, A. I., & Hishinuma, E. (2005). Ethnic differences in prediction of violence risk with the HCR-20 among psychiatric inpatients. *Psychiatric Services*, 56, 711-716.

### Summary

The authors noted that the majority of studies on the HCR-20 have used samples that comprise predominantly Caucasians of European heritage. The purpose of the present study was to examine retrospectively cultural differences in violence risk assessment of psychiatric inpatients using the HCR-20. Participants were drawn from a sample of 169 consecutive admissions (the same sample reported on by Fujii, Lichten, & Tokioka, under review). Participants were included in this study if they described themselves as Asian-American (AA;  $n = 51$ ), Euro-American (EA;  $n = 46$ ), or Native American of part-Hawaiian (NAH,  $n = 38$ ) heritage. Participants were considered AA if their ethnicity was Japanese, Chinese, Korean, Filipino, or Vietnamese and NAH if they reported Hawaiian as one of their ethnic languages. Participants with a mixed ethnic heritage, apart from the NAH group, were excluded. The final sample consisted of 88 men and 20 women and had a mean age of 40.1 years ( $SD = 12.6$ ) and a mean education level of 11.9 years ( $SD = 2.5$ ).

There were no differences in rates of institutional violence (i.e., threats or assaults on patients and staff) among the three ethnic groups. ROC analyses indicated the highest accuracy for predicting inpatient violence was obtained for the NAH group ( $AUC = .730$ ) and the lowest accuracy for the AA group ( $AUC = .575$ ;  $AUC$  for the EA group =  $.638$ ). Stepwise multiple regressions were conducted for each ethnic group using HCR-20 items as predictor variables and the number of violent events (multiplied by  $\log_{10}$  to control for a skewed distribution) as the criterion variable. Results indicated a unique pattern of predictors was associated with each cultural group. Models for AA and EA each produced a single significant predictor. For AA, item C4 (impulsivity) accounted for 16.1% of the variance. For EA, item H2 (young age at first violence) accounted for 13.3% of the variance. The largest effect size ( $R^2 = .430$ ) was obtained for NAH, which had three significant predictors (H2, young age at first violence; H3, relationship instability; and R1, plans lack feasibility).

Results are discussed in terms of possible explanations for the disparities in observed predictive ability of the HCR-20 as a function of ethnicity.

## Project and Scholarly Work

Fullam, R., & Dolan, M. (2006). The criminal and personality profile of patients with schizophrenia and comorbid psychopathic traits. *Personality and Individual Differences, 40*, 1591-1602.

## Summary

The authors compared the clinical, criminal, and personality characteristics of male forensic psychiatric patients with schizophrenia who were categorized into high and low psychopathy groups on the basis of PCL:SV scores. The HCR-20 was coded, but it was not a main focus of

this study. Participants ( $N = 61$ ) were recruited from two forensic psychiatric hospitals in England. Their mean age was 37.79 years ( $SD = 8.52$ ); data on the racial composition of the sample was not provided.

Criminal history information (i.e., number of offences, type of offences, and age at first offence) was coded dichotomously from official conviction records reported within case files. Data were collected on the following measures: PCL:SV, PANSS, HCR-20, a self-report measure entitled the Antisocial Personality Questionnaire (APQ; Blackburn & Fawcett, 1999), and the Chart of Interpersonal Reactions in Closed Living Environments (CIRCLE; Blackburn & Renwick, 1996). The authors reported that "trained researchers completed the psychopathy, risk and symptom related assessments based on file review and interview where appropriate." It was stated that the PCL:SV was completed using file review and interview, but the basis of HCR-20 scores was not specified. Ratings on the CIRCLE were made by nursing staff.

A researcher blind to baseline assessment data recorded episodes of institutional aggression using computerized official incident reports covering the period from admission to assessment. An episode was defined as aggressive "if the patient was the clear instigator or co-aggressor, and if the incident involved verbal or physical aggression to the staff, patients or property." Length of follow-up was not specified.

The mean PCL:SV score was 12.5 ( $SD = 5.37$ ). Patients were classified as psychopathic if they scored above the 75<sup>th</sup> percentile on the PCL:SV (total score of 16 or higher). The psychopathic patients ( $n = 19$ ) had a higher mean total HCR-20 score ( $M = 25.61$ ,  $SD = 5.38$ ) than the non-psychopathic patients ( $n = 42$ ) ( $M = 19.29$ ,  $SD = 5.49$ ), ( $t(57) = -4.09$ ,  $p < 0.001$ ). The psychopathic patients also had significantly higher mean scores on the Historical scale ( $M = 15.7$ ,  $SD = 1.87$ ), ( $t(57) = -5.09$ ,  $p < 0.001$ ). To avoid criterion contamination, data were analysed with and without the HCR-20 items *H7 Psychopathy* and *H9 Personality Disorder*. Using the total and Historical scores adjusted on this basis, the psychopathic patients group still had higher total ( $t(57) = -3.05$ ,  $p < 0.01$ ), and Historical ( $t(57) = -2.52$ ,  $p < 0.05$ ) scores. The psychopathic group also had significantly higher Clinical ( $M = 5.44$ ,  $SD = 2.48$ ) scores than the non-psychopathic group ( $M = 3.90$ ,  $SD = 2.69$ ), [ $t(57) = -2.07$ ,  $p < 0.05$ ]. No differences between the psychopathic ( $M = 4.44$ ,  $SD = 2.91$ ) and non-psychopathic ( $M = 3.49$ ,  $SD = 2.20$ ) groups were observed on Risk Management scores, ( $t(57) = -1.39$ , *n.s.*).

Predictive validity data were provided for the PCL:SV, but not the HCR-20. The psychopathic group was more likely to have engaged in an episode of institutional aggression ( $n = 13$ , 72%) than the non-psychopathic group ( $n = 13$ , 34.2%;  $\chi^2 = 7.1$ ,  $p < 0.01$ ) between admission and time of

assessment. The psychopathic group also had a significantly higher mean number of aggressive incidents in the first year of admission ( $M = 2.74$ ,  $SD = 4.92$ ; mean rank = 36.5) than the non-psychopathic group ( $M = 0.18$ ,  $SD = 2.18$ ; mean rank, 28.51), Mann Whitney  $U = 294.5$ ,  $p < 0.05$ . There was a significant difference between the psychopathic ( $M = 17.17$  months,  $SD = 31.68$ ) and non-psychopathic ( $M = 28.48$  months,  $SD = 42.24$ ) survival curves for time in months following admission to first aggressive incident (Kaplan Meier, Log rank statistic [ $df$ ] = 7.64,  $p < 0.01$ ).

The authors concluded that their findings generally were consistent with previous research that has examined associations between psychopathy scores and violence risk and criminality in general, as well as in patients with schizophrenia. They also noted that assessing personality functioning, including interpersonal style, may help in developing appropriate treatment interventions to mitigate the impact of such personality pathology on maladaptive behaviours such as poor compliance and institutional aggression.

## Project and Scholarly Work

Grann, M., Belfrage, H., & Tengström, A. (2000). Actuarial assessment of risk for violence: Predictive validity of the VRAG and the historical part of the HCR-20. *Criminal Justice and Behavior*, 27, 97-114.

### Summary

This was a retrospective follow-up of 404 forensic patients who had committed violent offences in Sweden, and who were followed up for a period of two years. This study compared to predictive characteristics of the Violence Risk Appraisal Guide (VRAG; Harris, Rice, & Quinsey, 1993) and the H Scale of the HCR-20. The sample was further broken down into two sub-samples or cohorts: 1) 293 violent offenders with ICD-9 diagnoses of personality disorder; 2) 111 violent offenders with diagnoses of schizophrenia.

Across both groups, the AUC of the ROC for the H Scale was .71 (95% CI = .66 - .76). At the cut-off score of 12 on the H Scale (the inflexion point), sensitivity = .71; specificity = .61; positive predictive power = .35, and negative predictive power = .88. For the VRAG, the AUC was .68 (95% CI = .63 - .73). At the cut-off score of 13 on the VRAG (the inflexion point), sensitivity = .50; specificity = .77; positive predictive power = .39, and negative predictive power = .84.

In the personality disordered cohort, the AUC of the ROC for the H Scale was .71 (95% CI = .66 - .76). At the cut-off score of 12 on the H Scale (the inflexion point), sensitivity = .72; specificity = .60; positive predictive power = .38, and negative predictive power = .86. For the VRAG, the

AUC was .68 (95% CI = .62 - .73). At the cut-off score of 13 on the VRAG (the inflexion point), sensitivity = .57; specificity = .71; positive predictive power = .40, and negative predictive power = .83.

In the schizophrenia cohort, the AUC of the ROC for the H Scale was .66 (95% CI = .56 - .75). At the cut-off score of 8 on the H Scale (the inflexion point), sensitivity = .88; specificity = .36; positive predictive power = .19, and negative predictive power = .95. For the VRAG, the AUC was .60 (95% CI = .50 - .69). At the cut-off score of 0 on the VRAG (the inflexion point), sensitivity = .68; specificity = .53; positive predictive power = .20, and negative predictive power = .91.

Grann et al. concluded that both the H Scale and the VRAG predicted violence significantly better than chance (except for the VRAG in the schizophrenia group). They comment that the obtained values could under-represent the actual predictive accuracy of the instruments because several items on each scale had to be "approximated." The sensitivity of the H Scale tended to be greater than that for the VRAG, whereas the specificity of the VRAG tended to be greater. Among the schizophrenia group, only the H Scale was better than chance.

## Project and Scholarly Work

Grann, M., & Långström, N. (2007). Actuarial assessment of risk for violence: To weigh or not to weigh? *Criminal Justice and Behavior*, 34, 22-36.

### Summary

Using data from Grann et al. (2000), this investigation evaluated the relative accuracies of different options for weighting H scale scores. The authors used five approaches: nonweighted, Nuffield approach, logistic regression model (one-by-one), logistic regression model (11-term algorithm), and artificial neural network. They split the sample into training (or calibration) and validation seeds or subsets. Results showed that the unweighted procedure produced the largest average AUC value (.72), compared to the Nuffield approach (.71), logistic regression one-by-one (.71), logistic regression 11-term algorithm (.68) and artificial neural network (.64). These findings are consistent with research showing that unweighted predictors are often as accurate as optimally-weighted procedures.

## Project and Scholarly Work

Gray, N., Taylor, J., & Snowden, R. (2008). Predicting violent reconvictions using the HCR-20. *The British Journal of Psychiatry*, 192, 384-387.

**Summary**

This was a pseudo-prospective study of 887 male forensic psychiatric patients discharged from four medium secure units in the UK between December 1992 and September 2001. Four psychologists completed the HCR-20 based on mental health and criminal justice files and were blind to outcome. The outcome variable was the occurrence of a violent offence or any offence after discharge from the hospital based on information obtained from the UK Home Office. Violence referred to violence against the person including kidnapping, criminal damage endangering life, robbery, rape and indecent assault. Any offences referred to all offences committed during the follow-up period. Time to offence was calculated as the difference between the discharge date and the time of reconviction for the subsequent offence.

The total sample consisted of 996 male patients with a mean age at discharge of 37.7 years (*SD* = 9.2, range 16.9-71.2). Of those 996, 887 had an HCR-20 completed. Most patients (69.2%) were White, 21.6% were of Black Caribbean or Black African origin, 2.4% were of Asian origin, 1.5% were of other or mixed ethnicity and 5.2% were of unknown ethnicity. The mean length of stay within the hospital was 436 days (*SD* = 510 days, range 7-3785 days). The participant's primary diagnosis was mainly schizophrenia or a psychotic disorder (56.2%) and the rest were mood, personality, mental retardation, developmental or organic disorders with 3.2% being of unknown diagnosis.

Many of the subsequent analyses are based on sub-samples of the overall sample. All sub-samples were compared with the total sample and no significant differences were found in terms of patient characteristics. Inter-rater reliability for the HCR-20 based on 20 cases yielded a collective interclass correlation of .80. The mean scores for the HCR-20 and its subscales are as follows: Total *M* = 18.3, *SD* = 6.2; 0-36; H subscale *M* = 11.3, *SD* = 3.7, 0- 20; C subscale *M* = 3.2, *SD* = 2.4; 0- 10; R subscale *M* = 3.7, *SD* = 2.6; 0-10.

After five years, 34% of participants had a new conviction, with 10% receiving a new conviction for a violent offence. The authors reported AUCs for 6 months to 5 years post-discharge. The HCR-20 was a good predictor of violent offences with AUCs between .70-.76. However, the predictive accuracy of the HCR-20 (and its subscales) slightly declined over time and this was a statistically significant trend (*p* > .05). The H subscale was also a good predictor (.68-.77) and the R subscale (AUC .63-.69) showed moderate levels of predictive efficacy. In contrast, the C subscale was not predictive of violent offences (AUC .54-.61). The HCR-20 showed similar predictive ability with any convictions, but the AUCs were slightly lower (HCR-20 total, AUC .69-.75; H subscale, .69-.75; C subscale,

.51-.55; R subscale, AUC .66-.69). Only the C subscale was not significant.

**Project and Scholarly Work**

Gray, N., Fitzgerald, S., Taylor, J., MacCulloch, M., & Snowden, R. (2007). Predicting future reconviction in offenders with intellectual disabilities: The predictive efficacy of VRAG, PCL-SV, and the HCR-20. *Psychological Assessment, 19*, 474-479.

This study was a pseudo-prospective case-note analysis of the ability of the HCR-20, PCL-R and the VRAG to predict general and violent re-offending in patients with and without intellectual disabilities (ID). The final sample consisted of 1,141 patients released between 1990 and 2001. Participants were admitted to the hospital on the basis of (a) having a serious mental illness, ID, or personality disorder; (b) having been convicted of a criminal offense (*n* = 881); or (c) having exhibited behavior that might have led to a conviction in different circumstances (*n* = 260). The ID group (*n* = 145) all had a diagnosis of mental retardation (MR) and consisted of 121 patients with mild MR, 18 with moderate MR, 5 with severe MR, and 1 with unspecified MR. In the ID group, 49 patients had a diagnosis of ID alone, and 96 patients had a comorbid diagnosis of another mental disorder (either mental illness or personality disorder). The non-ID group (*n* = 996) consisted of all the other participants, all of whom had some form of psychiatric diagnosis but without ID. In the ID group there were 118 (81.4%) men and 27 (18.6%) women, with a mean age at the time of discharge of 31.54 years (*SD* = 8.94, 18.84–65.78). In the non-ID group, there were 843 (85.6%) men and 153 (15.4%) women, with a mean age at the time of discharge of 31.95 years (*SD* = 9.28, 16.90 –71.25). The two groups did not significantly differ on gender or age at discharge. The ID group had a lower number of previous convictions (*M* = 8.30, *SD* = 13.05) than the non-ID group (*M* = 11.80, *SD* = 16.35), *t*(1139) = 2.47, *p* < .05.

The scoring of the risk assessments was completed at the point of discharge based on case review notes. Raters were blind to outcome. Not all risk instruments could be completed on all participants because of a lack of relevant file information. Reliability of all instruments was high (VRAG ICC = .95; PCL-SV total ICCs between .89 and .95; HCR-20 total: ICCs between .80 and .88). The ratings were made in a set order of PCL-SV, HCR-20, and then VRAG since the PCL:SV is component of both and to minimize the influence of the more objective VRAG on the more subjective HCR-20.

Outcome information was collected from the Home Office Offenders Index (2000). Violent offenses included all offenses classified as violence against the person by the Home Office, as well as kidnapping, criminal damage en-

dangerous life, robbery, rape, and indecent assault. The ID group had higher VRAG total scores, PCL–SV total scores, Part 1 scores, Part 2 scores, HCR–20 total scores, H subscale scores, and C subscale scores. The ID group was reconvicted at a slower rate (approximately one half) than the rate of the non-ID group for both violent offenses (e.g., after 2 years, 4.8% for the ID group and 11.2% for the non-ID group) and general offenses (e.g., after 2 years, 9.7% for the ID group and 18.7% for the non-ID group). Survival analysis showed these differences to be significant (violence: Log Rank [1] = 7.11,  $p < .01$ ; general Log Rank [1] = 8.19,  $p < .01$ ). The VRAG AUC for predicting violent reconviction after a 5-year follow-up period in the ID group was .74 which was nearly identical to that of the non-ID group.

The PCL–SV was a good predictor of both violent and general reconvictions in the ID group and non-ID group, yielding large effect sizes. The HCR–20 was a very good predictor of violent reconviction in the ID group, achieving an AUC of .79. For general offending, the HCR–20 was again a greater predictor of convictions for the ID group ( $AUC = .81$ ) than the non-ID group ( $AUC = .68$ ), and this difference was statistically significant ( $p < .05$ ). The strong performance of the HCR–20 total score was also reflected in the History subscale for the ID group ( $AUC = .80-.81$ ) but somewhat less so for the Clinical subscale ( $AUC = .69-.71$ ). The Risk Management subscale did not achieve statistical significance. A series of paired  $z$ -score comparisons revealed no significant differences in the predictive accuracy of the VRAG, PCL–SV, or HCR–20 within the ID group or non-ID group.

## Project and Scholarly Work

Gray, N. S., Snowden, R. J., MacCulloch, S., Phillips, H., Taylor, J. & MacCulloch, M. J. (2004). Relative efficacy of criminological, clinical, and personality measures of future risk of offending in mentally disordered offenders: A comparative study of HCR-20, PCL:SV, and OGRS. *Journal of Consulting and Clinical Psychology, 72*, 523-530.

## Summary

This study compared the predictive accuracy of the HCR-20, PCL:SV, and the Offender Group Reconviction Scale (OGRS; Copas & Marshall, 1998; this is a criminogenic risk assessment tool based on six demographic and offending history variables that estimates the probability of reconviction within 2 years of release) among 315 forensic psychiatric patients discharged from a medium-secure facility in South Wales, United Kingdom between 1992 and 1999. The sample primarily was male (87.6%), Caucasian (84.4%; 12.4% Black Caribbean or Black African; 1.3% Asian; .6% 'mixed'; 1.3% 'unknown'), and diagnosed with schizophrenia or psychotic disorder (49.2%; 16.8%

personality disorder; 9.8% affective disorder; 6.3% drug induced psychosis; 5.1% MR; 1.0% substance misuse disorder; 3.2% 'other'; 8.6% 'unknown').

Two psychologists blind to outcome completed all assessments using file information available at discharge, which consisted of mental health, criminal, social work, and probation records. Participants were followed up for at least two years (mean = 6.00 years,  $SD = 1.77$  years). During the follow-up period, 36.5% were convicted of any type of offense.

Mean HCR-20 scores were: Total (19.90,  $SD = 7.02$ ; range 0-36); H-scale (11.39,  $SD = 3.97$ ; range 0-20); C-scale (3.77,  $SD = 2.42$ ; range 0-10); R-scale (4.68,  $SD = 2.63$ ; range 0-10). Mean PCL:SV scores were: Total (8.25,  $SD = 5.18$ ; range 0-20), Part 1 (3.79,  $SD = 3.79$ , range 0-11), and Part 2 (4.50,  $SD = 2.83$ ; range 0-12). The mean OGRS score was .49 ( $SD = .29$ ; range .03 - .99). HCR-20 and PCL:SV total and scale/Part scores correlated highly and significantly with one another (ranging from .36 to .78). Correlations for the OGRS with the HCR-20 and PCL:SV tended to be lower and were not consistently significant.

Survival analysis revealed that 87% of the offenses occurred within approximately 3 years. The Mantel-Cox log-rank statistic was used to evaluate the percentage of patients in low, medium, and high risk predictor groups who committed an offense following discharge for the three measures. For the PCL:SV, risk groups were defined as follows: low (scores of 12 or less); medium (scores of 13-17); and high (scores of 18 or more). The distribution of scores was used to trisect the sample into groups for the other two measures. For the HCR-20, groups were defined as follows: low (scores of 16 or less); medium (scores of 17-22); and high (scores of 23 or more). Groups for the OGRS were: low (<.29); medium (.29 - .67); and high (>.67). Although significant results were obtained with respect to any type of offending outcome for all measures, the log-rank value for the OGRS was much higher (83.78) than the values for the HCR-20 (10.70) and PCL:SV (10.76).

Mean scores on the three measures were compared across participants who offended and those who did not. Cohen's  $d$  values were as follows: HCR-20 total (.35), H scale (.38), C scale (-.08), R scale (.41), PCL:SV total score (.54), Part 1 (.25), Part 2 (.70), and OGRS (1.28).

Using ROC analysis, total scores of all three measures were associated significantly with offending outcome (AUC values for the HCR-20, PCL:SV, and OGRS were .61, .66, and .81, respectively). AUC values for the subscales were more variable, with the H scale (.62), R scale (.62), and PCL:SV Part 2 (.72) reaching significance, but with the C scale (.48) and PCL:SV Part 1 (.57) failing to do so. ROC analyses that examined serious and minor offenses revealed a similar pattern of results. When partici-

pants were divided into groups on the basis of diagnosis (i.e., mental illnesses, personality disorders, and 'other' diagnoses that included mental retardation, developmental disorder, and physical diagnoses), the size of the AUC values for the mental illness and 'other' groups was similar to the above-described values for the overall sample (although none of the values except for the OGRS were significant for the 'other' group).

Finally, a logistic regression analysis was undertaken to investigate whether the HCR-20 and/or PCL:SV could make an additional significant contribution to an OGRS-only model. Using a forced-entry method, no total or scale/Part variables added incremental validity.

The discussion section reiterated the findings and noted that the timing at which the C scale was scored (i.e., prior to discharge when symptomatology was as low as it likely ever would be, rather than during a time of active symptomatology) may have impacted the findings. The authors concluded that adoption of a singular focus on mental health factors ignores important sources of information predictive of reoffending.

## Project and Scholarly Work

Gretenkord, L., Muller-Isberner, R., Ozokuyay, K. & Sommer, J. (2002, March). *Validating the HCR-20: relationship between levels of security and the CR-10 score in hospital order treatment*. Paper presented at the Annual Conference of the International Association of Forensic Mental Health Services, Munich, Germany.

### Summary

This study used a prospective design to determine the relationship between the HCR-20 and levels of security in a forensic psychiatric hospital. Over 12 months, they followed 220 individuals (209 men and 11 women) who had a hospital order sentence and had been hospitalized for the entire 12 month period. They predicted that if risk factors were changed by successful treatment, the dynamic part of the HCR-20 (the CR-10) should decrease.

The following significant correlations between individual C and R scale items and level of security were found over time: C1 ( $r = -.286$ ), C2 ( $r = -.264$ ), C4 ( $r = -.236$ ), C5 ( $r = -.347$ ), R1 ( $r = -.42$ ), R2 ( $r = -.443$ ), R3 ( $r = -.237$ ), R4 ( $r = -.409$ ), R5 ( $r = -.227$ ). The C-scale in total showed a significant correlation with level of security over time ( $r = .369$ ;  $p < .001$ ), as did the total R-scale ( $r = .575$ ;  $p < .001$ ) and to a lesser extent, the H-scale ( $r = .167$ ;  $p < .05$ ). The PCL also showed a significant correlation with level of security over time ( $r = .227$ ;  $p < .01$ ).

The authors conclude that there are robust correlations between CR-10 items and levels of security and that the CR-10 seems to be a good indicator of treatment progress.

## Project and Scholarly Work

Grevatt, M., Thomas-Peter, B., & Hughes, G. (2004). Violence, mental disorder and risk assessment: Can structured clinical assessments predict the short-term risk of inpatient violence? *The Journal of Forensic Psychiatry & Psychology*, 15, 278-292.

### Summary

This study examined retrospectively the predictive ability of the combined HCR-20 H- and C-scales and the Violence Risk Scale 2 (VRS; Wong & Gordon, 2001) within the first six months of admission to a forensic unit. The VRS comprises six static and 20 dynamic factors rated on a 0 (not present/not applicable) to 3 (definitely present/applicable). The measures were completed retrospectively for 44 men using information available at admission. One rater, who was blind to outcome of institutional violence, completed the HC composite and VRS. Another rater, who was blind to risk assessment ratings, rated the incidents of violence. Types of violence coded were physical assault, verbal aggression, and damage to property.

Mean scores on the HC composite were: full scale (19.44,  $SD = 3.45$ ); H-scale (13.15,  $SD = 3.25$ ); and C-scale (6.05,  $SD = 1.98$ ). Total scores on the HC composite and VRS (prorated for omitted items) did not distinguish participants who were aggressive in the institution from those who were not nonaggressive. ROC analyses indicated that the HC and VRS indices, with the exception of the C-scale, tended to not have predictive accuracy for inpatient violence that was greater than chance (the highest value was for the HC composite for physical assaults,  $AUC = .56$ ,  $SD = .10$ ). AUC values for the C-scale were larger: any incidents (.72,  $SD = .08$ ); physical assaults (.60,  $SD = .11$ ); verbal abuse (.81,  $SD = .07$ ); and damage to property (.65,  $SD = .10$ ).

Four multiple regression analyses were conducted (one for each category of violence as the dependent variable) using the measures' subscales (i.e., H-scale, C-scale, VRS static, and VRS dynamic) as the predictors. C-scale was the only significant predictor for any institutional incidents and was the most significant predictor for verbal assault. None of

the subscales emerged as significant predictors for the outcomes of physical assault and damage to property.

When individual items that comprise the HC composite and VRS scale were considered, those most predictive of inpatient violence were HC composite items that assess a previous diagnosis of mental illness, lack of insight, and active signs of mental illness. Protective factors for institutional violence included VRS items that assess relationship instability, number of young offender convictions, violent lifestyle, and violence throughout the lifespan.

## Project and Scholarly Work

Hill, A., Habermann, N., Klusmann, D., Berner, W., & Briken, P. (2008). Criminal recidivism in sexual homicide perpetrators. *International Journal of Offender Therapy and Comparative Criminology*, 52(1), 5-20.

### Summary

The current pseudo-prospective study aimed to evaluate risk factors, legal consequences, and recidivism rates for sexual (i.e., sexual homicide) and nonsexual offending. Psychiatric court reports on 166 men who had committed a sexual homicide between 1945 and 1991 were retrospectively evaluated by three trained forensic psychiatrists and psychologists. The SVR-20, the Static-99, the HCR-20 and the PCL-R were coded based on the information in those reports. PCL-R was used to assess psychopathic syndrome (cutoff score of 20). For statistical group comparisons, cutoff scores of 25 and 20 were chosen for the SVR-20 and HCR-20 respectively. The HCR-20 R subscale and SVR-20 item 19 were not analyzed in this study because they could not be rated with enough confidence for the majority of offenders. Raters were blind to the follow-up data from the federate criminal records. Three types of recidivism were defined: 'sexual offences' included rape, sexual assault, sexual child abuse, and sexual homicide; 'nonsexual violent offences' were bodily harm, assault, robbery, kidnapping, nonsexual homicide); and 'nonviolent offences' included property offences, possession or trade of illegal drugs, traffic offences, etc.

Interrater reliability was based on 20 reports coded by all three raters. Good IRR was obtained for the PCL-R ( $ICC = .84$  single measure intraclass correlation), the SVR-20 ( $ICC = .87$ ), that Static-99 ( $ICC = .84$ ) and the HCR-20 total score ( $ICC = .77$ ). Follow-up data was available for 139 offenders (83.7% of the original sample). Those without follow-up information had less often committed previous sexual offences before the sexual homicide and less often had high PCL-R and SVR-20 scores. The original sample ( $N=166$ ) consisted of all Caucasian offenders, 97.6% of whom were German. Twenty-two percent had killed more than one victim, 15.7% committed sexual homicides at two or more distinct occasions and 5.4%

were serial killers. The mean age at the time of the first sexual homicide was 26.5 years ( $SD=8.2$ ; 11.4% were adolescents).

At the time of follow-up based on federal criminal records, 35.5% were still incarcerated in prison or in a forensic psychiatric hospital and 64.7% had been released. The mean time at risk was between 6.4 (any violent offences) to 10.7 years (sexual offences). Of the 90 men released from prison or hospital, 23.1% committed new sexual offences, 18.3% committed new nonsexual violent offences, 35.7% committed any violent offences and 58.4% committed nonviolent offences during the 20 years at risk. The majority of any violent recidivism occurred during the first 5 years after release and sexual recidivism continued over a longer period. While serving their prison sentence for sexual homicide, 10 participants committed new violent offences (5 sexual violence; 5 nonsexual violence). When investigating the influence of different risk factors on the estimated recidivism rates, the analyses were restricted to violent offences. None of the risk assessments or the PCL-R were significantly related to sexual recidivism rates. None of the other risk factors were significant for sexual recidivism. The authors found higher recidivism rates for nonsexual violence in offenders with previous sexual and nonsexual violent offences, in those committing their sexual offences as adolescents and in offenders with higher scores on the PCL-R, HC of the HCR-20, and SVR-20.

## Project and Scholarly Work

Hilterman, E. & Chakhssi, F. (2002, March). *Prospective assessment of risk: comparing HCR-20, Behavioural Status Index (BSI) and Leave Risk Assessment (LRA)*. Paper presented at the Annual Conference of the International Association of Forensic Mental Health Services, Munich, Germany.

### Summary

This study was a prospective analysis comparing the HCR-20 (Dutch version), BSI and LRA in their ability to assess future risk. The HCR-20 was given before the first supervised leave request and before every extension of unsupervised leave. The BSI was given every half year before treatment evaluation. The LRA was given before extension leave trajectory and advice regarding the extension of the hospital order.

Inter-rater reliability for the HCR-20 ( $N = 11$ ) was: H-scale ( $ICC = .92$ ), C-scale ( $ICC = .91$ ), R-scale ( $ICC = .95$ ) and Total score ( $ICC = .98$ ). Inter-rater reliability for the BSI ( $N = 75$ ) was: Direct aggression ( $ICC = .84$ ), Obstructionism ( $ICC = .84$ ) and BSI Risk ( $ICC = .89$ ). Inter-rater reliability for the LRA ( $N = 14$ ) was: LRA-SV ( $ICC = .99$ ) and LRA-DV ( $ICC = .84$ ).



The distribution of scores for the measures was as follows. With a sample size of 27, the HCR-20 had a mean of 25.2 ( $SD = 7.54$ ). With a sample size of 62, the BSI had a mean of 4.57 ( $SD = .37$ ). With a sample size of 16, the LRA-SV had a mean of .6 ( $SD = 1.72$ ) and the LRA-DV had a mean of  $-5$  ( $SD = 3.34$ ).

Correlations between the HCR-20 and the BSI were conducted. The HCR-20 total score was correlated with BSI-Obstructionism ( $r = -.38$ ;  $p < .1$ ), BSI-Direct aggression ( $r = -.37$ ;  $p < .1$ ) and with BSI-Risk ( $r = -.43$ ;  $p < .05$ ). The HCR-20 H-scale was correlated with BSI-Direct aggression ( $r = -.35$ ;  $p < .1$ ) and with BSI-Risk ( $r = -.36$ ;  $p < .1$ ). The HCR-20 C-scale was correlated with BSI-Obstructionism ( $r = -.51$ ;  $p < .01$ ), BSI-Direct aggression ( $r = -.46$ ;  $p < .05$ ) and with BSI-Risk ( $r = -.56$ ;  $p < .01$ ). The HCR-20 R-scale was not correlated with any BSI score. The HCR-20 total score was correlated with LRA-SV scale ( $r = .77$ ;  $p < .01$ ) and with the LRA-DV scale ( $r = .5$ ;  $p < .1$ ). The HCR-20 H-scale was correlated with LRA-SV scale ( $r = .73$ ;  $p < .01$ ) but not with the LRA-DV scale. The HCR-20 C-scale score was correlated with LRA-SV scale ( $r = .7$ ;  $p < .01$ ) and with the LRA-DV scale ( $r = .52$ ;  $p < .1$ ). The HCR-20 R-scale was correlated with LRA-SV scale ( $r = .58$ ;  $p < .05$ ) but not with the LRA-DV scale.

## Project and Scholarly Work

Joyal, C., Côté, G., & Hodgins, S. (July, 2008). Violence and major mental disorders: On the importance of considering antisocial personality. Paper presented at the annual conference of the International Association of Forensic Mental Health Services, Vienna, Austria.

### Summary

The main goal of the present investigation was to describe the surrounding context, psychotic symptoms, target characteristics and other circumstantial factors associated with homicidal acts committed by men with schizophrenia with or without an additional antisocial personality disorder (APD). Comprehensive clinical and research interviews, as well as multiple sources of information (e.g., social worker reports, criminal records, collateral information, police officers). The sample consisted of 178 participants meeting criteria for the study (e.g., major mental illness) were interviewed during the days preceding release. The SCID-II, PANSS, PCL-R, HCR-20, the MacArthur questionnaire, and alcohol and drug use/abuse questionnaires were completed for all participants.

The mean total PCL-R scores differed significantly, including the impulsivity index between groups with and without an APD. The authors developed four distinct groups (explained 54% of variance) based on 19 variables (only Impulsivity, H14, from the HCR-20): non-violents

(67), chronic inpatients (40), acute violent patients (23) and delinquent violent persons (39). The variables included criminal history, symptoms of mental disorder, items from risk assessments, location of offences, victims, and offence method.

## Project and Scholarly Work

McDermott, B., Edens, J., Quanbeck, C., Busse, D., & Scott, C. (2008). Examining the role of static and dynamic risk factors in the prediction of inpatient violence: Variable and person-focused analyses. *Law and Human Behavior, 32*, 325-338.

### Summary

The purpose of the present study was to determine if measures of anger, impulsivity and mental health symptoms would improve the predictive validity of the HCR-20 or VRAG for institutional aggression. The authors also sought to determine subtypes of patients who are violent in institutions. This study was a prospective study conducted at a long-term psychiatric hospital in California where approximately 80% of patients are under a forensic commitment. The sample comprised 154 patients post-trial between July 2002 and September 2005. Of those, 108 completed the required assessments.

The overall sample was mostly male (84%) and Caucasian (72%). The modal commitment offences were assault and/or battery (39%) followed by murder/manslaughter (24%). Most participants were committed under the NGR1 statute and were diagnosed with schizophrenia (53%), or schizoaffective disorder (19%), with the remainder diagnosed with mood disorders, substance use disorders or other disorders. The average age of participants was 45.6 years with an average length of stay in the hospital of 5.9 years. All violence risk assessments were coded by trained doctoral level psychologists. Inter-rater reliability ranged from an average intraclass correlation of .86 for the HCR-20 R subscale to .97 for the total PCL-R score. Routine recalibrations were performed to prevent rater drift. The outcome was coded from Special Incident Reports (SIRs) which were completed for incidents of physical aggression (against either patient or staff), verbal aggression (against either patient or staff), self-injurious behavior, property damage, unauthorized absences, fire-setting, and other categories related to staff behavior.

The average length of follow-up for the sample was 2.48 years ( $SD = .88$ , .97–4.01 years). The average rates of physically aggressive acts per year were .11 ( $SD = .34$ ) for staff-directed aggression, .16 ( $SD = .40$ ) for patient-directed aggression, and .28 ( $SD = .64$ ) for both categories combined. SIRS involving verbal aggression were very

rare so the rest of the analyses focused on physical aggression. The percentage of patients with one or more aggressive incidents was 16% (staff-directed), 22% (patient-directed), and 28% (combined). The means of the risk assessments were as follows: HCR-20 Total  $M = 23.76$ ,  $SD = 6.22$ ; VRAG  $M = 5.36$ ,  $SD = 9.89$ ; PCL-R  $M = 16.18$ ,  $SD = 7.90$ .

In terms of aggressive incidents in total (staff and patient-directed), the HCR-20 was the only significant predictor ( $AUC = .65$ ) and the R subscale was the strongest predictor ( $AUC = .66$ ). For staff-directed aggression, the relationships were weaker but the HCR-20 total score was still a significant predictor ( $AUC = .65$ ) as well as Factor 2 of the PCL-R ( $AUC = .66$ ) and the VRAG with and without the PCL-R item ( $AUC = .65, .67$ ). For patient-directed aggressive acts the C and R subscale ( $AUCs = .66, .70$ ) evidenced significant moderate relationships as well as Facet 1 of the PCL-R ( $AUC = .65$ ). Although the HCR-20 had the strongest relationship to the outcomes, the H subscale was unrelated to any type of aggression. Next, the authors used logistic regression to partial out the unique variance for each predictor and then ROC analyses were conducted again. Plus the PCL-R was removed from the VRAG and HCR-20. When the PCL-R scores were controlled for, the VRAG continued to be a modest predictor of staff-directed aggression and the HCR-20 was also still significant for total aggressive incidents and patient-directed aggression but not the staff-directed aggression. This same pattern emerged for the R-subscale. Given that the other predictors (BPRS, Novaco, Impulsivity) were no longer significant once the R subscale was controlled for in analyses, the authors concluded the extra measures would not add substantially to the prediction of institutional aggression. Using cluster analyses, the authors identified 4 clusters which differed in terms of the means on the risk assessments as well as types of institutional aggression.

## Project and Scholarly Work

McKenzie, B., & Curr, H. (2005). Predicting violence in a medium secure setting: A study using the historical and clinical scales of the HCR-20. *British Journal of Forensic Practice*, 7, 22-28.

### Summary

The authors examined retrospectively the predictive validity of the Historical and Clinical scales for inpatient violence. Participants were 21 women and 74 men who had been admitted sequentially to a medium secure unit and residing for at least four months. Participants' mean age was 35 (range: 18-62).

Data were coded for the Historical and Clinical scales by two raters using information that would have been available in the first two weeks after admission. The authors cited insufficient variance and poor interrater reliability as reasons for not completing the Risk Management scale. The Historical scale was completed on the basis of medical reports available at admission. Items on the Clinical scale were rated from nursing observation notes regarding the behaviour and clinical state of the individual during the first two weeks post-admission.

Inpatient violence was defined as acts of physical aggression towards a person or property. Violent episodes were coded from a database of critical incidents recorded by nursing staff. Length of follow-up was not reported.

Mean scores on the Historical and Clinical scales were 9.0 ( $SD = 3.0$ ) and 5.5 ( $SD = 2.4$ ), respectively. Correlations and AUC values for violence for the combined Historical + Clinical (HC), Historical (H), and Clinical (C) scales, respectively, were: HC ( $r = .49$ ,  $p < .01$ ;  $AUC = .65$ ,  $p = .03$ ); H ( $r = .14$ ,  $p = .06$ ;  $AUC = .55$ ,  $p = .50$ ); C ( $r = .40$ ,  $p < .01$ ;  $AUC = .68$ ,  $p = .01$ ). In terms of the predictive power of the individual items, none of the H scale items except H10 Prior Supervision Failure were statistically significant. All C scales items correlated significantly with violence, with the largest Rho observed for C4 Impulsivity ( $.55$ ,  $p < .01$ ) and the smallest Rho observed for C5 Unresponsive to Treatment ( $.18$ ,  $p = .04$ ). AUC values for the C items were: C1 Lack of Insight ( $.55$ ,  $p = .50$ ); C2 Negative Attitudes ( $.66$ ,  $p = .02$ ); C3 Active Symptoms of Mental Illness ( $.60$ ,  $p = .15$ ); C4 Impulsivity ( $.77$ ,  $p = .01$ ); C5 Unresponsive to Treatment ( $.54$ ,  $p = .61$ ).

The authors divided the sample in four groups: those not violent, those violent fewer than five times during their admission, those violent between five and ten times, and those violent more than ten times. Predictive power of the HC, H, and C scales increased as a function of frequency of violence observed.

## Project and Scholarly Work

Morrissey, C., Hogue, T., Mooney, P., Allen, C., Johnston, S., Hollin, C., Lindsay, W.R., et al. (2007). Predictive validity of the PCL-R in offenders with intellectual disability in a high secure hospital setting: Institutional aggression. *Journal of Forensic Psychiatry & Psychology*, 18(1), 1-15.

### Summary

The current prospective study investigated the predictive validity of the PCL-R, the HCR-20 and the Emotional Problem Scales for institutional aggression in 60 male intellectually disabled (ID) patients. All patients ( $n = 73$ ) in a

high security hospital for England and Wales had previously been assessed in 2003 as part of a wider study.

Participants in the current study were the 60 original participants still present in high security at the 12-month follow-up. The majority of participants were of white British origin (80%). The mean full-scale IQ of the sample was 66.2 ( $SD = 8.9$ , range 43 – 76), and the mean age was 38.0 ( $SD = 8.1$ ) years. The participants had been detained in the high security hospital for an average of 9.0 years ( $SD = 8.0$ , range 0 – 35). In total, 81% of the sample had an ICD-10 diagnosis of mental retardation, 54.8% a diagnosis of personality disorder, 28.8% psychotic disorder, and 8% mood disorder (including cases of dual diagnosis).

The PCL-R was completed for all 60 participants by a trained graduate-level psychologist using a combination of file review and interview with a clinical informant (psychiatrist or psychologist). In the wider study, inter-rater reliability was established with a second rater who coded 45 cases using the same methodology. The IRR was good ( $ICC = .89$ ), although it was slightly lower for cases at the high secure site ( $ICC = .80$ ). As with the PCL-R, the HCR-20 was completed from a comprehensive file review combined with an interview with a clinical informant. In total, 54 of the 60 patients had a completed HCR-20. Follow-up institutional aggression data were collected from official hospital records. The incidents were divided into several categories: all aggressive incidents; interpersonal physical aggression (labelled Type 1 aggression), and verbal aggression or aggression to property (labelled Type 2 aggression). Then, all incidents were coded into 3 categories that reflected the degree of actual or potential harm to others (low, medium, high). Those incidents in the high category were defined as ‘high risk aggression’ (Type 3).

In total, 76.7% of the sample were involved in at least one aggressive incident during the follow-up: 59.3% had engaged in at least one Type 1 violent incident ( $Mdn = 1.5$ , 0 – 103), 70% had engaged in one or more Type 2 incidents ( $Mdn = 2.5$ , 0 – 125), and 36% of the sample had engaged in a Type 3 incident ( $Mdn = 0$ , 1 – 17). The mean scores for the PCL-R were: Total score  $M = 18.3$ ,  $SD = 7.2$ ; Factor 1  $M = 7.0$ ,  $SD = 4.1$ ; Factor 2  $M = 9.7$ ,  $SD = 4.5$ ; 13-item total  $M = 11.7$ ,  $SD = 6.0$ ; Items 9, 15, and 17 were prorated). The mean HCR-20 scale score was 22.5 ( $SD = 4.5$ ).

The PCL-R total score, Factor 1 score, Factor 2 score, and PCL-R 13-item total were not significantly correlated with any type of institutional aggression. By contrast, the HCR-20 total score was significantly correlated with both Type 1 and Type 2 aggression. Neither the PCL-R total, Factor 1, Factor 2 scores, or the 13-item total produced significant AUCs significantly greater than chance for either Type 1 or Type 2 aggression ( $AUCs = .48 - .59$ ). Both the HCR-20 total score ( $AUC = .68 - .77$ ) and the EPS exter-

nalizing scale ( $AUC = .72 - .77$ ) significantly predicted both types of aggression. In addition, AUCs obtained for the HCR-20 were significantly greater than those obtained for the PCL-R, except in the case of Factor 2 in relation to Type 1 aggression.

## Project and Scholarly Work

Morrissey, C., Mooney, P., Hogue, T., Lindsay, W.R., & Taylor, J.L. (2007). Predictive validity of the PCL-R for offenders with intellectual disability in a high security hospital: Treatment progress. *Journal of Intellectual & Developmental Disability, 32*, 125-133.

## Summary

The current study investigated the predictive utility of the PCL-R and the HCR-20 for 75 male offenders with intellectual disabilities (ID) with respect to positive and negative treatment progress (i.e., moves of patients both within and out of high security). Participants were the entire population of individuals with ID being treated in a high security hospital during 2003. The mean age was 37.0 years (range = 17–68 years). Of the total, 81% had an ICD-10 diagnosis of Mental Retardation, 54% Personality Disorder (specific or mixed), 28.8% Psychotic Disorder, and 8.6% Mood Disorder, with 70% having two or more diagnoses. Participants had already been assessed using a range of measures for the purposes of a wider study addressing ID, personality disorder and risk conducted in 2003. The outcome (positive and negative progress) was coded from institutional records two years after the initial assessment. Active positive progress was defined as movements from the high security facility to a medium security setting. Active negative progress was defined as movements from lower security wards to higher security wards within the hospital, return to prison where the stated reason was lack of suitability for treatment or lack of treatment progress, or moves back to high security from medium security.

Both the PCL-R and the HCR-20 were coded from a full file review plus an interview with a clinical informant. Of the 73 participants, 25 (34.2%) had made active positive progress during the follow-up period and 8 (11%) had made negative progress moves. As the authors predicted, the PCL-R Total score ( $r = .30$ ), PCL-R Factor 1 ( $r = .33$ ), PCL-R Total 13 ( $r = .35$ ), Facet 1 ( $r = .25$ ) and Facet 2 ( $r = .36$ ) were all significantly correlated with a negative progress move. However, neither PCL-R Factor 2 nor the HCR-20 Total score were significantly correlated with negative progress. In addition, a positive progress move to medium security conditions was significantly negatively associated with the PCL-R Total score ( $r = -.36$ ), and with Facet 2 ( $r = -.30$ ), Facet 4 ( $r = -.26$ ) of the 4-facet model and the HCR-20 Total score ( $r = -.32$ ). Only PCL-R Facet

4 (antisocial) was no longer significantly correlated with a positive progress outcome when other variables were controlled.

In the ROC analysis, the PCL-R Total, PCL-R-13 items, PCL-R Factor 1, Facet 1 and Facet 2 were significant predictors of negative progress ( $AUCs = .80, .82, .84, .77, .85$ ). The PCL-R Total, PCL-R-13 items, PCL-R Factor 1, Facet 2, Facet 4, and the HCR-20 Total score ( $AUCs = .73, .66, .65, .69, .67, .69$ ) all associated with lack of positive progress. With respect to positive progress to medium security conditions, the PCL-R-20 demonstrated incremental validity over the HCR-20.

## Project and Scholarly Work

Murphy, D. (2007). Theory of mind functioning in mentally disordered offenders detained in high security psychiatric care: Its relationship to clinical outcome, need and risk. *Criminal Behaviour and Mental Health, 17*, 300-311.

### Summary

The author assessed whether Theory of Mind (ToM) deficits among 30 male schizophrenics in high security psychiatric care were related to HCR-20 scores and assessments of clinical outcome three years after the initial ToM assessments. Most patients had prior criminal histories for violent offences including rape, indecent assault, manslaughter, assault with bodily harm, grave bodily harm, and arson. The majority of patients also had histories of substance misuse. All non-social cognitive and ToM measures were assessed as part of a routine neurological assessment at admissions. The clinical outcome measures, including the HCR-20 were completed three years later by trained clinicians.

The mean scores for the HCR-20 are as follows: H subscale  $M = 13.5$ ,  $SD = 2.5$ , 9-18; C subscale  $M = 4.9$ ,  $SD = 2.5$ , 0-10; R subscale  $M = 6.1$ ,  $SD = 2.3$ , 1-10; HCR-20 total  $M = 24.5$ ,  $SD = 5.5$ , 13-37. The second-order Modified Advanced Theory of Mind Test (MAT) was significantly correlated with HCR-20 R subscale ( $r = .42$ ). The Revised Eye Test (RET) was significantly correlated with HCR H subscale ( $r = .46$ ), the R subscale ( $r = .48$ ) and the HCR-20 Total ( $r = .49$ ). When controlling for the WAIS only the relationship with the R subscale remained. The WAIS FIQ was significantly correlated with the H subscale ( $r = .37$ ) and the R subscale ( $r = .42$ ). The results suggested that many dimensions of neuropsychological function are related to risk for violence.

## Project and Scholarly Work

Müller-Isberner, R., & Jockel, D. (1997, September). *The implementation of the HCR-20 in a German hospital order institution*. Paper presented at the Seventh European Conference on Psychology and Law, Solna, Sweden.

### Summary

100 forensic psychiatric patients were rated on the German version of the HCR-20 (which includes 3 variables not in the original version). There were 96 men, and the mean age of the sample was 38.8 years. Only the H and C scales were rated. Most index offences were of a violent nature: homicide (24%); severe bodily harm (21%); violent sexual offences (20%); arson (13%); and 24 other offences. Close to half (43%) of the sample had primary diagnoses of functional psychosis.

Two psychiatrists rated a subsample of 45 offenders, allowing interrater reliability analyses. For the H Scale items, Kappa ranged from .54 to 1.00, with a mean Kappa of .89. In 91% of cases, the two clinicians were within one point on ratings of H Scale total scores. Kappa was not as high for the C Scale, ranging from .33 to .65, with a mean Kappa of .49. In 71% of cases, clinicians were within one point on the C Scale.

Mean H scores were greatest for personality disordered patients with low IQs ( $M = 13.6$ ) and lowest for patients with major brain damage ( $M = 9.5$ ). Homicide offenders ( $M = 9.5$ ) and nonviolent sexual offenders ( $M = 8.0$ ) scored lowest on the H Scale, whereas patients who had committed "violent property offences" scored highest ( $M = 13.8$ ). There were no differences on the C Scale as a function of index offence.

## Project and Scholarly Work

Müller-Isberner, R., Sommer, J., Özokuy, K., & Freese, R. (1999, November). *Clinical use of the HCR-20 for predicting violence in a German Forensic Psychiatric Hospital*. Paper presented at the International Conference on Risk Assessment and Management: Implications for Prevention of Violence, Vancouver, BC, Canada.

### Summary

Coded the German Version of the HCR-20 on 220 forensic psychiatric patients (209 male). Patients had committed serious offences, been found not criminally responsible, and had been judged to have a high risk for recidivism. Hospitalization is indeterminate; court requires annual progress reports. Mean age of sample was 38.1 ( $SD = 10.1$ ). Index offences were as follows: homicide (24% of males; 18% of females); assault (21% of males; 27% of females); sexual offences (29% of males; 0% of females);

arson (9% of males; 55% of females); property and other offences (15% of males; 0% of females). Diagnostic categories for males were 45% major mental disorder, 35% personality disorder, 20% brain damage, mental retardation or substance abuse disorders. For females, diagnostic categories were 55% major mental disorder, 18% personality disorder, 27% mental retardation. Mean (*SD*) scores: Total (24.87; 5.90); H (11.97; 3.42); C (5.30; 2.18); R (7.58; 1.86).

Researchers carried out interrater reliability data by having 7 “experienced psychiatrists” rate 50 patients. Cohen’s Kappa for chance-corrected agreement on categorical final risk judgments was .72.

Numerous correlations between H, C, R, PCL:SV, and various inpatient indices of aggression were reported separately for patients with primary diagnoses of major mental disorder versus personality disorder. Correlations between predictors and outcome for patients with major mental disorders were as follows: Minor aggressive acts: threats (HCR-20 Total = .39; H, C, & R = .22, .44, .30; PCL:SV = .30); insults (HCR-20 Total = .30; H, C, & R = ns, .36, .21; PCL:SV = .28). Medium aggressive acts: willful property damage (HCR-20 Total = .40; H, C, & R = .23, .51, .27; PCL:SV = .24); terror/incitement (HCR-20 Total = .20; H, C, & R = ns, .27, ns; PCL:SV = .21). Major aggressive acts: physical violence toward staff (HCR-20 Total = .23; H, C, & R = ns, .34, ns; PCL:SV = ns); sex offences (HCR-20 Total = .20; H, C, & R = ns, .25, ns; PCL:SV = .21). No measure correlated with firesetting or physical violence toward patients. Correlations for the personality disordered patients were similar for minor aggressive acts, and less consistent for other outcomes.

The researchers concluded that both the HCR-20 and PCL:SV did not predict serious violence consistently. The C-Scale was most consistent for patients with major mental disorders; the PCL:SV for patients with personality disorders alone. Possible reasons include low base rates or small N (neither were reported). The authors claimed that the accuracy of measures for serious violence might have been affected by staff taking measures to prevent violence (hence reducing base rates and likely affecting the behaviour of patients). Staff may have prevented the violence of higher risk patients, hence reducing the correlations between high scores and high incidents of violence.

### Project and Scholarly Work

Nicholls, T. L., Vincent, G. M., Whitemore, K. E., & Ogloff, J. R. P. (1999, November). *Assessing risk of inpatient violence in a sample of forensic psychiatric patients: Comparing the PCL:SV, HCR-20, and VRAG.*

Paper presented at the International Conference on Risk Assessment and Risk Management, Vancouver, British Columbia, Canada.

### Summary

This study is based on the same data set as Vincent (1998), *infra*, but addressed independent issues. The reader is referred to the annotation of Vincent (1998) for a description of the general methodological factors.

This research assessed the predictive ability of the HCR-20, VRAG, and PCL:SV in terms of inpatient violence of 125 forensic psychiatric patients. The authors carried separate analyses for pre-disposition and post-disposition time periods (i.e., pre- and post Review Board hearing). Violence was categorized as verbal, physical, and “any,” and was coded from detailed files. Analyses included univariate Pearson *r* correlations, ROC analyses, and hierarchical logistic regression analyses.

*Pre-disposition violence.* For the HCR-20, Pearson *r* values for verbal, physical, and any violence were as follows: .39, .36, .46. These generally were higher than for the VRAG (.22, .07, .21) or the PCL:SV (.25, .26, .32). The AUCs for the HCR-20 were .72, .72, and .77, and again were generally higher than for the VRAG (.62, .66, .69) or PCL:SV (.65, .54, .62). Hierarchical logistic regression showed that the PCL:SV predicted any and physical inpatient violence when entered as alone in Block 1, the VRAG did not add to this on Block 2, and, on Block 3, only the HCR-20 predicted violence (the PCL:SV was no longer significant, nor was the VRAG). Results were not reported for verbal violence.

*Post-disposition violence.* For the HCR-20, Pearson *r* values for verbal, physical, and any violence were as follows: .31, .31, .36. These generally were higher than for the VRAG (.20, .08, .23) or the PCL:SV (.20, .14, .16). The AUCs for the HCR-20 were .68, .69, and .71, and again were generally higher than for the VRAG (.62, .55, .63) or PCL:SV (.60, .58, .59). Hierarchical logistic regression showed only the HCR-20 predicted any and physical violence (the PCL:SV and VRAG were not significant in any Block). Results were not reported for verbal violence.

### Project and Scholarly Work

Pham, T. (2001, November). *Assessing risk for violence among Belgian offenders.* Paper presented at the International Conference, Violence Risk Assessment and Man-

agement: Bringing Science and Practice Closer Together. Sundsvall, Sweden.

### Summary

This research was a mixed time perspective study using the HCR-20, PCL-R and the Violence Risk Appraisal Guide (VRAG; Harris, Rice, & Quinsey, 1993). This study used 80 subjects to measure correlations of the above measures with type of offense, and a subset of 58 subjects to conduct Kaplan-Meier survival analyses and ROCs. Type of offense fall under two categories: general recidivism (any offense committed after release) and violent recidivism (homicide, assault and battery, theft with violence, any sex offense). The mean follow up period after release was 994 days.

In terms of general recidivism, the PCL-R was correlated ( $r = .26$ ;  $p < .05$ ) with drug offenses, ( $r = .33$ ;  $p < .01$ ) with carrying a weapon, and ( $r = .46$ ;  $p < .01$ ) with theft. The HCR-20 was correlated ( $r = .24$ ;  $p < .05$ ) with drug offenses, ( $r = .23$ ;  $p < .05$ ) with carrying a weapon, and ( $r = .40$ ;  $p < .01$ ) with theft. The VRAG was correlated ( $r = .26$ ;  $p < .05$ ) with drug offenses and ( $r = .47$ ;  $p < .01$ ) with theft.

In terms of violent recidivism, the PCL-R was correlated ( $r = .39$ ;  $p < .01$ ) with assault and battery and ( $r = .48$ ;  $p < .01$ ) with violent theft. The HCR-20 was only correlated ( $r = .32$ ;  $p < .01$ ) with violent theft. The VRAG was correlated ( $r = .29$ ;  $p < .05$ ) with assault and battery and ( $r = .38$ ;  $p < .01$ ) with violent theft.

In terms of predicting general recidivism, the PCL-R had an *AUC* of .78. The VRAG had an *AUC* of .86 and the HCR-20 had an *AUC* of .79. With predicting violent recidivism, the PCL-R had an *AUC* of .85, the VRAG had an *AUC* of .84, and the HCR-20 had an *AUC* of .78.

The following Pearson correlations between the measures were found: PCL-R was correlated with the VRAG ( $r = .67$ ) and the HCR-20 ( $r = .83$ ), while the VRAG was correlated with the HCR-20 ( $r = .68$ ).

### Project and Scholarly Work

Philipse, M. (2002, March). *Post-dictive validity of the HCR-20 in a Dutch forensic psychiatric sample*. Paper presented at the Annual Conference of the International

Association of Forensic Mental Health Services, Munich, Germany.

### Summary

This was a retrospective validation study in the Netherlands of the Dutch version of the HCR-20 (Philipse, de Ruiter, Hildebrande & Bauman, 2000). This research study used subset of 69 patients from three hospitals from a larger prospective study on assessing risk for re-offending. The research was conducted without using Item 7 (Psychopathy) from the H scale. The sample consisted of 64 males and 5 females. The types of offenses were categorized as violent, sex, and arson. Patients had left the hospital between 1/1/96 and 12/31/98. Re-offending data was collected on 1/22/02 with an average of 4 years and 4 months of time for patients to have been outside of the hospital. 21 (30%) had been found to have had renewed contact with the law.

Inter-rater reliability for the HCR-20 (Dutch version) was: *ICC* HCR-20 Total = .90, *ICC* H-scale = .79, *ICC* C-scale = .76, *ICC* R-scale = .67. The total and R-scale scores were significantly lower for patients discharged from the hospital according to hospital advice. R-scores were predictive of type of discharge (*AUC* = .67). HCR-20 (Dutch version) was most effective for non-sexual offenders. Deleting females did not alter the findings. The postdictive validity *AUCs* for committing a violent act (when excluding sex offenders) were: HCR-20 total score = .67, H-scale = .72, C-scale = .60, R-scale = .58. The postdictive validity *AUC* for clinical judgment was .64, as was the number of previous convictions. Reducing the HCR-20 into smaller units increased the postdictive *AUC* values. Using only the H2, H4, H5, H10, C3 and C4 items achieved an *AUC* of .82. Using only the H2, H5, H10 and the C4 items achieved an *AUC* of .90.

In terms of decision making, the 4-item version of the HCR-20 with a cut-off of 50% identified all offenders with 2.2 false positives per true positives. The 4-item version of the HCR-20 with a cut-off of 80% identified 5 of 8 offenders with .6 false positives per true positives. Implications for the clinical assessment of risk of re-offending and the best composition of the HCR-20 items are discussed.

Philipse, M., Erven, T. van, & Peters, J. (2002). Risicotaxatie in de tbs: van geloof naar empirie. [Risk assessment in tbs: from belief to empiricism.] *Justitiële Verkenningen* [Judicial Explorations], 28(8), 77-93.

### Summary

Risk assessment in Dutch forensic psychiatry (tbs) is still dominated by an unstructured clinical approach. Researchers have argued in favour of a standardised approach because international research reports limited predictive validity of clinical approaches. The Dutch version of the clinical-actuarial debate is briefly summarised in this article. A study is presented that evaluates the validity of an international risk assessment tool, the HCR-20 in tbs. This shows that using the HCR-20 may improve risk assessment under certain conditions, although unstructured clinical judgement performs quite well too. Also, it is shown that clinically adjusted HCR-scores are slightly better than actuarial scores. However, in the final analysis historical predictors outperform all other measures. It is concluded that the HCR-20 may constitute a meaningful addition to Dutch risk assessment practice, though it is imperative that all persons dealing with this and similar instruments have a clear view of their limitations.

### Project and Scholarly Work

Ross, T., Fontao, M. I., Reed, V., Dean, A., Doenisch-Seidel, U., & Pfäfflin, F. (2007). Die Beurteilung von lebenspraktischen Fertigkeiten forensisch-psychiatrischer Patienten mit dem BEST-Index [The evaluation of living skills in forensic-psychiatric patients]. *Psychotherapie Psychosomatik Medizinische Psychologie*, 57, 298-305.

Abridged abstract (English translation of the study not available):

In this study, the Behavioural Status Index (BEST-Index), an instrument assessing daily living skills and social risk, was investigated and cross validated with the PCL-R and the HCR-20. Participants were 86 German forensic psychiatric patients. All instruments were coded three times over a nine month study period. Sufficient inter rater reliability and good convergent validity of the sub-scales of the BEST-Index was demonstrated in comparison to the HCR-20 and the PCL-R. The authors concluded that clinicians working with the BEST-Index may use it to monitor behavioural change over long treatment periods in mentally ill offenders.

### Project and Scholarly Work

Scharin, C. (1999). *Bedömning av återfallsrisk hos rättspsykiatriskt undersökta personer: En utvärdering av skattningskalan HCR-20*. Unpublished manuscript.

### Summary

The Swedish version of the HCR-20 was coded on 49 forensic psychiatric patients. [Sample characteristics unavailable at this time until English translation available]. Proportion of violence in various score categories was calculated for the total HCR-20 score and the H scale alone. Results were as follows: HCR-20 total score from 0-19, 15% violent; total score from 20 to 40, 64% violent. H scale score of 0 to 5 (0% violent), 6 to 10 (31% violent), 11-15 (54% violent), 16 to 20 (80% violent).

### Project and Scholarly Work

Skipworth, J. (2005). Rehabilitation in forensic psychiatry: Punishment or treatment? *The Journal of Forensic Psychiatry & Psychology*, 16, 70-84.

### Summary

To investigate whether care of forensic psychiatric patients in Auckland, New Zealand was more related to treatment for their illness or punishment for their offending, this study examined whether clinical progress (operationalized as access to unsupervised leave) was associated more with clinical factors or with criminological factors (e.g., time served proportional to the severity of offending). A non-experimental cross-sectional study design was used with this sample that comprised all mentally disordered offenders in the Auckland region under forensic care (96 patients, 74 of whom were inpatients).

Participants' mean age was 35.7 years ( $SD = 9.23$ , range 18-62). Most participants were men ( $n = 88$ ; 91.7%). There were no significant differences in mean age or gender between participants who were or were not granted unsupervised leave. More than half (52.1%) of the sample was New Zealand Maori (36.4% European; 11.5% Pacific Islanders). Maori (56.0%) and Pacific Islanders (81.8%) were significantly more likely to be restricted than Europeans (34.2%;  $\chi^2 = 8.59$ ,  $p = .01$ ).

To quantify severity of offending, a Crown prosecutor assisted in calculating a theoretical custodial sentence and date of parole using information from an offence summary or the police summary of facts. A treating psychiatrist made DSM-IV diagnoses. Severity of mental disorder was assessed with the Health of the Nation Outcome Scale (HoNOS; Wing et al., 1998). General functioning was measured with the Life Skills Profile (LSP-39; Rosen, Hadzi-Pavlovic, & Parker, 1989), which comprises five categories: self-care, non-turbulence, social-contact, communication, and responsivity. Clinicians who gathered the data were not blind to patients' leave status. Inter-rater reliability was assessed before the data were collected (values not reported). The psychopathy item (H7) was omitted when scoring the HCR-20.

Eighty-four participants were diagnosed with psychotic-spectrum disorders. Of five participants who did not have a diagnosis on Axis I, three had personality disorder diagnoses and two had mild mental retardation. There were no significant differences on Axis I diagnoses between the two leave groups ( $\chi^2 = 1.87, p = .76$ ).

There was not a victim in 16.7% of cases. Strangers (28.1%), acquaintances (28.1%), and family members (27.1%) were victimized in similar proportions. Victim type did not differentiate the two leave groups ( $\chi^2 = 4.38, p = .22$ ).

Inspection of HCR-20 scores indicated that scores on the total measure and on the Clinical and Risk Management scale scores, but not on the Historical scale, differed significantly between participants who were or were not granted access to unsupervised leave. Mean HCR-20 scores were as follows: Total (detained = 25.23,  $SD = 7.11$ ; released = 18.26;  $SD = 5.06$ ;  $p < .01$ ); Historical (detained = 13.67,  $SD = 3.30$ ; released = 12.94;  $SD = 3.51$ ;  $p = .30$ ); Clinical (detained = 5.56,  $SD = 2.81$ ; released = 2.83;  $SD = 2.28$ ;  $p < .01$ ); Risk Management (detained = 5.88,  $SD = 2.72$ ; released = 2.49;  $SD = 1.88$ ;  $p < .01$ ). ROC analyses were consistent with these results and revealed that historical risk factors were not discriminatory of leave status (AUC = .56, SE = .06,  $p = .31$ , 95% CI: .45-.68). The Total (AUC = .77, SE = .05,  $p = .00$ , 95% CI: .68-.87), Clinical (AUC = .76, SE = .05,  $p = .00$ , 95% CI: .67-.86), and Risk Management (AUC = .85, SE = .04,  $p = .00$ , 95% CI: .78-.92) scales were predictive of leave status.

The two leave groups did not differ significantly in terms of severity of offending ( $t = -.03, p = .97$ ), time served ( $t = -.65, p = .52$ ), or time served relative to offending severity ( $t = -.63, p = .53$ ). Offence type significantly differentiated the groups ( $\chi^2 = 13.63, p < .05$ ), with sex offenders being significantly more likely to be detained compared to other types of offenders.

Binary logistic regression was used to examine the ability of demographic (i.e., age, gender, and ethnicity), clinical (i.e., scores on HoNOS, HCR-20, and LSP-39), and criminological (i.e., legal status, type of offence, offence severity, time served, proportion of time served relative to offence severity) variables to predict leave status. None of the criminological factors reached statistical significance and of the demographic variables, only ethnicity reached significance ( $R^2 = .12, p = .01$ ). Clinical factors – especially those assessed by the HCR-20 Risk Management scale – were most predictive. Values for the HCR-20 indices were as follows: Total ( $R^2 = .32, p < .01$ ); Historical ( $R^2 = .02, p = .27$ ); Clinical ( $R^2 = .29, p < .01$ ); Risk Management ( $R^2 = .45, p < .01$ ).

In summary, results indicated that dynamic clinical and risk assessment variables had improved among participants granted release, whereas static and criminological variables were not significantly different between the two leave groups.

## Project and Scholarly Work

Smith, H., White, T., MacCall, C. (2004). A comparison of special hospital patients and other admissions to a regional low security unit. *Journal of Forensic Psychiatry & Psychology*, 15, 660-668.

## Summary

The goals of the present study were: (1) to identify if patients in a low security forensic psychiatry unit in Scotland who were admitted from a high security hospital were inpatients for a longer period of time than patients admitted from other sources (e.g., prison, other hospitals, and police custody) and (2) to examine whether any individual factor could predict a length of inpatient stay of more than 2 years (i.e., the length of time recommended by a local policy report). Using a retrospective cohort design, all patients ( $n = 17$ ) transferred from a special security unit in Scotland ( $n = 16$ ) and in England ( $n = 1$ ) between 1990 and 2002 were compared to a control group that comprised 17 consecutively admitted patients from any other referral source. File information was used to code demographic details and offending history. The last clinical diagnosis recorded on the multidisciplinary team review was coded for the present study. The HCR-20 was completed, with the psychopathy item (H7) omitted, for all participants with four exceptions in the control group - for two participants, only the Historical scale was completed because they had died (one from natural causes and one from suicide), and for another two participants, insufficient documentation prevented scoring of all HCR-20 indices.

There was no difference in age between participants transferred from the special security unit ( $M = 40.5$  years) and participants in the control group ( $M = 36.8$  years). The average HCR-20 total score was significantly higher for the special hospital group ( $M = 27.5$ ) than for the control group ( $M = 20.7$ ),  $p < .005$ . There was a significant difference in diagnosis between the two groups,  $\chi^2 = 7.7, df = 4, p = .01$ . Ten special hospital patients were diagnosed with schizophrenia compared to 4 control patients. The type of index offence also differed significantly between the two groups,  $\chi^2 = 9.6, df = 6, p =$  “invalid due to small numbers,” with violent index offences being more common in the special hospital group.

The outcome of inpatient stays was significantly different between the two groups, ( $\chi^2 = 16.6, df = 5, p < .005$ ).



Among the 17 patients transferred from special hospitals, 11 remained inpatients in forensic service, compared to only one participant in the control group. The mean length of stay for the special hospital group was 2.41 years ( $SD = 2.9$  years, range = 2 weeks-11 years). The mean length of stay for the control group was 0.55 years ( $SD = 1.4$  years, range = 1 day-6 years).

A regression analysis to predict length of stay was completed with the following variables: HCR-20, age, age at first symptoms, diagnosis, index offence, and previous offences. Although the overall model was significant (adjusted  $R^2 = .04$ ,  $F = 1.11$ ,  $p < .05$ , 95% CI: 0.18-10.64), no single factor was significant in predicting length of stay.

In summary, patients transferred from special hospitals to the low security forensic unit were more likely to have a diagnosis of schizophrenia, a more serious index offence, a lengthier criminal history involving violence, and a higher HCR-20 score compared to patients admitted from other sources. They also were more likely to remain as inpatients in forensic service.

## Project and Scholarly Work

Strand, S., & Belfrage, H. (2001). Comparison of HCR-20 scores in violent mentally disordered men and women: Gender differences and similarities. *Psychology, Crime and Law*, 7, 71-79.

### Summary

The purpose of this study was to compare the scores on the HCR-20 between male and female forensic patients. Using the official Swedish translation of the HCR-20, all female patients ( $n = 63$ ) who entered a Swedish forensic facility over 10 years were assessed with file, and, where possible, also with interview. Comparisons were made with all 85 male patients admitted to two Swedish forensic hospitals in 1998.

The female sample was younger (30.8 vs. 35.1 years), more often diagnosed with a personality disorder (55.6% vs. 36.5%, specifically borderline [85.7% vs. 25.8%], and less often antisocial [0.0% vs. 25.8%]). Females were less often admitted after committing violent crimes (9.5% vs. 31.8% murder; 17.5% vs. 31.8% other violent crimes), and more often admitted from general psychiatry due to violence (42.9% vs. 2.4%).

There were no differences in scale or total scores between genders. Total score = 24.76 ( $SD = 6.95$ ) female, 25.51 ( $SD = 7.92$ ) male; H scale = 12.94 ( $SD = 3.58$ ) female, 13.81 ( $SD = 4.21$ ) male; C scale = 5.11 ( $SD = 2.57$ ) female, 5.00 ( $SD = 2.48$ ) male, R scale = 6.71 ( $SD = 2.85$ ) female, 6.68 ( $SD = 2.80$ ) male.

There were differences on some of the items, likely reflecting the general differences between genders. Males scored higher on Previous Violence (H1), Young Age... (H2), Substance Use Problems (H5), and Negative Attitudes (C2). Females scored higher on Personality Disorder (H9), Impulsivity (C4), and Stress (R5).

## Project and Scholarly Work

Strand, S., Belfrage, H., Fransson, G., & Levander, S. (1999). Clinical and risk management factors in risk prediction of mentally disordered offenders: More important that actuarial data? *Legal and Criminological Psychology*, 4, 67-76.

### Summary

The Swedish version of the HCR-20 was coded on 40 male forensic psychiatric patients in a postdictive study of the HCR-20 and PCL:SV. There were 22 recidivistic patients and 18 non-recidivistic patients who were matched on demographic, clinical, and criminal variables. The rater was blind to recidivism status. Overall, the recidivistic group scored 8 points higher than the nonrecidivistic group ( $M$ s and  $SD$ s = 30.77 [7.22]; 22.39 [6.85], respectively). Although not reported, this represents a Cohen's  $d$  of 1.19, which is a large effect size. All persons ( $n = 11/40$ ) with scores above 34 on the HCR-20 recidivated. Interestingly, Strand et al. report that for patients who scored between 24 and 28, prediction was random. However, all recidivistic patients in this scoring range scored 2/2 on R5 (Stress), and this item alone differentiated the two groups (for this scoring range).

The area under the curve of the receiver operating characteristic analysis was .80 for the HCR-20, and .70 for the PCL:SV. Using a cut-off score of 29/40 on the HCR-20, sensitivity was reported to be .89 and specificity .64. With a cut-off of 17/24 on the PCL:SV, sensitivity was .89, and specificity was .59.

Surprisingly perhaps, the items from the Clinical and Risk Management scales were much stronger in separating the two groups than was the Historical scale. Strand et al. point out that this finding may stem from the fact that the patients in their sample, given their offences and dispositions to a forensic hospital, were homogenous on historical factors.

## Project and Scholarly Work

Tengström, A. (2001). Long-term predictive validity of historical factors in two risk assessment instruments in a group of violent offenders with schizophrenia. *Nordic Journal of Psychiatry*, 55, 243-249.

## Summary

This was a long-term predictive validity assessment (with retrospective data collection) of the VRAG and the Historical part of the HCR-20. The sample consisted of 106 violent offenders with schizophrenia in Sweden. The mean detention time for the offenders was 18 months. All subjects were followed from discharge or start of probation until each subject was at least 5 year from that point. The average time from discharge at follow-up was 86 months. The definition used for this study of violent recidivism was closely matched to the definition adopted in the VRAG calibration sample; a reconviction of attempted or completed homicide, assault, all sex crimes, armed robbery and forcible confinement. During the follow-up period, 29% of the sample was reconvicted of a violent crime.

The following H-scale items were significantly correlated with violent recidivism: H7 ( $r = .42$ ;  $p < .01$ ), H1 ( $r = .36$ ;  $p < .01$ ), H8 ( $r = .20$ ;  $p < .05$ ), H9 ( $r = .28$ ;  $p < .05$ ), H2 ( $r = .24$ ;  $p < .05$ ), H10 ( $r = .38$ ;  $p < .01$ ), and H5 ( $r = .3$ ;  $p < .01$ ). The *AUC* for the whole H-scale to predict violent recidivism was .76, while the *AUC* for the VRAG was .68.

The predictive validity of both the VRAG and the H-scale was considered to be moderate. There was a reported trend for the H-scale to perform slightly better compared to the VRAG. For the H-scale, most of the items had a positive correlation to recidivism and contributed well to the overall performance of the sub-scale. When similar items from the VRAG and the H-scale were compared several differences emerged.

## Project and Scholarly Work

Thomson, L.D.G., Davidson, M., Allen, S., Brett, C., Steele, J., & Dargee, R. (2008). Risk assessment in patients with schizophrenia in a high security hospital: Predictive validity of actuarial scales and symptom severity for offending and violence over 8-10 years. Paper presented at IAFMHS, Vienna.

## Summary

This presentation investigated the H subscale of the HCR-20, the VRAG and the PCL-R in 169 forensic patients with schizophrenia detained in a state hospital or prison between 1992 and 1993. Of those patients, 169 had a primary diagnosis of schizophrenia. Due to exclusions (death, unavailable or poor quality of records) the final sample was 140 participants.

The outcome of interest was 'any' incident defined as any aggressive incident involving physical contact with a victim, any sexual incident, or any episode of physical aggression towards property. Next, a 'serious' incident was

defined as any aggressive incident resulting in death or injury requiring hospital treatment, any sexual incident involving contact with the victim, or any fire setting. In addition, an offence was defined as any conviction (including non-violent offences) and 'violent' offence was defined as any conviction for assault, serious assault, fire-setting/raising or a contact sexual offence. Criminal records were only available for 135 patients, the Krawieka Rating Scale was completed in 132 cases and all other analyses were of 140 cases. The sample was mostly male (90%) and the mean age was 35.4 years (range 19-63 years). Sixty-five percent of participants had a comorbid diagnosis with the most common being antisocial personality disorder, alcohol dependence and drug dependence. Alcohol abuse was prevalent in 58% of participants and 54% had drug abuse. The majority of participants had been previously convicted or a crime (26.4% homicide and 19.3% sexual offence). The average length of state (prior to January 1994) was 6.1 years (range .6 -26.3 years).

Within the sample, 76.4% had at least one incident and 27.9% had at least one serious incident. Most incidents were against staff or other patients in the hospital. Among participants living in the community, 14.8% committed a new offence and 5.1% committed a violent offence. Of the 107 patients who were discharged, 21 were readmitted due to re-offending or violence in less secure in-patient settings. The mean of the H-10 was 13.4 (SD = 3.4). The mean of the VRAG was 2.3 (SD = 10.6) and the mean for the PCL-R was 14.3 (SD = 7.1). The H-10 mean scores were not significantly different for those who did commit any incident or any serious incident compared to those who did not. The H-10 mean score was significantly different for any conviction and any violent reconviction. The same pattern emerged for the VRAG and the PCL-R. The H-10 did not significantly discriminate between those who did or did not leave the high security hospital or between those who were and were not readmitted after discharge. It did significantly differentiate between those who reached the community after leaving the hospital. In the ROC analysis, Neither the H-10, the PCL-R or the VRAG significantly predicted 'any' or 'serious incidents'. All three did significantly predict 'any' (H-10 *AUC* = .76, VRAG *AUC* = .76, PCL-R *AUC* = .73) and 'violent offences' (H-10 *AUC* = .79; VRAG *AUC* = .80, PCL-R *AUC* = .83). The same pattern emerged for those patients who actually got to the community (n=54; H-10 *AUC* = .77-.80; VRAG *AUC* = .76-.77; PCL-R *AUC* = .78-.84). None of the instruments predicted frequency of incidents and serious incidents.

## Project and Scholarly Work

Tyrer, P., Cooper, S., Seivewright, H., Duggan, C., Rao, B., & Hogue, T. (2005). Temporal reliability of psychological assessments for patients in a special hospital with

severe personality disorder: A preliminary note. *Criminal Behaviour and Mental Health*, 15, 87-92.

### Summary

The purpose of the present study was to gather reliability data on assessments of patients who were considered potentially suitable for the specialist dangerous and severe personality disorder (DSPD) programme in the United Kingdom. A random sample of patients ( $N = 32$ ) at Rampton high security hospital who had been assessed by clinical staff (usually psychologists) at the hospital between April 1997 and November 2002 were selected. Two participants already had left the hospital, which yielded a final sample size of 30 men.

The data compared for reliability analyses were scores on the HCR-20, PCL-R (Total, Factor 1, and Factor 2), and each DSM personality dimension on the International Personality Disorder Examination (IPDE). With respect to the original ratings, it was unusual for a single assessor to complete the entire assessment. With respect to the research ratings, a single psychologist completed all ratings between February 2002 and April 2002. Another researcher who was blind to the research interview data obtained details of the original assessments from records.

Of the 30 participants, 11 refused to participate in an interview and one other was not contacted for other reasons. Participants who were interviewed were similar to participants who were not interviewed in terms of mean duration of admission (120 months vs. 177 months for interviewees vs. refusers, respectively) and mean age (38 years vs. 45 years for interviewees vs. refusers, respectively). Of the interviewed men, 12 had IPDE ratings on both occasions, 15 had PCL-R and HCR-20 ratings, and one did not have any previous assessment identified. There was substantial variation in time intervals between the original and research assessments: HCR-20 ( $Md = 15$  months, range = 1-25 months); PCL-R ( $Md = 11$  months, range = 6-60 months); IPDE ( $Md = 9$  months, range = 1-18 months).

Intra-class correlation coefficients ( $R_1$ ) for all indices examined ranged from 0.38 to 0.73. For the HCR-20 total score,  $R_1$  was 0.57,  $p < .01$ . Values for the PCL-R indices were as follows: Total ( $R_1 = 0.59$ ,  $p < .01$ ); Factor 1 ( $R_1 = 0.49$ ,  $p < .05$ ); Factor 2 ( $R_1 = 0.44$ ,  $p < .05$ ). All values for the HCR-20 and PCL-R indices were based on 15 participants and would be considered to represent fair levels of clinical significance according to criteria outlined by Cicchetti and Sparrow (1981).

Rater bias was assessed separately from intra-class correlation coefficients so that systematic differences in scoring between raters could be identified independently of agreement. Significant rater bias was observed for the HCR-20 total score and the IPDE antisocial and avoidant scales, but not for any PCL-R index. The significant  $F$ -

ratios for rater bias were as follows: HCR-20 ( $F = 13.1$ ,  $p < 0.01$ ); IPDE antisocial ( $F = 9.0$ ,  $p < 0.05$ ); IPDE avoidant ( $F = 5.7$ ,  $p < 0.05$ ). Higher scores were recorded at the second assessment for the HCR-20 (26.8 vs. 22.9), for the IPDE antisocial scale (19.0 vs. 13.9), and for the IPDE avoidant scale (3.6 vs. 1.7), which makes it unlikely that improvement in clinical state would explain the rater bias.

The authors concluded that their results supported the need for better training in the use of standardised instruments.

### Project and Scholarly Work

Urheim, R., Jakobsen, D., & Rasmussen, K. (2003, August). *Dimensions of inpatient aggressive behavior in a security ward: What is being "predicted"?* Paper presented at the 5<sup>th</sup> Nordic Symposium on Forensic Psychiatry, Ystad, Sweden.

### Summary

This study examined the utility of the HCR-20 and PCL-R in predicting institutional violence in a secure psychiatric facility in Norway. Participants were 44 men (mean age = 31.8 years) and 7 women (mean age = 25.7 years) admitted over a 10 year period. Most participants had a primary diagnosis of schizophrenia (41%) or other psychosis (47%). The remaining 12% had a primary diagnosis of a personality disorder.

Mean HCR-20 scores were: Total (23.5,  $SD = 6.8$ ); H-scale (13.8,  $SD = 4.3$ ); C-scale (5.9,  $SD = 1.9$ ); R-scale (3.9,  $SD = 2.0$ ). Mean PCL-R scores were: Total (19.4,  $SD = 8.8$ ); Factor 1 (7.6,  $SD = 3.5$ ); Factor 2 (9.1,  $SD = 5.2$ ).

The Staff Observation Aggression Scale was used to code aggressive episodes. Correlations were computed between the frequency of aggression (i.e., total episodes divided by patient days), severity of episode, and occurrence of physical aggression. The HCR-20 total score, C-scale, and R-scale (risk in institution) were correlated significantly with frequency ( $r$ s between .36 and .40), and there was a trend toward significance for the H-scale ( $r = .28$ ,  $p = .06$ ). The HCR-20 total score, H-scale, and R-scale were correlated significantly with severity ( $r$ s between .38 and .44). The HCR-20 was not correlated significantly with physical aggression ( $r = .29$ ,  $p = .08$ ); nor was the PCL-R (PCL-R F2,  $r = .28$ ,  $p = .08$ ). The only significant correlations obtained with the PCL-R were between frequency and total score and Factor 2 and between severity and total score. Frequency and proportion of physical aggression were significantly higher among women than men.

AUC values for the prediction of frequency were: HCR-20 total (.76); H-scale (.67); C-scale (.82); Risk (.70); PCL-R Factor 1 (.64); PCL-R Factor 2 (.77). AUC values for the

prediction of most severe episode were: HCR-20 total (.82); H-scale (.77); C-scale (.73); Risk (.76); PCL-R total (.73); PCL-R Factor 1 (.65); PCL-R Factor 2 (.71).

## Project and Scholarly Work

Vincent, G. M. (1998). *Criminal responsibility after Bill C-30: Factors predicting acquittal and lengths of confinement in British Columbia*. Unpublished master's thesis, Simon Fraser University, Burnaby, British Columbia, Canada.

### Summary

This is a chart review study of 250 persons referred from court to a maximum security forensic institute over the course of five years for the purpose of assessment of criminal responsibility. The focus of this summary is the 125 persons who were found Not Criminally Responsible on Account of Mental Disorder (NCRMD) for their offences. The sample ( $M$  age = 34.98;  $SD$  = 10.67) was primarily male (82.4%), Caucasian (77.4%), single (88.6%), unemployed (76.4%), and many patients had less than grade 11 education (40.2%). Most patients had committed a violent index offence (77.6%), and most had a primary diagnosis of a psychotic disorder at assessment (66.9%), followed by mood disorder (21.0%)

The purpose of the study was to evaluate which factors predicted (1) verdicts of NCRMD (insanity acquittal) versus guilty, (2) length of confinement and days in the system. The HCR-20 was used for the latter, as a predictor of days in the system and days confined. Also included in such analyses were a variety of criminological, psychiatric, demographic variables, and the Psychopathy Checklist: Screening Version. Hierarchical Cox Proportional Hazards Regression was used as the method of prediction, with time in the system as the dependent measure. After all blocks and variables were entered, the HCR-20 was the only significant predictor, with an  $e^{\beta} = .898$  (Odds = 2.45). In particular, the R Scale was the strongest of the three scales. Using a somewhat more liberal approach with a backward elimination entry procedure, one other variable in addition to the HCR-20 entered the equation (offence severity). For a slightly different dependent measure (days until first release), several variables entered the model (using backward elimination): level of violence, number of remand charges, homicidal at offence, age at first mental health contact, PCL:SV, and HCR-20.

Months confined, in the system, and until first release were calculated as a function of low, moderate, and high scores on the HCR-20 (by dividing the total scores into thirds). Months in the system, confined, and until first release, for the LOW group were 32.82, 9.22, and 7.25, respectively. For the MODERATE group, results were 38.68, 18.56, and 13.93, respectively. For the HIGH group, results were 45.47, 40.23, and 30.92, respectively. These findings pro-

vide support for the concurrent validity of the HCR-20. The factors it predicted are related to legal concepts of risk and threat.

## Project and Scholarly Work

Vincent, G. M., Ross, D. J., Whitemore, K., Eaves, D., Hart, S. D., Ogloff, J. R. P., & Webster, C. D. (2001, April). *Using the HCR-20: File-based researcher ratings vs. file + interview-based clinician ratings*. Paper presented at the Founding conference of the International Association of Forensic Mental Health Services, Vancouver, BC, Canada.

### Summary

Vincent et al. (2001) investigated the correspondence between HCR-20 (Version 1) C and R scale ratings made by psychiatrists from file + interview, and version 2 ratings made by researchers from file alone. There was a significant difference between clinicians and researchers on the C scale, but not on the R scale. The difference, though significant, was small (Cohen's  $d = .31$ ). The association between rater groups was fairly high ( $ICC_1 = .58$  for C scale;  $ICC_1 = .70$  for R scale). There were few (0-4 per item) "0-2" coding disagreements on individual items. Vincent et al. (2001) concluded that the file-based ratings were sufficiently reliable for research purposes.

## Project and Scholarly Work

Watt, A., Topping-Morris, B., Rogers, P., Doyle, M., & Mason, T. (2003). Pre-admission nursing assessment in a Welsh medium secure unit (1991-2000): Part 2 – comparison of traditional nursing assessment with the HCR-20 risk assessment tool. *International Journal of Nursing Studies*, 40, 657-662.

### Summary

The authors noted that pre-admission forensic nursing assessment does not have an empirical evidence base despite the fact that such assessments are completed routinely and at substantial financial cost. The purpose of this study was to assess retrospectively the quality of pre-admission risk assessments completed by nurses at one forensic psychiatric clinic in Wales through comparison with the HCR-20, Version 1.

Eighty-five consecutive cases referred for forensic nurse assessment over a 51-month period were coded as to whether sufficient information had been collected during the risk assessment to allow scoring of the HCR-20 items. HCR-20 item 7 (PCL-R score) was omitted because the researchers did not have formal training in administration of the PCL-R. In roughly 89% of cases, there was sufficient information to rate the 5 items comprising the C-

scale. Pertaining to the H-scale, 7 of the 9 items could be rated in over 80% of the cases. Presence of a personality disorder and employment history could be rated in 71% and 77% of the cases, respectively. Four of the five R-scale items could be coded for over 85% of the cases. The Risk management item that assesses the feasibility of plans was able to be rated for less than 80% of the cases.

Mean scores were: HCR-20 Total 23.6 (3.6); H-scale 12.5 (2.8); C-scale 5.5 (3.4); R-scale 5.5 (3.1). In the discussion section the authors concluded that information traditionally collected by forensic nurses in the course of a risk assessment was appropriate, but noted the importance of research-based practice.

## Project and Scholarly Work

Whittemore, K. E. (1999). *Releasing the mentally disordered offender: Disposition decisions for individuals found unfit to stand trial and not criminally responsible*. Unpublished Ph.D. Dissertation, Simon Fraser University, Burnaby, British Columbia, Canada.

### Summary

This is a chart review study of 172 persons either found unfit to stand trial ( $n = 50$ ) or not criminally responsible on account of mental disorder (NCRMD;  $n = 122$ ). The sample ( $M$  age = 37) was primarily male (83.14%), Caucasian (80.23%), single (88.37%), and unemployed (79.07%). Most patients had committed a violent index offence (75.58%), and most had a primary diagnosis of a psychotic disorder at assessment (60.47%), followed by bipolar disorder (16.28%).

The purpose of the study was to evaluate which factors predicted criminal review board release decisions (discharge versus custodial detention). A variety of mental health, criminological, and demographic characteristics were used as predictor measures along with the HCR-20 and PCL:SV. Hierarchical logistic regression was used as the method of prediction, with release decision as the dependent measure. For the first review board hearing (patients have regular hearings until released), the H Scale, C Scale, and R Scale were entered in separate blocks. Each was a significant predictor (lower scores relating to discharge), with C and R adding incrementally to H. R was most strongly related to discharge decisions. Additional analyses were carried out to predict subsequent discharge/custody decisions. Three Clinical subscale items (Negative Attitudes, Lack of Insight, and Impulsivity), and one Risk Management scale item (Noncompliance with Remediation Attempts) predicted discharge.

These results suggest that at the first hearing, the Risk Management items were most important for discharge de-

isions, although the Clinical and Historical items also were predictive. At subsequent hearings, change in mental status (Clinical Scale items) emerged as the more important predictor. Results provide support for the concurrent validity of the HCR-20. Release decisions legally require the Review Boards to take into account the threat posed by the individual, the need to reintegrate the accused into society, and the mental condition of the accused.

## Project and Scholarly Work

Wintrup, A. (1996). *Assessing risk of violence in mentally disordered offenders with the HCR-20*. Unpublished master's thesis, Simon Fraser University, Burnaby, British Columbia, Canada.

### Summary

This is a chart review study of 80 men remanded to a secure forensic facility. The mean age at admission was 32.6 years ( $SD = 10.8$ ). The majority of patients had been previously hospitalized in a psychiatric setting (77.5%), and most had previous charges or convictions for criminal offences (78.9%). Both the HCR-20 and the PCL-R averaged correlations just below  $r = .30$  with several measures of later community violence. The HCR-20 was quite strongly related to subsequent re-admissions to the forensic hospital ( $r = .38$ ) and to psychiatric hospitalizations ( $r = .45$ ). The relationship of the PCL-R to these same outcomes was not as strong, at  $r = .25$  and  $r = .36$ , respectively. However, whether these re-hospitalizations involved violence was not specified.

### See also

Douglas, K. S., Webster, C. D., & Wintrup, A. (1996, August). The HCR-20 risk assessment scheme: Psychometric properties in two samples. Poster presented at the annual convention of the American Psychological Association, Toronto.

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## END OF FORENSIC PSYCHIATRIC STUDIES

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## CORRECTIONAL SETTINGS

(INCLUDES MENTALLY DISORDERED OFFENDERS)

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### Project and Scholarly Work

Belfrage, H., Fransson, G., & Strand, S. (2000). Prediction of violence using the HCR-20: A prospective study in two maximum-security correctional institutions. *Journal of Forensic Psychiatry, 11*, 167-175.

#### Summary

The HCR-20 violence risk assessment scheme (Version 2) and the Psychopathy Checklist: Screening Version (PCL:SV) were coded on a sample of 41 male inmates from two Swedish maximum security prisons. The two coders were Ph.D. and M.D. level clinician-researchers. This was a prospective study of violence within the correctional institution over an eight month period. The HCR-20 and PCL:SV were coded by use of both file review and clinical interview. The R Scale of the HCR-20 was coded using the "In" option as explained in the manual (Version 2).

The mean age of the participants was 35, and the mean length of incarceration at time of assessment was three years. All participants had a personality disorder (mostly antisocial). Of the 41, 27 were incarcerated for homicide, and 14 for other violent offences. The sample was highly psychopathic, with 30 of 41 inmates being classified as psychopaths.

Eight of the 41 (19.5%) inmates were violent in the prison. The C Scale, R Scale, HCR-20 Total Score, PCL:SV Part 2, and PCL:SV Total Score differentiated between the violent and non-violent groups. The HCR-20 Total score was 33.4 in the violent group, and 24.6 in the non-violent group. All HCR-20 R Scale items were significantly greater among the violent group than the non-violent group. The H Scale was not predictive of violence, except for Item H10. In the group of 30 psychopaths, the R Scale and HCR-20 Total score were significantly higher in the violent inmates. Four of the five R Scale items were higher in the violent psychopaths compared to the non-violent psychopaths.

Results imply that the HCR-20 (and the PCL:SV) are predictive of violence by inmates within correctional institutions. Even among a sub-group of psychopaths, the HCR-20 distinguished between violent and non-violent inmates. The authors comment that the H Scale was not predictive in this sample because inmates (being maximum security violent inmates) were homogeneous with respect to most historical factors. The Clinical and Risk Management fac-

tors did, however, provide for a means of separating violent from non-violent inmates. These results are consistent with those of Strand et al. reported above. The results of the study, though limited by a small sample, provide support for the importance of risk management concerns for high-risk violent offenders.

### Project and Scholarly Work

Belfrage, H., Fransson, G., & Strand, S. (2004). Management of violent behavior in the correctional system using qualified risk assessments. *Legal and Criminological Psychology, 9*, 11-22.

#### Summary

This research focused on whether the use of comprehensive risk assessments and subsequent risk management could prevent institutional violence in a maximum security correctional institution in Sweden. More specifically, the authors investigated whether increasing staff members' knowledge of risk factors and appropriate risk management strategies would affect the rate of violence on a ward.

All participants ( $N = 47$ ) were offenders with a violent criminal history and who were incarcerated at some time between October 1999 and June 2002 on one ward of the institution. The authors noted that this particular ward (A-ward) is not meant to house any specific type or class of offender and that it is not known to have an elevated level of psychiatric problems among prisoners relative to other wards. However, many of individuals housed on A-ward were transferred there for misbehaviour. Participants on average were 32 years old and most frequently were diagnosed with antisocial personality disorder ( $n = 29$ ). No participants were diagnosed with a thought disorder. Eighteen participants had PCL:SV scores of 18 or above, and psychopathic offenders had significantly higher HCR-20 scores compared with nonpsychopathic offenders ( $p = .000$ , Mann-Whitney  $U$ -test).

Prior to the study's commencement, staff received training on risk assessment, common risk factors for violence, foundational knowledge about the HCR-20 and PCL:SV, and adequate risk management strategies for different types of mentally disordered offenders. Ongoing training also was provided throughout the study. Two clinicians collaboratively completed a risk assessment on each participant that included the Swedish versions of the HCR-20 and the PCL:SV. Following completion of the risk assessment, results were discussed with staff members and a risk management strategy for the individual was developed.

The HCR-20 was readministered to roughly one third ( $n = 13$ ) of the sample. The average length of time between the two HCR-20 assessments was 12 months (range: 3-24

months). Comparison of HCR-20 scores between the follow-up group of 13 and the entire study group of 47 revealed no significant changes. However, there was a significant decrease in incidence of violence (from an average of 14 violent incidents per year between 1993-1998 to an average of 5 violent incidents per year during the study period of 1999-2001;  $p = .024$ , Mann-Whitney  $U$ -test). This 64% reduction is in stark contrast to all other wards in the prison, in which there were no decreases in incidence of violence during the study period.

The discussion section advances possible explanations for the results. The authors highlight the importance of incorporating into a risk assessment protective factors, which they noted can reduce violence even when important risk factors do not decrease.

## Project and Scholarly Work

Cooke, D. J., Michie, C., & Ryan, J. (2001). *Evaluating risk for violence: A preliminary study of the HCR-20, PCL-R and VRAG in a Scottish Prison Sample*. Report prepared for the Scottish Prison Service.

## Summary

This was a retrospective follow-up of 250 male adult prisoners released from a Scottish prison who had been randomly selected from the larger population. Mean age was 26.8; almost all were Caucasian; roughly half were unmarried (46%); offences included drugs (36%), assault (24%), theft and break and enter (20%), homicide (8%), weapons (7%), kidnapping (3%), and sexual offences (2%). Prisoners had received earlier comprehensive correctional assessments, using interview and file procedures. Psychopathy was one of the constructs that was assessed. The HCR-20 later was coded from files. The researchers were unable to code C1, C5, R2, R4, and R5. As they commented, this may have underestimated the predictive accuracy of the HCR-20. Violence was measured with the MacArthur Community Violence Instrument. The authors carried out comprehensive analyses of the HCR-20, VRAG, and PCL-R, down to the item (this is a 128 page report!).

Interrater reliability, using  $ICC_1$  on a subsample of 60 prisoners, was described as “acceptable and ... consistent with values obtained in other studies” (p. 30). Values were as follows: HCR-20 Total Scale Score (.92); Historical Scale Score (.92); Clinical Scale Score (.74); Risk Management Scale Score (.70). Lower indices for C and R may stem from coding files only.

Survival analyses of individual HCR-20 items led the researchers to conclude that “Overall, these analyses indicate that the vast majority of these items have some potential utility as predictors” (p. 46). Survival analyses indicated

that the Total H Scale Scores were related to each outcome measure (including both violent and non-violent reconvictions); the C Scale was related to the two violence outcome measures, and the R Scale was related to the general recidivism outcome measures, but only weakly to violent outcomes. Recall that only two of five R Scale items were coded.

Cox proportional hazard model analyses revealed that the  $e^B$  for reincarceration for violence was 1.20 (exponentiated value of the model parameter; an effect size indicating the change in hazard rate as a function of a unit change in the total HCR-20 score). This means that for every 1-point increase in the HCR-20, the hazard for violence increases 20%. For a 5-point increase, the hazard increases by 200% ( $100\% + 5 \times 20\%$ ). Using the H Scale alone, these analyses revealed that 14% of those with a mean score (10.9) were returned to prison for violence, 4% with a score of 5, and 72% with a score of 20. This was greater discrimination than achieved for the PCL-R or VRAG. When compared directly, the H Scale was the strongest predictor of return to prison for violence; the VRAG was stronger for general recidivism and violent recidivism that did not lead to re-imprisonment (presumably less serious violence). Cooke et al., based on these and other analyses, interpreted the findings as suggestive of greater specificity for the prediction of violence, and likely serious violence, compared to general recidivism, for the H Scale compared to the VRAG and PCL-R.  $AUC$  values for community outcomes were not significantly different for the various measures and outcome criteria (averaging approximately .70). HCR-20  $AUC$ s ranged from .69 to .74; VRAG  $AUC$ s from .67 to .73; PCL-R  $AUC$ s from .65 to .72.

Institutional violence also was studied, with some different findings emerging. Many of the HCR-20 items predicted violence. The  $e^B$  values for the HCR-20 were as follows: HCR-20 Total Scale Score (1.12); H Scale Score (1.16); C Scale Score (1.45); R Scale Score (1.09). For the PCL-R,  $e^B$  was 1.06, and for the VRAG, 1.08. As such, for a 1-point increase on the H-Scale, the hazard for violence increases 16%; for a 1-point increase on the C Scale, the hazard increases 45%. Multivariate Cox proportional hazard model analyses showed that there not meaningful differences between the various measures, although, as with community violence, the H Scale had somewhat greater specificity than the VRAG and PCL-R in its relationship to violent institutional infractions, rather than all infractions per se.  $AUC$  values were moderate for all predictors across general and violent institutional infractions, and did not differ from one another (HCR-20 = .64 - .64; H Scale = .64 - .65; PCL-R = .61 - .63; VRAG = .66 - .67).

Although there were not substantial differences between the measures in terms of predictive validity, with the HCR-20 perhaps demonstrating greater specificity than the PCL-R and VRAG vis-à-vis serious versus minor offending and

violence, Cooke et al. concluded that the HCR-20 “remains the instrument of choice because it provides guidance on how to *manage* risk not merely how to *predict* risk” (p. 3, Executive Summary).

## Project and Scholarly Work

Dahle, K. P. (2002). Unpublished data analyses. Personal Communication. January 17, 2001.

### Summary

This study used the German version of the HCR-20. It drew from data from the Berlin CRIME study, which was a longitudinal study of 397 criminal offenders released from prison in 1976. The HCR-20 was coded on 200 randomly selected prisoners from these 1976 files. The researchers were unable to code H7 – the Psychopathy item. Because the sample was random, index offences mainly were property offences, though there were some serious violent offences as well. The inmates averaged 31.42 ( $SD = 5.40$ ) years in age, and had 6.46 ( $SD = 4.72$ ) previous convictions. More than half (65%) had committed previous violent offences. Many had alcohol (56%) problems; fewer (17%) had drug problems.

Based on a subsample of 30 offenders, interrater reliability (Kendall’s Tau) was .80 for the HCR-20 Total Scale. Spearman’s Rho was .731 for the C Scale and .930 for the H Scale. Interrater reliability was not reported for the R Scale. Over the 20 year follow-up, the correlation between the HCR-20 and violent recidivism was as follows: HCR-20 Total Scale Score (.25); H Scale Score (.24); C Scale Score (.23); R Scale Score (.10).

### Summary

Dahle, K. P. (2005). *Psychologische Kriminalprognose: Wege zu einer integrativen Beurteilung der Rückfallwahrscheinlichkeit von Strafgefangenen [Psychological prediction of criminal reoffence: Toward an integrated method for the assessment of risk of reoffence of prisoners]*. Herbolzheim, GER: Centaurus.

The ability of the HCR-20, PCL-R, and LSI-R to predict officially recorded convictions was examined among male prisoners in Berlin ( $N = 307$ ) who survived at least ten years at risk following release from prison. All instruments were coded retrospectively by psychologists who were trained how to use them. The mean length of follow-up after release was 19.6 years ( $SD = 1.74$  years). At the time the study started in 1976, participants’ mean age was 30.52 years ( $SD = 5.38$  years; range = 21-42 years).

Descriptive information for the measures was as follows: HCR-20 Total ( $M = 16.52$ ,  $SD = 6.31$ ,  $\alpha = .84$ ); HCR-20 Historical scale ( $M = 8.32$ ,  $SD = 3.51$ ,  $\alpha = .69$ ); HCR-20 Clinical scale ( $Md = 3$ , range = 8,  $\alpha = .49$ ); HCR-20 Risk Management scale ( $Md = 5$ , range = 10,  $\alpha = .80$ ); PCL-R Total ( $M = 12.03$ ,  $SD = 4.70$ ,  $\alpha = .71$ ); PCL-R Factor 1 ( $Md = 3$ , range = 12,  $\alpha = .59$ ); PCL-R Factor 2 ( $Md = 6$ , range = 17,  $\alpha = .71$ ); LSI-R Total ( $M = 24.65$ ,  $SD = 7.35$ ,  $\alpha = .84$ ). The intercorrelations between the three measures were high: HCR-20/LSI-R (.80); HCR-20/PCL-R (.76); LSI-R/PCL-R (.61).

Interrater reliability was examined on a sub-sample of participants ( $n = 30$ ) using two independent raters. Values were as follows: HCR-20 Total (ICC = .91;  $r = .91$ ; 95% CI = .83-.96); HCR-20 Historical scale (ICC = .92;  $r = .92$ ; 95% CI: .83-.96); HCR-20 Clinical scale (ICC = .82;  $r = .83$ ; 95% CI: .65-.91); HCR-20 Risk Management scale (ICC = .78;  $r = .79$ ; 95% CI: .59-.89); PCL-R Total (ICC = .94;  $r = .94$ ; 95% CI: .88-.97); PCL-R Factor 1 (ICC = .80;  $r = .81$ ; 95% CI: .63-.90); PCL-R Factor 2 (ICC = .89;  $r = .89$ ; 95% CI: .77-.94); LSI-R Total (ICC = .93;  $r = .93$ ; 95% CI: .86-.97).

For each measure, predictive validity data were collected for different lengths of time at risk. All of the values that follow correspond to a criterion of violent reconviction. Predictive validity for the HCR-20 Total score was: 2 years at risk ( $r = .21$ ,  $p < .001$ ; AUC = .75,  $p = .06$ , 95% CI: .61-.85); 5 years at risk ( $r = .28$ ,  $p < .001$ ; AUC = .71,  $p = .04$ , 95% CI: .63-.80); total time at risk ( $r = .28$ ,  $p < .001$ ; AUC = .69,  $p = .04$ , 95% CI: .62-.76). For the HCR-20 Historical scale: 2 years at risk ( $r = .18$ ,  $p < .05$ ); 5 years at risk ( $r = .26$ ,  $p < .001$ ); total time at risk ( $r = .27$ ,  $p < .001$ ). For the HCR-20 Clinical scale: 2 years at risk ( $r = .18$ ,  $p < .05$ ); 5 years at risk ( $r = .22$ ,  $p < .001$ ); total time at risk ( $r = .25$ ,  $p < .001$ ). For the HCR-20 Risk Management scale: 2 years at risk ( $r = .16$ ,  $p < .01$ ); 5 years at risk ( $r = .18$ ,  $p < .01$ ); total time at risk ( $r = .17$ ,  $p < .01$ ).

Predictive validity for the PCL-R Total score was: 2 years at risk ( $r = .14$ ,  $p < .05$ ; AUC = .67,  $p = .06$ , 95% CI: .55-.78); 5 years at risk ( $r = .25$ ,  $p < .001$ ; AUC = .70,  $p = .04$ , 95% CI: .63-.78); total time at risk ( $r = .27$ ,  $p < .001$ ; AUC = .68,  $p = .04$ , 95% CI: .61-.75). For Factor 1, values were: 2 years at risk ( $r = .01$ ,  $p = ns$ ); 5 years at risk ( $r = .13$ ,  $p < .05$ ); total time at risk ( $r = .16$ ,  $p < .05$ ). For Factor 2, values were: 2 years at risk ( $r = .15$ ,  $p < .01$ ); 5 years at risk ( $r = .24$ ,  $p < .001$ ); total time at risk ( $r = .23$ ,  $p < .001$ ).

Predictive validity for the LSI-R Total score was: 2 years at risk ( $r = .15$ ,  $p < .01$ ; AUC = .68,  $p = .06$ , 95% CI: .56-.79); 5 years at risk ( $r = .21$ ,  $p < .001$ ; AUC = .67,  $p = .04$ , 95% CI: .60-.75); total time at risk ( $r = .20$ ,  $p < .001$ ; AUC = .64,  $p = .04$ , 95% CI: .57-.71).



Dahle, K-P. (2006). Strengths and limitations of actuarial prediction of criminal reoffence in a German prison sample: A comparative study of the LSI-R, HCR-20, and PCL-R. *International Journal of Law and Psychiatry*, 29, 431-442.

### Summary

An adapted German version of the HCR-20, the LSI-R, and the PCL-R were scored from data collected as part of a longitudinal study on the biographical development of criminal offenders conducted in former West Berlin. The original sample comprised every fourth adult male who began serving a sentence between February and May 1976 ( $N = 397$ ). No selection was made regarding the type of crime (with the exception of pure traffic offense), the length of sentence, or the level of security. Analyses were based on the subset of offenders who survived for ten years or longer after release ( $n = 307$ ). Participants' mean age at the time of admission was 29.83 years ( $SD = 5.35$ ; range: 21-45).

Psychologists blind to recidivism completed the risk assessments retrospectively based on the time when participants were released from prison. Assessments were based on data gathered during the course of a basic examination, information from the prisoners' personal files accumulated throughout the prison sentence, and the offender's social situation at the time of release. Ratings on HCR-20 *Historical* scale items primarily were based on information gathered during the basic examinations at the beginning of the sentence, whereas items on the *Clinical* and *Risk Management* scales primarily were rated based on behavioral descriptions available in the prison personal files. Recidivism data were gathered from criminal records available at periods of two, five, and ten years post-release.

Agreement among raters (ICC) regarding the instruments' total scores was high: LSI-R (.93); HCR-20 (.91); PCL-R (.94). Agreement also was high for the HCR-20 scales: Historical (.92); Clinical (.82); Risk Management (.78). Internal consistency of the instruments' total scores were: LSI-R ( $\alpha = .84$ ); HCR-20 ( $\alpha = .84$ ); PCL-R ( $\alpha = .71$ ). Mean values of the instruments' total scores were: LSI-R (24.65;  $SD = 7.35$ ); HCR-20 (16.52;  $SD = 6.31$ ); PCL-R (12.03;  $SD = 4.70$ ). Intercorrelations between the instruments generally was high: LSI-R and HCR-20 ( $r = .80$ ); LSI-R and PCL-R ( $r = .61$ ); HCR-20 and PCL-R ( $r = .76$ ).

With the exception of the PCL-R, the accuracy of predictions for general recidivism decreased gradually as the length of follow-up increased. In contrast, the accuracy for predictions of violent recidivism (the specific operationalization of which was not defined) improved as the length of observation increased. The correlations between instruments' total scores and violent crime for periods of two,

five, and ten years at risk, respectively, were: HCR-20 (.21; .28; .31); LSI-R (.15; .21; .23); PCL-R (.14; .25; .32). The correlations between instruments' total scores and reimprisonment for periods of two, five, and ten years at risk, respectively, were: HCR-20 (.37; .34; .31); LSI-R (.41; .34; .29); PCL-R (.31; .32; .34). Differences in predictive accuracy between the instruments were not statistically significant.

Additional analyses indicated that the instruments' predictive accuracy was dependent on offenders' demographic, criminological and psychopathological characteristics. The author concluded that each risk assessment measure was applicable to German criminals and required only a few adaptations to be used in German, and that the instruments demonstrated levels of predictive accuracy that were comparable to the values reported in the literature (for non-German samples).

### Project and Scholarly Work

Douglas, K. S., Yeomans, M. & Boer, D. (2005). Comparative validity analysis of multiple measures of violence risk in a sample of criminal offenders. *Criminal Justice and Behavior*, 32, 479-510.

### Summary

This study compared the predictive validity of five indices of violence risk – the HCR-20, the VRAG, the VORAS, the PCL:SV, and the PCL-R. Participants were 188 male offenders released from federal corrections institutions to supervision in Western Canada. Participants were selected based on known outcome status after release. This status was as follows: violent recidivism ( $N = 93$ ) or no violent recidivism after release ( $N = 95$ ). The follow up period for this study ranged from 6 to 11 years.

Inter-rater reliability was good to excellent for all measures except for the HCR-20 structured final judgment ratings which can be considered fair to moderate. Even with the lower inter-rater reliability, there were no low/high disagreements with this item.

Point-biserial correlations between risk assessment measures and violent recidivism showed that with the exception of the H-scale, the HCR-20 total and sub-scales produced correlations of approximately .50. The aforementioned H-scale showed a correlation of .36. The AUCs for the HCR-20 were approximately .80 (up to .82) except for the H-scale (.72). Partial point-biserial correlations were also conducted with the HCR-20 total score, with the correlation to violent recidivism dropping from .51 to .25 after controlling for the VRAG, PCL-R and the VORAS. Other measures also showing a significant positive point-biserial correlation after controlling for other measures were: HCR-20 C and R scales and structured final judgment, the

VRAG, VORAS B, and Cooke and Michie's third factor. The other measures were either not significantly related or were negatively related to the outcome.

Binary logistic regressions were conducted to directly compare the measures. Using forward conditional entry procedures only the HCR-20 total score entered the model. Using direct entry procedures the HCR-20 total score, VRAG total score, and the VORAS total score entered the model. Using subscales instead of total scores, direct entry showed that the HCR-20 C-scale, VORAS A (negatively) and VORAS B were significant predictors. Using forward entry, the HCR-20 C-scale, VORAS A (negatively) and VORAS B were again significant predictors. Using the HCR-20's and other measures' final risk judgments showed that the HCR-20 structured clinical final risk judgment, the VRAG's actuarial categorical system, and the VORAS actuarial final risk score were significantly predictive.

The discussion section explores the implications of the results from this study in regards to the use of the five measures analyzed here.

### Project and Scholarly Work

Douglas, K. S. & Webster (1999). *The HCR-20 violence risk assessment scheme: Concurrent validity in a sample of incarcerated offenders. Criminal Justice and Behavior, 26*, 3-19.

#### Summary

The HCR-20 violence risk assessment scheme was coded in a sample of 72 Canadian, male, federally-sentenced, maximum security offenders who had been referred to a regional health centre of the Correctional Services of Canada. The concurrent validity of the HCR-20 was assessed through comparison to other instruments (the Psychopathy Checklist - Revised; Violence Risk Appraisal Guide) and to the presence of several past indexes of violent and antisocial behavior. Only the H and C scales could be coded because no offenders had yet been released. This was a postdictive study.

The interrater reliability of the H and C combined scores was .80. Correlations between the number of previous violent charges and the H scale, C scale, and their combination ranged from moderate to large.<sup>1</sup> The Historical scale correlated at  $r = .50$  with previous violence (with the "previous violence" item removed from the H scale), the Clinical scale at  $r = .30$ , and the combined total at  $r = .44$ . The

VRAG correlated at  $r = .20$  with previous violence, and the PCL-R's correlation with past violence was  $r = .41$ .

Scores above the median of the HCR-20 increased the odds of the presence of various measures of past violence and antisocial behavior by an average of four times. The main limitations of this research were a small sample and a retrospective design.

#### See also

Douglas, K. S., Webster, C. D., & Wintrup, A. (1996, August). *The HCR-20 risk assessment scheme: Psychometric properties in two samples*. Poster presented at the annual convention of the American Psychological Association, Toronto.

### Project and Scholarly Work

Doyle, M., Dolan, M., & Mc Govern, J. (2002). *The validity of North American risk assessment tools in predicting in-patient violent behaviour in England. Legal and Criminological Psychology, 7*, 141-154.

#### Summary

This study compared the validity of the Historical component of the HCR-20, the Psychopathy Checklist: Screening Version (PCL:SV; Hart, Cox, & Hare, 1995) and the Violence Risk Appraisal Guide (VRAG; Harris, Rice, & Quinsey, 1993). This research used 87 adult mentally disordered patients in a medium secure unit. An independent researcher, who was blind to the score on the risk assessments, collected data on violent outcome measures during the first 12 weeks after admission for all 87 subjects.

For this study, violence was operationally defined as actual, attempted or threatened harm to others. Violence episodes were dichotomized into two levels. Level 1 involved physical assault against a person or any violence resulting in injury to a person. Level 2 included other aggressive acts such as threats or property damage.

On the risk assessment tools, those with any violent outcome had significantly higher scores on all measures, with the PCL:SV showing the most significant group difference ( $t = 4.77$ ;  $p < .0001$ ). The VRAG ( $t = 3.6$ ;  $p < .001$ ) and the H-10 ( $t = 3.2$ ;  $p < .001$ ) also showed a significant group difference.

Using ROC analyses for the prediction of any type of violence, the AUC's produced for the PCL:SV total score ranged from .76 ( $p < .001$ ) (for any and physical violence) to .74 ( $p < .01$ ) (for level 1 violence). The AUCs produced for the VRAG total score ranged from .71 ( $p < .01$ ) (for any and physical violence) to .64 ( $p < .01$ ) (for level 1 violence) and the AUCs produced for the H-10 total score

<sup>1</sup> According to Cohen (1992), a moderate size correlation is  $r = .30$ , and a large correlation is  $r = .50$ .

ranged from .70 ( $p < .01$ ) (for any and physical violence) to .66 ( $p < .01$ ) (for level 1 violence).

Using a cut-off score of 18 (recommended manual cut-off) on the PCL:SV, the odds ratio for any violence was 4. Using a cut-off score of 5 (sample mean) on the VRAG, the odds ratio was 3.75 for any violence. Using a cut-off score of 12 (sample mean) on the H-10, the odds ratio was 3 for any violence.

The PCL:SV total score correlated significantly with the VRAG score ( $r = .81, p < .001$ ) and with the H-10 score ( $r = .8, p < .01$ ). The VRAG score and the H-10 score also correlated significantly with each other ( $r = .83, p < .001$ ).

Forward stepwise logistic regression showed that only the PCL:SV total score contributed significantly to the prediction of any violence ( $\chi^2 = 20.05, p < .001$ ).

Implications for research on risk assessment, as well as the clinical assessment and management of violence, are discussed.

## Project and Scholarly Work

Dunbar, E. (2003). Symbolic, relational, and ideographic signifiers of bias-motivated offenders: Toward a strategy of assessment. *American Journal of Orthopsychiatry, 73*, 203-211.

### Summary

This study was not a validation study of the HCR-20, but rather an analysis of the characteristics of hate-motivated violent offenders in California, and comparison of this group to other offenders. The HCR-20 was used as a measure of violence risk for this purpose. The HCR-20 was coded from files of 58 hate-motivated criminals. Most of the offenders were male ( $n = 53, 91.4\%$ ), with a mean age of 24.5 ( $SD = 8.07$ ). Most offenders were Latino (48.3%), followed by Euro-Caucasian (32.8%) and African American (15.5%). Close to half were unemployed (45.5%). The majority of the offenders had substance use problems (58.6%), and many (22.4%) had received past psychiatric treatment. The vast majority of offenders had previous convictions (87%) and a history of violence (60%). All offenders had violent, hate-related index offences.

Analyses on the HCR-20 included correlations with the PCL-R, with violent offences, and with the Cormier-Lang crime severity scales. The HCR-20 did not correlate with the seriousness of the index offence (although there is no clear reason to expect it to). Correlations between the HCR-20 total score and indices of past crime and violence ranged from .33 to .63. For the H scale, the range was .39

to .68, for the C scale, .30 to .56, and for the R scale, .19 to .45. In general, the correlations were above .40, and many were above .50.

This study is consistent with findings from Canadian violent offenders (see Douglas & Webster, 1999, above) in terms of the relationship with violence. Although the study included post-dictive analyses (as did Douglas & Webster, 1999), the effects are generally large, often exceeding .50, and ranging to .68. The findings support the concurrent validity of the HCR-20, and support the effort of doing larger scale research on the HCR-20 in American criminal offenders.

## Project and Scholarly Work

Dunbar, E., Quinones, J., & Crevecoeur, D. A. (2005). Assessment of hate crime offenders: The role of bias in examining violence risk. *Journal of Forensic Psychology Practice, 5*, 1-19.

This study investigated criminal histories and risk for violence among hate crime offenders. All hate crime offences ( $N = 814$ ) reported during 1999 to a large metropolitan area in the U.S. were reviewed. Of these, demographic information was available for 581 (71%). Of these 581 cases, 204 resulted in the apprehension of a suspect of the hate offence. These 204 cases comprised the current sample. The police classified an offence as a hate crime only after a multi-step evaluation process.

Demographic details were gathered from the crime report. Criminal histories were recorded from state and federal databases for all crime activity prior to commission of the hate crime. The criminal history was used to score the Cormier-Lang Crime Index (Quinsey, Harris, Rice, & Cormier, 1998), which was used to quantify severity of criminal history. A content analysis of the criminal records was used to score the HCR-20. The evaluation of the criminal histories and scoring of the HCR-20 were completed by raters blind to details about the index crime (other than knowing that the crime had been classified as being a hate crime).

Participants mostly were male (87%) and White (48%; 26.2% Latino; 15% Black, 7.2% multiracial; 2.6% Asian-Pacific). Participants' mean age was 32.69 years ( $SD = 14.04$  years, range = 12-81 years). Most (57.6%) of the offences were crimes against the person (24.5% verbal threats of harm to the person; 17.9% property crimes). Thirty-one participants (16%) were identified from the crime reports as being members of a hate-oriented criminal gang or group.

Mean scores on the HCR-20 scales and their alpha reliability coefficients were as follows: Historical (8.21,  $SD =$

4.74, range = 0-19,  $\alpha = .94$ ); Clinical (5.39,  $SD = 2.46$ , range = 0-10,  $\alpha = .90$ ); Risk Management (5.53,  $SD = 2.97$ , range = 0-10,  $\alpha = .95$ ). The Cohen kappa for inter-rater agreement on the HCR-20 was .58 (range = .33-.90).

The total number of prior arrests and convictions, respectively, were significantly correlated with scores on all scales: Historical ( $r = .60, p < .001$ ;  $r = .67, p < .001$ ); Clinical ( $r = .53, p < .001$ ;  $r = .48, p < .001$ ); Risk Management ( $r = .55, p < .001$ ;  $r = .62, p < .001$ ). Scores on all HCR-20 scales were significantly correlated with severity of prior violent and non-violent crimes, respectively: Historical scale ( $r = .64, p < .001$ ;  $r = .66, p < .001$ ); Clinical scale ( $r = .49, p < .001$ ;  $r = .57, p < .001$ ); Risk Management scale ( $r = .56, p < .001$ ;  $r = .63, p < .001$ ).

The bias intent classified in the crime reports comprised 116 (54.4%) due to racial or ethnic bias, 56 (26.5%) due to the victim's sexual orientation, 25 (11.3%) due to religious bias, and 6 (2.9%) due to gender bias. ANOVA results indicated no statistically significant differences in mean scores on HCR-20 indices as a function of bias intent.

Finally, comparisons were made between bias offenders who were classified on the crime reports as having been a member of a hate-oriented group or racially motivated criminal gang and the other offenders in the sample. Relative to the other offenders, hate gang members had higher scores on the HCR-20 Historical ( $t = 3.41, p < .001$ ), Clinical ( $t = 2.01, p < .01$ ), and Risk Management ( $t = 4.91, p < .001$ ) scales.

Findings were discussed in terms of their implications for clinical assessment and intervention.

## Project and Scholarly Work

Folino, J., Cáceres, M. S., Campos, M. L., Silveri, M., Ucin, S., & Ascazibar, M. (2005). Evaluación de factores dinámicos de riesgo de violencia [Assessment of Dynamic Risk Factors of Violence]. *Archivos de Psiquiatría*, 68, 285-300.

### Summary

Abridged abstract (English translation of the study not available):

Different dynamic factors and violent recidivism were assessed in 25 prisoners on parole from the Province of Buenos Aires Penitentiary System, including the Risk Management scale of the Argentinean version of the HCR-20. The prevalence of risk factors was linked to drug abuse and socioeconomic deprivation. Exposure to

destabilizers was the factor associated most strongly with violent recidivism.

## Project and Scholarly Work

Gray, N. S., Hill, C., McGleish, A., Timmons, D., MacCulloch, M. J., & Snowden, R. J. (2003). Prediction of violence and self-harm in mentally disordered offenders: A prospective study of the efficacy of the HCR-20, PCL-R, and psychiatric symptomatology. *Journal of Consulting & Clinical Psychology*, 71, 443-451.

### Summary

The authors investigated prospectively the predictive validity of the HCR-20 (Total, H-scale, and C-scale), PCL-R, Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974), and Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962) with respect to institutional misconduct and self-harm/suicide. The R-scale was not scored because evaluations were completed within 2 weeks of admission at which time participants' social situations at discharge were difficult to project. The sample consisted of 34 mentally disordered offenders admitted to one of two medium-secure hospital units in the U.K. All participants had committed a serious offense (e.g., manslaughter, sexual offense, physical assault, arson). Almost half were diagnosed with paranoid schizophrenia (44.1%; 23.5% depression; 14.7% personality disorder; 17.6% 'other,' such as bipolar disorder, organic disorder, neurosis). At admission, the mean age was 33 years ( $SD = 11.9$ ). Participants primarily were male (76.5%) and White (85.3%).

Incidents relating to four outcome criteria were measured: (1) verbal aggression, (2) aggression to property, (3) physical aggression to staff or other patients, and (4) self-harm or suicide. All incidents were assessed using a structured record form developed for this study (the Aggression Vulnerability Scale; AVS). The authors reported good intraclass correlations for the AVS for all four outcome criteria in a pilot study. AVS ratings were completed weekly for 3 months (or until the participant was transferred off the unit) using nursing records, incident report forms, and weekly interviews with the primary nurses.

The mean scores for the measures were as follows. H-scale (10.2;  $SD = 3.4$ ; range 3-18); C-scale (5.4;  $SD = 2.6$ ; range 1-10); PCL-R total (10.4;  $SD = 1.5$ ; range 0-33); Factor 1 (3.9;  $SD = 4.3$ ); Factor 2 (5.5;  $SD = 4.2$ ); BHS (8.6;  $SD = 6.4$ ; range 1-19); BPRS (42.0;  $SD = 2.7$ ; range 17-74). Correlations between the measures tended to be high and significant. Notably, there was an especially strong relationship between the BPRS and the HCR-20 total score (.63) and C-scale (.71).

The authors used correlations, ROC analysis, odds ratios, and the Mann-Whitney U Test (a nonparametric comparison of means for those scoring higher versus those scoring lower than the median value) to examine predictive validity for the HCR-20, PCL-R, BHS, and BPRS with respect to each of the four dependent measures. For verbal aggression and HC total score:  $r = .53$ ,  $p < .001$ ; AUC = .79,  $p < .001$ ; OR = 2.55; Mdn split  $p = < .01$ . For verbal aggression and H-scale:  $r = .43$ ,  $p < .01$ ; AUC = .73,  $p < .05$ ; OR = 2.21; Mdn split  $p = < .01$ . For verbal aggression and C-scale:  $r = .49$ ,  $p < .01$ ; AUC = .74,  $p < .01$ ; OR = 2.27; Mdn split  $p = < .05$ . For violence to property and HC total score:  $r = .56$ ,  $p < .001$ ; AUC = .83,  $p < .001$ ; OR = 8.85; Mdn split  $p = < .01$ . For violence to property and H-scale:  $r = .54$ ,  $p < .001$ ; AUC = .82,  $p < .001$ ; OR = 8.45; Mdn split  $p = < .01$ . For violence to property and C-scale:  $r = .49$ ,  $p < .001$ ; AUC = .77,  $p < .001$ ; OR = 3.85; Mdn split  $p = .09$ . For physical aggression and HC total score:  $r = .53$ ,  $p < .001$ ; AUC = .81,  $p < .001$ ; OR = 8.25; Mdn split  $p = < .01$ . For physical aggression and H-scale:  $r = .43$ ,  $p < .01$ ; AUC = .77,  $p < .001$ ; OR = 7.46; Mdn split  $p = < .05$ . For physical aggression and C-scale:  $r = .49$ ,  $p < .01$ ; AUC = .79,  $p < .001$ ; OR = 7.42; Mdn split  $p = < .05$ . The HCR-20 was not predictive of self-harm, which is not surprising given that it was developed to predict risk of violence to others.

Values for the predictive indices yielded for the HCR-20 were larger than those for the PCL-R. The PCL-R total score was, however, a useful predictor for violence to property and physical violence ( $r_s = .35 - .38$ ; AUCs = .70-.76; ORs = 1.88 – 2.84). The PCL-R was not a significant predictor of verbal aggression or self-harm.

## Project and Scholarly Work

Habermeyer, E., Puhlmann, P., Passow, D., & Vohs, K. (July, 2008). Preventive detention (Section 66 of the German Penal code): Data concerning the inmates and the quality of expert testimonies. Paper presented at the annual conference of the International Association of Forensic Mental Health Services, Vienna, Austria.

## Summary

The authors examined rulings and expert testimony given in 304 cases which led to Preventive Detention between 1991-2001 in 4 states of Germany. Of the 304 cases, 224 ruling were available to be analysed and 227 expert testimonies were analyzed (3 of the cases were seen by 2 experts). Eighty-seven percent of the cases were violent offences (17% murder/homicide cases and 30% robbery) and 50% were sexual offences. Juvenile delinquents composed the majority of cases (84%), 45.1% had violated parole and 15.5% were delinquent in prison. Preventive Deten-

tion is intended for “social disintegrated recurrent offenders with noticeable personality problems or personality disorders.” About half of the sample had a mental disorder, mostly a Cluster B personality disorder and 26% had a substance disorder. In testimonies that did not provide a diagnosis (96 cases) 72 cases included descriptions of personality traits. Generally 66% had noticeable personality problems.

The content analysis focused on whether data relevant for the HCR-20, PCL-R, SVR-20, and Static-99 was found in the expert’s testimony. The testimony did not include a standardized assessment of risk factors (HCR used in 1 case) but the average testimony contained information about 9.9 PCL-R and 11.6 HCR items. Items that were seldom mentioned were Psychopathy, Need for stimulation, Conning/manipulative, Superficial charm, Pathological lying, Lack of personal support, Parasitic lifestyle, Stress, Unresponsive to treatment and Exposure to destabilizers. For the SVR-20, items that were mentioned less than 20% of the time were Negative attitude toward intervention, Escalation in frequency or severity of sex offences, Lacks realistic plans, Suicidal/homicidal ideation, Attitudes that support or condone sex offences, and Psychopathy. In the Static-99, the type of victim and convictions for non-contact sex offences were mentioned less than 20% of the time.

## Project and Scholarly Work

Howard, B. (2007). Examining predictive validity of the Salient Factor Score and HCR-20 among behavior health court clientele: Comparing static and dynamic variables. Dissertation, Pacific Graduate School of Psychology, Palo Alto, CA.

## Summary

The current retrospective study investigated two risk assessment instruments (Salient Factor Score and the CR subscales of the HCR-20 in 64 adult male and female inmates. The sample was incarcerated in San Francisco County Jails, diagnosed with a serious Axis I disorder, and enrolled in Behavioral Health Court (BHC). Participants were randomly chosen from the BHC. The Salient Factor Score (SFS; static risk factors) and the C and R subscales of the HCR-20 (dynamic risk factors) were coded based on charts from the jails. The study evaluated the predictive validity of the two risk assessment instruments for general and violent recidivism in the community over a 2 year

period. The outcome was re-arrest (for a felony or serious misdemeanor) which was coded from San Francisco county arrest records. General recidivism was defined as crimes that did not involve threatening or assaultive behavior against another person or animal. Violent recidivism was defined as behaviours that were aggressive in nature (e.g., possession of a weapon, physical assault, robbery, aggressive interpersonal interactions).

The sample was 68.8% male with an age range of 20 to 69 (32.8% between 30-39 years of age). The ethnicity of the sample was 45.3% Black-Americans, 23.4% Caucasians, 12.5% Asian/Pacific Islanders, and 10.9% Latinos. The majority of the sample had prior arrests ( $n = 58$ ) and a history of violence ( $n = 50$ ). Schizophrenia was the most prevalent Axis I disorder (42.2%), followed by schizoaffective disorder (23.4%), psychotic disorder not otherwise specified (12.5%), major depressive disorder (6.3%), bipolar I (4.7%), and mental retardation (3.1%).

Inter-rater reliability on the HCR-20 was assessed with two raters coding 21 randomly chosen participants. The IRR of the CR-10 composite was good with interclass correlations between .77 and 1.00, with the exception of Item 3 on the Clinical Scale (active symptoms of major mental illness. The mean score on the SFS was 6.78 ( $SD = 2.56$ ), which falls within the “good prognosis” category. The mean of the CR-10 was 10.30 ( $SD = 3.37$ ). Overall, the R subscale was the only predictor of general recidivism (with the SFS and C subscale in the model) and the C subscale was the only predictor of violent recidivism (with the SFS and R subscale in the model). For general recidivism, the instruments showed moderate predictive ability (Cr-10  $AUC = .67$ , R subscale  $AUC = .73$ ; SFS  $AUC = .67$ . For violent recidivism, the CR-10 produced an  $AUC$  of .65 and the R subscale produced an  $AUC$  of .68. The SFS was not a significant predictor.

### Project and Scholarly Work

Kroner, D. G., & Mills, J. F. (2001). The accuracy of five risk appraisal instruments in predicting institutional misconduct and new convictions. *Criminal Justice and Behavior*, 28, 471-489.

#### Summary

Kroner and Mills (2001) completed a prospective study of institutional misconduct among offenders. At intake, they completed the HCR-20, along with other instruments, on a sample of 97 consecutively admitted Canadian federal offenders. In terms of interrater reliability,  $ICC_1$  was reported to be .85 for the total score. The HCR-20 correlated .32 with minor misconducts, and .11 with major misconducts, and was not significantly different than the PCL-R, the VRAG, or the LSI-R. For post-release analyses, the HCR-

20 correlated at .28, .16, .21, and .39 with total convictions, violent convictions, nonviolent convictions, and revocations, respectively. Again, there were no significant differences between measures.

It should be pointed out that, although there were no significant differences between measures, that the coding procedure was not optimal for community violence. The instruments were coded at admission, and this score was used to predict violence after release from the institution, some years later. This has particularly strong implications for measures that will change over time, such as the C and R scale and the LSI-R. Further, institutional outcome criteria (misconduct) included mostly *non-violent* indices, such as improper dress, disrespect, noncompliance with directions, drug use, and refusing urinalysis.

Kroner and Mills (2002/personal communication). Unpublished supplement for Kroner and Mills (2001), above.

#### Summary

Authors reported correlations that were not published in their original report, describing the relationship between risk measures (HCR-20 and VRAG) and violent re-offending over a longer period than published in the article.

Significant correlations between the HCR-20 items and violent behavior are as follows. Total score ( $r = .37$ ;  $p < .01$ ), H2 ( $r = .28$ ;  $p < .05$ ), H3 ( $r = .28$ ;  $p < .05$ ), H4 ( $r = .23$ ;  $p < .05$ ), H8 ( $r = .22$ ;  $p < .05$ ), C1 ( $r = .27$ ;  $p < .05$ ), C2 ( $r = .34$ ;  $p < .01$ ), C4 ( $r = .28$ ;  $p < .05$ ), C5 ( $r = .25$ ;  $p < .05$ ), R1 ( $r = .26$ ;  $p < .05$ ), R2 ( $r = .26$ ;  $p < .05$ ), R4 ( $r = .35$ ;  $p < .01$ ) and R5 ( $r = .27$ ;  $p < .05$ ).

Significant correlations between the VRAG and violent behavior are as follows: Total score ( $r = .28$ ;  $p < .05$ ), item #2 ( $r = .29$ ;  $p < .01$ ), item #6 ( $r = .28$ ;  $p < .05$ ) and item #11 ( $r = .27$ ;  $p < .05$ ).

### Project and Scholarly Work

Logan, C., Doyle, M. & Dolan, M. (2001, November). *Risk assessment in English male offenders who have committed single acts of serious violence or sexual violence: how can the past be used to predict the future?* Paper presented at the International Conference, Violence Risk Assessment and Management: Bringing Science and Practice Closer Together, Sundsvall, Sweden.

#### Summary

This research studied the differences on the HCR-20, VRAG and PCL-R between groups of men who committed single acts of violence vs. men who have a history of committing multiple acts of violence. The authors point out that there may be difficulty in predicting future actions of men who have only committed one single act of violence due to the fact that that risk assessment research is predicated on the assumption that static indicators of past behavior can be used to predict future behavior. Subjects were male mentally disordered offenders, 21 years of age or older with one or more convictions for violence or sexual violence.

In terms of the HCR-20, there were differences between groups on many individual items from the three subscales. On the H-scale, there were significant differences on H2, H7, H8, H9, and H10, with repeat offenders scoring higher on all of these items. On the C-scale, there were significant differences on C2, C3 and C5, with repeat offenders scoring higher on C5 and C2 and lower on C3. On the R-scale, there were significant differences on R1, R2, R3 and R4, with repeat offenders scoring higher on all of these items. In terms of the PCL-R, repeat offenders scored significantly higher on the total score and on the factor two scale. In terms of the VRAG, repeat offenders scored significantly higher on the total score.

### Project and Scholarly Work

Logan, C. & Watt, K. (2001, November). *Structured professional guidelines approaches to risk assessment: Single practitioner vs. multidisciplinary team administration*. Paper presented at the International Conference, Violence Risk Assessment and Management: Bringing Science and Practice Closer Together. Sundsvall, Sweden.

### Summary

This research project investigated the comparability of outcomes when the HCR-20 was given in single administrations or in group administrations. This study sampled from a group of 85 male mentally disordered offenders in a personality disorder unit of a major forensic psychiatric facility in England. Descriptive statistics for group administrations were as follows: HCR-20 Total score,  $N = 68$ ,  $M = 27.88$  ( $SD = 5.01$ ); H-score,  $N = 73$ ,  $M = 15.15$  ( $SD = 2.53$ ); C-scale,  $N = 84$ ,  $M = 5.27$  ( $SD = 2.2$ ) and R-scale,  $N = 80$ ,  $M = 7.5$  ( $SD = 2.27$ ). Descriptive statistics for single administrations were as follows: HCR-20 Total score,  $N = 36$ ,  $M = 27.33$  ( $SD = 4.76$ ); H-score,  $N = 36$ ,  $M = 14.75$  ( $SD = 2.45$ ); C-scale,  $N = 36$ ,  $M = 5.53$  ( $SD = 1.95$ ) and R-

scale,  $N = 36$ ,  $M = 7.06$  ( $SD = 1.67$ ). None of these scores for the group or single administrations were significantly different from each other.

Correlations ( $\rho$ ) between group and single administrations were mostly significant. HCR-20 total ( $r = .428$ ,  $p < .05$ ), H-scale ( $r = .654$ ,  $p < .01$ ) C-scale ( $r = .503$ ,  $p < .05$ ) and R-scale ( $ns$ ).

The authors concluded that if there are no differences between single and group administrations of the HCR-20, then why not make use of group administrations.

### Project and Scholarly Work

Mills, J.F., Kroner, D.G., & Hemmati, T. (2007). The validity of violence risk estimates: An issue of item performance. *Psychological Services*, 4(1), 1-12.

### Summary

The current study examined the ability of individual items on the HCR-20 and VRAG to discriminate between violent recidivists and nonrecidivists within an offender population. Participants were 83 volunteers drawn from a population of incarcerated men in federal custody in Canada (sentenced to 2 years or more). The ages of the participants ranged from 18 to 55 years, with a mean age of 27.9 years ( $SD = 8.1$ ). The majority of the sample was Caucasian ( $n = 67$ ) followed by African American ( $n = 7$ ), Native North American ( $n = 5$ ), and Asian ( $n = 4$ ). Participant's most serious index offenses were assaultive ( $n = 51$ ), robbery ( $n = 18$ ), criminal negligence/driving ( $n = 7$ ), arson ( $n = 6$ ), and drug related ( $n = 1$ ). The mean number of convictions and incarcerations for these participants was 12.9 ( $SD = 13.5$ ) and 4.6 ( $SD = 5.3$ ), respectively.

Participants were followed-up up in the community via offender correctional files and official police records. Participants were classified as either violent recidivists or nonrecidivists keeping with the methodology of the original VRAG study. Violent offenses included uttering threats, assault (on someone other than a peace officer), sexual assault, armed robbery, and robbery with violence. Withdrawn and dismissed charges were counted as offenses only when there was compelling file information to indicate that the participant did commit the offense. The average follow-up period for all offenders in the sample was 4.6 years ( $SD = 337.4$  days). The number of days to an act of violent recidivism ranged from 16 days to 4.3 years ( $M = 561.2$  days,  $SD = 464.7$  days).

Assessments were conducted within 8 to 12 weeks of arrival for the purpose of identifying risk level and determining management and programming in federal custody. Ratings were made by trained clinicians. Ratings of the HCR-20 and VRAG were based on information from an interview, correctional file review, and police records. The

base rate for violent offending was 35% (29 violent recidivists and 54 nonrecidivists). For the violent recidivists, the mean score on the HCR-20 was 18.3 ( $SD = 8.4$ , range = 0-37). The mean score for the H subscale was 9.2 ( $SD = 4.4$ , 0-18), for the C subscale 4.1 ( $SD = 2.2$ , 0-9) and for the R subscale the mean score was 4.9 ( $SD = 2.7$ , 0-10). The mean score of the VRAG was 8.43 ( $SD = 11.1$ , 12-31).

The HCR-20 ( $AUC = .72$ ) and all of its subscales (H-10,  $AUC = .67$ ; C-5  $AUC = .75$ ; R-5,  $AUC = .71$ ) were significantly related to violent recidivism. Similarly, the VRAG was also significantly predictive of violent recidivism ( $AUC = .67$ ). At the item level, the analysis showed that 15 of 20 HCR-20 items were significantly related to the number of days to a violent offense, whereas only 5 of 12 items of the VRAG were related to the number of days to a violent offense. Among the items of the HCR-20 most strongly related ( $r = .30$  or higher) to time to reoffence were noncompliance (R4), exposure to destabilizers (R2), age at first violent offense (H2), previous violence (H1), and negative attitudes (C2). Only one item of the VRAG was strongly related to days to violent reoffence: failure on prior conditional release (V6;  $r = .41$ ). The final step of the analyses was to modify both the HCR-20 and VRAG, removing the items that were not related to violent outcome in our sample. The strength of the relationship between the modified versions of the instruments and violent outcome was then analyzed in the same manner as that for the original instruments. The relationship with the outcome improved little over the original scales for both instruments: HCR-20 ( $AUC = .73$ ); VRAG ( $AUC = .69$ ).

### See also

Kroner, D. G., & Mills, J. F. (2001). The accuracy of five risk appraisal instruments in predicting institutional misconduct and new convictions. *Criminal Justice and Behavior*, 28, 471-489.

### Project and Scholarly Work

Neves, A. C., & Gonçalves, R. A. (July, 2008). Criminal recidivism and violation of conditional release: A comparative study of the LSI-R and the HCR-20 with Portuguese Probationers/parolees. Poster presented at the annual conference of the International Association of Forensic Mental Health Services, Vienna, Austria.

### Summary

The purpose of the current prospective study was to explore the use of the Portuguese experimental version of the HCR-20, the LSI-R, LSI-R:SV and the PCL-R (as part of the HCR assessment). The sample comprised 158 male and female adult Portuguese probationers (75) and parol-

ees (83), randomly selected from the current population of the Portuguese Probation Service. Participants were followed-up for an average of 13 months ( $M = 12.82$ ,  $SD = 1.58$ ). Assessments were completed based on data collected through individual interviews, file record review, and information from probation/parole officers. Outcome data was based on official records and self-report of participants. The general outcome measure was the occurrence or not during the follow-up period of re-offending and/or violent behaviour (self-reported or officially detected) and technical violations of probation/parole which required court intervention or led to revocation of status.

The mean of the HCR-20 total was 15.34 ( $SD = 6.64$ , 0-32) and for the LSI-R total the mean was 20.87 ( $SD = 7.35$ ; 6-39). The base rates for the outcome was as follows: 35.4% re-offended, 20.9% engaged in violent behaviour, and 13.9% violated their parole/probation. The authors investigated concurrent validity of the HCR-20 and the LSI-R. There was a fair degree of overlap between the HCR and the LSI-R ( $r = .82$ ,  $p < .01$ ), the LSI-R Criminal History and H subscale ( $r = .588$ ,  $p < .01$ ), the LSI-R Leisure/Recreational and R subscale ( $r = .55$ ,  $p < .01$ ), the LSI-R Attitudes and C subscale ( $r = .49$ ,  $p < .01$ ). The LSI-R total score showed the highest correlation with the R subscale ( $r = .74$ ,  $p < .01$ ) and the HCR total score showed the highest correlation with the LSI-R Leisure/Recreation subscale ( $r = .52$ ,  $p < .01$ ). Both the HCR and the LSI-R were good predictors of re-offending (HCR-20  $AUC = .84$ ; LSI-R  $AUC = .79$ ). For re-offending both measures produced large AUCs (LSI-R  $AUC = .84$ ; HCR-20  $AUC = .83$ ). For violent outcome, the HCR-20 had the largest AUC (.81) when compared with the LSI-R ( $AUC = .75$ ). For violation of probation/parole, the HCR-20 again had a larger AUC (.81) than the LSI-R (.73).

### Project and Scholarly Work

Pham, T. H., Chevrier, I., Nioche, A., Ducro, C., & Réveillère, C. (2005). Psychopathie, évaluation du risque, prise en charge [Psychopathy, risk assessment and rehabilitation]. *Annales Médico-Psychologiques*, 163, 878-881.

### Summary

Abridged abstract (English translation of the study not available):

The convergent validity between the PCL-R, HCR-20, and DSM-IV Axis I and II diagnoses was studied in a sample of 60 male prisoners in France. Convergence between the HCR-20 and the PCL-R was high. The Historical scale correlated more strongly with PCL-R Factor 2, whereas the Clinical scale correlated more strongly with PCL-R Factor 1. The diagnoses of antisocial, borderline and nar-



cisistic personalities, as well as drug dependence, were associated with HCR-20 total score. "Suicidal Risk" and "Generalized Anxiety" correlate negatively with the PCL-R total and Factor 1 scores. HCR-20 total scores, and especially scores on the Historical scale, were associated with having committed robbery and assault. PCL-R total score was associated with commission of robbery. Neither measure correlated positively with having committed homicide or sexual offences.

### Project and Scholarly Work

Pham, T. H., Claix, A., & Remy, S. (2000, June). *Assessment of the HCR-20 in a Belgian prison sample*. Paper presented at the 4<sup>th</sup> European Congress on Personality Disorders. Paris, France.

#### Summary

This study collected HCR-20 and PCL-R data from 68 offenders in a Belgian high security prison. The mean follow-up period, available for 38 offenders, was 1010 ( $SD = 894$ ) days. Interrater reliability, based on a subsample of 10 offenders, was .85 (Pearson  $r$ ) for the HCR-20 Total Scale Score. The AUCs between HCR-20 indices and violent recidivism were as follows: HCR-20 Total Scale (.76); Historical Scale (.77); Clinical Scale (.74); Risk Management (.71). PCL-R AUCs were .82 (Full Scale), .77 (Factor 1), and .75 (Factor 2). Based on a subset of 20 offenders, correlations between the HCR-20 indices and the Buss and Perry Aggression Questionnaire ranged from .29 to .57, and with the Heilbrun Index of Dangerousness in the Community, from .32 to .37.

### Project and Scholarly Work

Ross, T., Hintersdorf, M., Hufnagel, S., Konheisner, S., Schellbach-Matties, R., & Pfäfflin, F. (2005). COMSKILLS - ein forschungsprogramm zur erfassung lebenspraktischer fertigkeiten psychisch kranker straftäter [COMSKILLS: Assessing community living skills in offender groups]. *Psychiatrische Praxis*, 32, 393-398

#### Summary

Abridged abstract (English translation of the study not available):

This study presents data on German offenders from a larger initiative undertaken in Germany, United Kingdom, The Netherlands and Norway to develop a unified approach to the assessment of social risk and related behaviours in offender groups. The PCL-R, HCR-20; SCL-90-R; BDHI-D, and Behavioural Status Index (BEST-Index)

were administered to 231 mentally ill offenders. The present study reported results from a sub-sample of 89 German offenders. The BEST-Index shows convergent validity with respect to a social risk criterion and it helps to determine an objective database for the improvement of caregiver assessments, related care planning, and delivery.

### Project and Scholarly Work

Stadtland, C., & Nedopil, N. (July, 2008). Recidivism in female offenders: Evidence-based structured risk assessment comparing PCL-R, HCR-20, VRAG, and ILRV. In (Chair), *Structured risk assessment in female offenders*. Symposium presented at the annual conference of the International Association of Forensic Mental Health Services, Vienna, Austria.

#### Summary

In this study, 86 female offenders between 1993 and 2007 were assessed using the PCL-R, the HCR-20, the VRAG, and the ILRV. Approximately 26% of the sample had no psychiatric diagnosis, 24.4% had a substance abuse disorder, 15.1% had a mood disorder and 11.6% had schizophrenia. The participants were at risk for an average of 8 years ( $SD = 6$  years, range 0-18). The results indicated that 34% committed a new offense, 29% of which were non-violent offences and 5% were violent offences. Only the AUC for the R subscale of the HCR-20 was significant (.79). The AUCs for recidivism for the HCR-20, H and C subscale ranged from .72 to .74 but the confidence intervals were very large, in one case ranging from .37 to 1.00. In addition, the PCL-R total score nor the Hare or Cooke Factors were significant. In contrast, the ILRV D scale was significantly related to the outcome ( $AUC=.81$ ) and the VRAG was a significant predictor ( $AUC = .86$ ).

### Project and Scholarly Work

Warren, J. I., South, S. C., Burnette, M. L., Rogers, A., Friend, R., Bale, R., Van Patten, I. (2005). Understanding the risk factors for violence and criminality in women: The concurrent validity of the PCL-R and HCR-20. *International Journal of Law and Psychiatry*, 28, 269-289.

#### Summary

The potential usefulness of the PCL-R and HCR-20 in determining level of risk for violent behaviour and other forms of criminality was investigated. Participants were part of a larger study that examined DSM-IV personality disorders using the SCID-II. In conducting PCL-R and HCR-20 interviews, all 261 inmates who had completed the SCID-II interviews approximately 12 months earlier

and who were still housed at the maximum-security prison were approached and invited to participate in this subsequent stage of data collection. The final sample comprised 132 women. Sixty percent of the women were under the age of 32 years and 65% were of minority status. Seventy-seven percent of the sample was serving sentences of greater than 5 years and 83% had criminal histories containing at least one conviction for a violent crime.

Each inmate's file was reviewed by six coders who summarized information about the inmate's family history, psychiatric history, employment history, and criminal record. The PCL-R and HCR-20 coders reviewed these summary files before they conducted their assessment interviews. Scores on three HCR-20 items were obtained from alternative sources that were thought to be superior to those obtained through a clinical interview: H5 was coded from data obtained for the administration of the Diagnostic Interview Schedule (DIS-IV) for the Alcohol and Substance Abuse module; H9 was scored based upon data obtained in the SCID-II interview; C1 was coded as 0 if inmates received a total Barratt Impulsivity Scale score below 40, 1 if they scored between 40 and 79, and 2 if scoring above 80.

Reliability coding of 28 cases yielded the following intraclass correlation coefficients (ICCs): HCR-20 Total (0.94); Historical scale (0.92); Risk Management scale (0.60); Clinical scale (0.76); PCL-R Total (.95); PCL-R Factor 1 (.88); PCL-R Factor 2 (.99).

Information for both the instant offence and prior offences was obtained from inmates' prison files. Violent crimes were defined as murder, assault, and battery. Potentially violent crimes included robbery, kidnapping, and arson. Crimes against persons were defined as negligent homicide, contributing to the delinquency of a minor, hit and run, coercion, unlawful restraint, harassment, criminal possession of weapon, menacing, and reckless endangerment. Property crimes included breaking and entering, tampering, trespassing, larceny, auto theft, shoplifting, possession of stolen property, forgery, fraud, uttering, bribery, and conspiracy. Minor crimes were considered to include parole and probation violations, driving while intoxicated, public drunkenness, failure to appear, gambling, resisting arrest, loitering, public lewdness, traffic infractions, and prostitution. General categories of sex crimes (rape, sexual assault) and drug crimes (possession) also were coded. An overall category of total violent crimes subsumed the violent, potentially violent, crimes against persons, and sex categories, and an overall category of total non-violent crimes subsumed the property, drugs, and minor crime categories.

Descriptive characteristics and inter-rater reliability for the HCR-20 indices were as follows: Total ( $M = 20.36$ ,  $SD = 6.87$ ,  $SEM = 0.60$ , range 2-35,  $ICC = .94$ ); Historical scale

( $M = 11.21$ ,  $SD = 3.62$ ,  $SEM = 0.32$ , range 2-19,  $ICC = .92$ ); Clinical scale ( $M = 3.53$ ,  $SD = 1.90$ ,  $SEM = 0.17$ , range 0-9,  $ICC = .60$ ); Risk Management scale ( $M = 5.61$ ,  $SD = 2.52$ ,  $SEM = 0.22$ , range 0-10,  $ICC = .76$ ).

Descriptive characteristics and inter-rater reliability for the PCL-R indices were as follows: Total ( $M = 22.80$ ,  $SD = 6.98$ ,  $SEM = 0.61$ , range 3-36,  $ICC = .95$ ); Hare Factor 1 ( $M = 9.31$ ,  $SD = 3.82$ ,  $SEM = 0.33$ , range 1-16,  $ICC = .88$ ); Hare Factor 2 ( $M = 10.82$ ,  $SD = 3.89$ ,  $SEM = 0.34$ , range 0-18,  $ICC = .99$ ); Cooke Factor 1 ( $M = 4.89$ ,  $SD = 2.09$ ,  $SEM = 0.18$ , range 0-8,  $ICC = .70$ ); Cooke Factor 2 ( $M = 4.41$ ,  $SD = 2.37$ ,  $SEM = 0.21$ , range 0-8,  $ICC = .88$ ); and Cooke Factor 3 ( $M = 6.73$ ,  $SD = 2.42$ ,  $SEM = .21$ , range 0-10,  $ICC = .78$ ).

Correlations between indices of the HCR-20 and PCL-R ranged between .20 ( $p < .05$ ; Historical scale and Cooke Factor 1) and .81 ( $p < 0.001$ , HCR-20 Total and Hare Factor 2). All correlations were significant at least at the  $p < .05$  level.

The relation between mean HCR-20 and PCL-R total scores and conviction for different types of past violent and non-violent crimes was examined. Both measures demonstrated a similar pattern on these crime characteristics. Compared to inmates who had not been convicted of past murder, women with such convictions scored significantly lower on the PCL-R ( $M = 19.77$  vs. 24.22),  $p < .001$ , and HCR-20 ( $M = 17.50$  vs. 21.69),  $p < .01$ . In contrast, compared to inmates who had not been convicted of past property crimes, women with such convictions scored higher on the PCL-R ( $M = 25.06$  vs. 21.76) and HCR-20 (22.95 vs. 19.17), both  $ps < .01$ .

Minor crimes showed a similar pattern to property crimes, with women who had such past convictions scoring significantly higher than women without such convictions on the PCL-R (24.23 vs. 19.17) and HCR-20 (22.05 vs. 16.16), both  $ps < .001$ . The only other significant difference observed was that women who had been convicted of a past potentially violent crime had higher PCL-R scores than women without such convictions (24.75 vs. 22.03,  $p < .05$ ). The HCR-20 did not differentiate women with and without past convictions for potentially violent crimes. Neither measure significantly differentiated women in the remaining community crime categories (i.e., violent, sex, and drug). Further, there were no significant differences between high and low scorers on either measure in terms of whether they had been involved in previous institutional (prison) violence. In terms of the HCR-20 scales, the only crime category in which a significant difference was observed was for minor crimes: women with such convictions had higher mean scores on the Historical scale (12.11 vs. 9.00,  $p < .05$ ).

ROC analyses demonstrated a similar pattern of results for the HCR-20 and PCL-R in predicting various types of past criminal charges. Both measures were most accurate in predicting minor charges: HCR-20 (AUC = .74, SE = .05, 95% CI: .64-.84,  $p < 0.01$ ), PCL-R (AUC = .71, SE = .05, 95% CI = .61-.81,  $p < .01$ ). For both measures, the lowest AUC value obtained was for past first-degree murder: HCR-20 (AUC = .30, SE = .05, 95% CI: .20-.41,  $p < 0.01$ ); PCL-R (AUC = .30, SE = .05, 95% CI: .20-.41,  $p < .01$ ). That is, higher scores on both measures were a better predictor of *not* having first-degree murder charges. Finally, results (which may seem somewhat counterintuitive) demonstrated that neither measure was significantly better than chance in predicting violent charges: HCR-20 (AUC = .49, SE = .05, 95% CI: 0.38-0.59,  $p = ns$ ), PCL-R (AUC = .46, SE = .05, 95% CI = .36-.56,  $p = ns$ ). The authors discussed the implications of these findings for rehabilitation and treatment.

We note that all analyses involved analyses of the relationship between the HCR-20/PCL-R and past crime and violence, rather than future crime and violence.

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**END OF CORRECTIONAL STUDIES**

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## MIXED SETTINGS

### Project and Scholarly Work

Côté, G. (2001, April). *Violent behaviour, PCL-R and HCR-20 among involuntary inpatients, forensic patients and severely mentally disordered inmates*. Paper presented at the First Annual Meeting of the International Association of Forensic Mental Health Services, Vancouver, BC.

#### Summary

Côté observed that much research on the HCR-20 has been carried out in very different settings (i.e., civil psychiatric; forensic psychiatric; severe offenders; general offenders) and set out to evaluate the performance of the HCR-20 as a function of such settings. They sampled from involuntarily committed patients, forensic patients who had been found not criminally responsible on account of mental disorder, and mentally disordered inmates, all of whom resided in institutions throughout the Canadian province of Quebec. Although the study was prospective, the data reported in this presentation were postdictive. Côté used the French translation of the HCR-20. Participants ( $n = 79$  after attrition and refusal factored in, 68 with criminal record data) were evaluated just prior to release into the community. Although both males and females were sampled, the small number of females prompted Cote to drop them from analyses for this presentation.

Interrater reliability, based on a subset of 20 cases, was reported for the H and C scales, respectively, as follows:  $ICC_1 = .88$ ,  $ICC_2 = .93$ ; and  $ICC_1 = .71$ ,  $ICC_2 = .83$ . Alpha was reported to be .93 and .83, respectively, for H and C.

The H scale (with H1 removed) varied significantly across groups with no previous offences ( $M = 8.43$ ;  $SD = 3.10$ ), non-violent offences ( $M = 9.17$ ;  $SD = 3.64$ ) and violent offences ( $M = 13.06$ ;  $SD = 3.36$ ). The Cohen's  $d$  between the violent group and non-violent offence group was large ( $d = 1.11$ ), as it was for the difference between the violent group and the no offence group ( $d = 1.43$ ). The difference between C scores across these groups was not significant, although the effect was large for the violent versus no offences comparison ( $d = .73$ ) (it was small  $-.29$  – for the violent offences versus non-violent offences comparison).

The H scale, without H1, also was larger among correctional inmates ( $M = 14.32$ ,  $SD = 2.87$ ) than forensic patients ( $M = 11.42$ ,  $SD = 3.50$ ), or involuntary patients ( $M = 10.32$ ,  $SD = 3.76$ ) – which is consistent with other research when compared across studies. Côté reported multiple comparison correlation coefficients (eta) of .54 for the H scale, .24 for the C scale, and .50 for the H scale without

H1 with respect to offence group, and .4 (H scale) and .16 (C scale) within the legal status groups.

Côté reported AUC values, using Statistics Canada's definition of violence, of .83 (H), .81 (H without H1), and .61 (C), and .77 (H), .76 (H without H1) and .49 (C) for a more "stringent" definition of violence.

The author claimed that the findings offered support for the HCR-20 in terms of its interrater reliability and validity of the H scale across diverse groups. However, the C scale did not differentiate between groups. The author commented that this is not surprising given that it is meant to measure current dynamic factors, and the outcome measures in this study were all in the past.

### Project and Scholarly Work

Douglas, K. S., & Belfrage, H. (2001). Use of the HCR-20 in violence risk management: Implementation and clinical practice. In K. S. Douglas, C. D. Webster, D. Eaves, S. D. Hart, & J. R. P. Ogloff (Eds.), *The HCR-20 Violence Risk Management Companion Manual* (pp. 41-58). Vancouver, BC/Tampa/FL: Mental Health, Law, and Policy Institute, Simon Fraser University/Department of Mental Health Law & Policy, University of South Florida.

#### Summary

This study was a re-analysis of data that exist from three samples (two cited in this bibliography) for the specific purpose of assessing the degree of change in the Clinical and Risk Management scale and item scores across time and repeated assessments/codings. There were two forensic samples (Belfrage, unpublished raw data; Douglas et al., 1998) and one civil psychiatric sample (Douglas et al., 1999).

In Sample 1 ( $n = 193$  civil psychiatric patients), it was possible to compare C scale and item scores at admission and discharge. Each item declined significantly, and the total score declined from 7.21 to 4.05. All drops in scores were large, as assessed by Cohen's  $d$  ( $ds$  ranged from .89 to 1.75). At admission, 48% of the sample scored in the 8 to 10 range; at discharge, only 3% did so. In Sample 2 ( $n = 175$  forensic patients), all C and R items declined, although the drops were not as large as in Sample 1. For the C Scale total score, Cohen's  $d$  (.36) indicated a smallish size drop, and for the R Scale, a moderate sized drop (.50). In Sample 3, the C scale did not decline, but the R scale did so moderately ( $d = .44$ ). It is possible that in Sample 3, being drawn from a Swedish forensic facility, that the patients were not as acutely disturbed upon admission (in Sweden there is no such concept as "Not Guilty by Reason of Insanity" and people are "sentenced" to treatment in the hos-

pital somewhat liberally), and hence change was not observed.

These findings support the conceptualization of the C and R Scales as dynamic (changeable), and hence as appropriate targets for risk management and violence reduction interventions. The fact that the scores changed without direct efforts to change specific HCR-20 factors suggests that declines may be greater with intervention strategies tailored to dynamic HCR-20 risk factors.

### See also

Douglas, K. S. (1999). HCR-20 violence risk assessment scheme: "International validity" in diverse settings. In J. Monahan (Chair), *Violence risk assessment: Scientist-practitioner approaches in diverse settings*. Symposium presented at the International joint conference of the American Psychology-Law Society and the European Association of Psychology and Law, July, Dublin, Ireland.

## Project and Scholarly Work

Doyle, M. & Dolan, M. (2003, April). *The validity of violence risk assessment instruments in predicting community violence in patients with mental disorder*. Paper presented at the Annual Conference of the International Association of Forensic Mental Health Services, Miami Beach, FL.

### Summary

This study used a prospective design to examine factors that predicted community violence in discharged mental patients. They also compared the contribution of relatively stable risk factors measured at a baseline period with more dynamic factors measured at different time points. The study used 129 discharged patients (75 of whom were male and 37 were female) and collected data at eight and 24 weeks after discharge. 34 of the patients were forensic cases and 78 were non-forensic. For this study, the authors created three violence categories: physical violence (level 1), any other violence (level 2) and any violence (any level 1 or 2 violence). Level 1 types of violence consisted of: hitting with fist, beating someone up, physically forcing sex on someone, threatening with weapon in hand, using a knife or firing a gun, any violence which results in injury. The authors used three types of factors to assess risk. They were: static factors (PCL-SV, H-scale of HCR-20, VRAG, VRS, MAST, age and DAST), dynamic trait factors (PBQ, NAS, BIS, interpersonal CIRCLE subscales), and dynamic state factors (BPRSS, GAF, BVC, HRS, WARS, and Psychotic rating scales for TCO symptoms and hallucinations). Significant *AUCs* for the static factors regarding

any violence were: PCL-SV interpersonal (.64;  $p < .05$ ), PCL-SV social deviance (.66;  $p < .01$ ), PCL-SV total (.67;  $p < .01$ ), VRAG total (.63;  $p < .05$ ), HCR-20 H-scale (.62;  $p < .05$ ). Significant *AUCs* for the static factors regarding level 1 violence were: PCL-SV interpersonal (.68;  $p < .05$ ), PCL-SV social deviance (.67;  $p < .05$ ), PCL-SV total (.69;  $p < .01$ ), VRAG total (.66;  $p < .05$ ), and HCR-20 H-scale (.68;  $p < .05$ ). Significant *AUCs* for the dynamic state factors regarding any violence were: BPRS total (.61;  $p < .05$ ), WARS (.62;  $p < .05$ ). Significant *AUCs* for the dynamic state factors regarding level 1 violence were: BPRS total (.67;  $p < .05$ ) and BPRS hostility-suspicion (.72;  $p < .01$ ).

The scores on the HCR-20 changed significantly across time periods ( $p < .001$ ). The predictive validity for the HCR-20 regarding any violence was: baseline (.65;  $p < .01$ ), discharge (.80;  $p < .001$ ) and eight week follow-up (.69;  $p < .01$ ). The predictive validity for the HCR-20 regarding level 1 violence was: baseline (.63; *ns*), discharge (.80;  $p < .001$ ) and eight week follow-up (.73;  $p < .01$ ).

Regression equations for predicting any violence showed that without the HCR-20 C and R scales included in the model, 72.3% of patients were correctly classified, but with the C and R Scales included in the model, the number correctly classified increased to 85.7%. However, regression equations for predicting level 1 violence showed that without the C and R scales (85.7% correct prediction) was no different than having them included in the model (84.8% correct prediction).

### See also

Doyle, M. & Dolan, M. (2006). Predicting community violence from patients discharged from mental health services. *British Journal of Psychiatry*, 189, 520-526.

Doyle, M. & Dolan, M. (2006). Predicting community violence from patients discharged from mental health services. *British Journal of Psychiatry*, 189, 520-526.

### Summary

In this prospective study of community violence, 129 inpatients in England were assessed prior to discharge from forensic and non-forensic psychiatric services using the HCR-20, PCL:SV, VRAG, Novaco Anger Scale (NAS), and Barratt Impulsiveness Scale (BIS). Most patients were White ( $n = 104$ , 93%) men ( $n = 75$ ; 67%). The mean age of the sample was 40 years ( $SD = 11.5$ ). Most patients ( $n = 78$ ; 70%) were diagnosed either with schizophrenia-spectrum disorder or bipolar disorder.

Nursing staff familiar with the participants were interviewed to gather collateral information to score the risk measures. Because roughly half of the sample did not have a criminal history, VRAG ratings technically were not completed using standard procedures, although the authors of the VRAG have themselves published studies using modified versions of the VRAG (Harris, Rice, & Camilleri, 2004), and hence this approach seems justifiable. The intraclass correlation coefficient (ICC) for the HCR-20 Historical scale between two researchers based on 20 cases was 0.97. For the Clinical and Risk Management scales, ICCs between three raters based on seven cases were 0.85 and 0.83, respectively.

Patients ( $n = 112$ ) were followed-up in the community on average 24 weeks after discharge to assess whether violence had occurred. Violent behavior included any acts that resulted in physical injury, sexual assaults, aggressive acts that involved the use of a weapon, and threats made with a weapon in hand (i.e., using the MacArthur definition of violence). Base rates of violence varied as a function of measurement method. Using only official records, 10 participants (9%) were identified as having committed a violent act. In terms of self-report, 12 participants reported 16 acts of violence and 15 (13%) collateral informants reported 46 acts of violence. When the data sources were merged, the base rate of violence increased significantly to 19%.

The base rate of violence did not differ significantly between the groups of forensic and non-forensic patients. There were no significant differences between violent and non-violent groups in terms of age, gender, ethnicity or personality disorder diagnosis. Violent patients ( $n = 21$ ) had significantly higher scores than the nonviolent patients ( $n = 91$ ) on all measures. Mean scores for the violent vs. nonviolent patients, respectively, were as follows: HCR-20 Historical Scale (12.71 ( $SD = 3.87$ ) vs. 10.30 ( $SD = 4.36$ );  $d = .58$ ); PCL:SV total (13.43 ( $SD = 3.87$ ) vs. 9.77 ( $SD = 5.65$ );  $d = .76$ ); VRAG total (2.29 ( $SD = 10.01$ ) vs. -3.64 ( $SD = 12.40$ );  $d = .53$ ). The largest area under the curve (AUC) was for the HCR-20 total score (0.80). AUCs for other measures were: HCR-20 Historical Scale (0.68); PCL:SV total (0.69); VRAG (0.66); BIS (0.72); NAS (0.71).

Logistic regression analyses were completed to examine the relative contribution of the HCR-20 Clinical and Risk Management scales. The variables entered on the first model were those that demonstrated the most significant differences in the univariate and receiver operating characteristic analyses (i.e., PCL:SV total, HCR-20 Historical scale (which was entered with the PCL: SV item removed), VRAG total (without the PCL: SV item), BIS cognitive sub-scale and NAS cognitive sub-scale). In this model, only the BIS and NAS cognitive sub-scales independently predicted violence with significant odds ratios

(1.18 and 1.11, respectively). When the scores on the HCR-20 Clinical and Risk Management scales were added, only these scales independently predicted community violence post-discharge, indicating that the HCR-20 Clinical and Risk Management scales added significant incremental validity to the baseline measures (although the proportion correctly classified only increased from 86% to 88%). Moreover, even when logistic regression analyses were conducted to control for several possible confounding variables (i.e., age, gender, length of inpatient stay and forensic status), the HCR-20 total score significantly predicted post-discharge violence.

Findings suggest that although risk measures based on historical factors are important for assessing violence risk, patients' current functioning on dynamic factors that relate to mental illness and risk management significantly improve predictive accuracy.

### See also

Doyle, M. & Dolan, M. (2003, April). *The validity of violence risk assessment instruments in predicting community violence in patients with mental disorder*. Paper presented at the Annual Conference of the International Association of Forensic Mental Health Services, Miami Beach, FL.

### Project and Scholarly Work

Folino, J. O., Marengo, C. M., Marchiano, & Ascazibar, M. (2004). The risk assessment program and the Court of Penal Execution in the province of Buenos Aires, Argentina. *International Journal of Offender Therapy and Comparative Criminology*, 48, 49-58.

### Summary

This study provides descriptive data on a risk assessment pilot program that was implemented in September 2001 concurrently with the establishment of the Court of Penal Execution (a special jurisdiction court in Buenos Aires). The sample is a subset of the 1,370 cases admitted to the Court during the first 18 months (September 2001 to February 2002). Of these cases, 105 were serving a sentence either in prison or a forensic psychiatric unit. The sample comprises all cases who were candidates for conditional release ( $N = 65$ ). Participants were men with a mean age of 27.7 years ( $SD = 7.8$ ). There were 55 (85%) convicted offenders and 10 (15%) insanity acquitees. The majority (61.5%) reported a history of severe drug abuse. A major mental illness was diagnosed in 6% of the sample. Of the participants who were convicted offenders, the evaluation occurred, on average, 1.6 years before their prison term was completed.

The HCR-20, PCL-R, and VRAG were completed using an extensive information gathering process that included criminal records and court files, diagnostic interviews with respondents, interviews with family members, and participant interviews with a clinical practitioner when deemed necessary. The person(s) who completed the assessments was not reported. The mean HCR-20 total score was 18.58 ( $SD = 7.63$ ; range 2-34). The mean PCL-R total score was 20.57 ( $SD = 9.05$ ; range 1-37). The mean VRAG score was 12.17 ( $SD = 10.87$ ; range -13-37).

No significant correlations between any risk measure and judicial resolutions were noted.

## Project and Scholarly Work

Freese, R., Hiscoke, U. & Hodgins, S. (May, 2002). *The treatment of mentally ill patients with a history of criminality or violence: What works and what doesn't work?* Paper presentation at 11th congress of the association of European psychiatrists, Stockholm, Sweden.

### Summary

These authors used a prospective design to determine if any markers at time of discharge (such as PCL-R or HCR-20 scores) would be predictive of future violent acts. They used a male only sample with schizophrenia spectrum disorder and followed 128 individuals up to 6 months after discharge from either forensic (aggressive individuals) or general psychiatry (non-aggressive individuals) clinics and then they were able to follow up 78 of the original 128 for a second six month period to make it a 1 year follow up for this smaller group. This report was based on the Hodgins et al (in press) sample reported above.

At discharge, the aggressive individuals showed a mean of 15.1 ( $SD = 8.1$ ) on the PCL-R and a mean of 22.2 ( $SD = 6.5$ ) on the HCR-20 score. The HCR-20 subscale means were: H-scale mean 12.8 ( $SD = 3.7$ ), C-scale mean 3.9 ( $SD = 2.8$ ) and R-scale mean 5.6 ( $SD = 2.2$ ). At discharge, the non-aggressive individuals showed a mean of 12.2 ( $SD = 7.2$ ) on the PCL-R and a mean of 17.2 ( $SD = 6.5$ ) on the HCR-20 score. The HCR-20 subscale means were: H-scale mean 10.4 ( $SD = 4.4$ ), C-scale mean 3.1 ( $SD = 1.9$ ) and R-scale mean 3.8 ( $SD = 2.2$ ).

Results showed that the PCL-R did not predict aggressive behavior. Results also showed that the HCR-20 H-scale did not predict future violent acts. However, the C and R scales did predict future aggressive behavior. The strongest predictors of future violent behavior in this sample were increases in anxiety and depressive symptoms over time.

Logistic regression analyses to predict aggressive behaviour during the first follow-up period indicated the HCR-20 total score increased risk by 1.1 times per unit and the R-scale increased risk by 1.5 times per unit (TCO and a score of 5+ on PANSS positive symptoms increased risk by 1.2 and 5.2 times, respectively). TCO and HCR-20 indices did not remain significant when PCL-R total score and diagnosis of substance abuse/dependence were controlled for. For the second follow-up period, odds ratios for HCR-20 total, C-scale, and R-scale were 1.2, 2.1, and 2.2, respectively. These values are substantially lower in comparison to values for the other measures (e.g., a score of 5+ on PANSS positive symptoms yielded an odds ratio of 34.0). As was the case for the first follow-up period, no HCR-20 indices remained significant once PCL-R total score and diagnosis of substance abuse/dependence were controlled for.

## Project and Scholarly Work

Hodgins, S., Tengström, A., Östermann, R., Eaves, D., Hart, S. D., Kronstrand, R., Levander, S., Müller-Isberner, R., Tiihonen, J., Webster, C. D., Eronen, M., Freese, R., Jöckel, D., Kreuzer, A., Levin, A., Maas, S., Repo, E., Ross, D., Tuninger, E., Kotilainen, I., Väänänen, K., Vartianen, H., & Vokkolainen, A. (in press). *An international comparison of community treatment programs for mentally ill persons. Criminal Justice and Behavior.*

### Summary

This study presents a descriptive overview of a multi-site, international, prospective study concerned primarily with the community aftercare treatment of forensic and civil psychiatric patients. One of the stated goals of the project is to attempt "to validate the HCR-20 in four different cultures," namely, Canadian, Swedish, German, and Norwegian. Included in this goal is the evaluation of whether there are subtypes of patients for whom the HCR-20 is less accurate, and hence might need revision. The study involves eight data collection sites, two each (one civil psychiatric, one forensic psychiatric) from the four countries.

Reliability analyses to date have included the ratings of four patients each by seven clinicians from different countries. The  $ICC_1$  values were as follows: HCR-20 Total Score (.90); H Scale Score (.94); C Scale Score (.89); R Scale Score (.68). The authors stated that "ICCs are generally very high, indicating excellent inter-rater reliability."

At present, the project is not far enough along to provide predictive validity analyses. However, criterion-related validity has been partially evaluated through correlating the seven clinicians' ratings with those made by the authors of the HCR-20 on the four cases. The  $ICC_1$  values for

these analyses were as follows: HCR-20 Total Scale Score (.99); H Scale Score (.85); C Scale Score (.99); R Scale Score (.96).

Future research reports from this study will provide information on predictive validity in both forensic and civil psychiatric patients, from four countries, on ratings made prospectively through both clinical interview and file review methodology.

## Project and Scholarly Work

Lincoln, T. M., Hodgins, S., Müller-Isberner, R., Jöckel, D., Freese, R., & Born, P. et al. (2005). Sind sie gefährlicher?--entlassene patienten des psychiatrischen Maßregelvollzuges und der allgemeinspsychiatrie im vergleich [Is there any difference? The risk of violence in forensic and general psychiatric patients during a two year period after discharge]. *Krankenhauspsychiatrie*, 16, 48-56

### Summary

Abridged abstract (English translation of the study not available):

The risk of violent behaviour after discharge from German hospitals among 50 forensic psychiatric and 29 civil psychiatric patients was studied. Participants were assessed at discharge and at four follow-ups over a period of two years. Differences in the psychopathology, the use of psychiatric aftercare, violent incidents, and the risk of acting violently according to the HCR-20 were computed. Forensic patients had more frequent contacts with psychiatrists or clinical psychologists as well as more frequent supervised activities. Civil psychiatric patients exhibited more clinical symptoms during a six-month post-discharge period. The risk of violence decreased during the follow-up period in both groups. Forensic and civil psychiatric patient groups did not differ significantly with respect to the amount of risk attenuation observed during follow-up or to the number of violent incidents. The authors concluded that existing aftercare appears to decrease the risk of violence after discharge in both patient samples, and that the data are inconsistent with widespread fears that patients discharged from a forensic hospital pose an increased risk to others.

Lincoln, T., Hodgins, S., Jöckel, D., Freese, R., Born, P., Eucker, S., Schmidt, P., Gretenkord, L., & Müller-Isberner, R. (2006). Forensische Patienten und Patienten der Allgemeinspsychiatrie. Bilden Prognoseinstrumente unterschiedliche Gewalttäterrisiken ab? [Patients in forensic and general psychiatry. Do risk assessment measures detect differing risks of future violence?] *Nervenarzt*, 7, 576 – 586.

### Summary

Abstract (English translation of the study not available):

The aim of this study was to assess the potential for future violent behaviour comparing patients recruited from forensic and general psychiatric wards in Germany. Patients and methods. Fifty patients were recruited from a forensic hospital and 29 from a general psychiatric hospital. In the weeks preceding discharge, structured assessments of the future risk of violent behaviour were completed using the HCR-20. Results. There was little difference in the risk presented by the two groups. Forensic patients presented an elevated risk of violence because of historical factors, while the risk among patients from general psychiatry was due to clinical symptoms. Conclusion. Some criminal offences could be prevented if more time and effort were spent in general psychiatric practice in identifying patients at high risk for violence and in reducing symptoms of psychoses before discharge.

## Project and Scholarly Work

Lindsay, W.R., Hogue, T.E., Taylor, J.L., Steptoe, L., Mooney, P., O'Brien, G., Johnston, S. et al. (2008). Risk assessment in offenders with intellectual disability: A comparison across three levels of security. *International Journal of Offender Therapy and Comparative Criminology*, 52(1), 90-111.

### Summary

The authors investigated the VRAG, HCR-20, Static-99, and the Risk Matrix 2000 in a sample of 212 intellectually disabled offenders. Participants were distributed across three facilities with differing levels of security in England and Wales: high security (L1; N = 73), medium (L2; N = 70), low security (L3; N = 69), and a community forensic service. Participants were all available people in L1, a random sample in L2, and consecutive referrals for L3. Participants in L1 had committed more violent offences and participants in L2 had significantly less mental disorders. In addition to these assessment instruments, violent and sexual incidents were recorded over a period of 12 months, and the predictive value of each instrument is reported (pseudo-prospective study). Risk assessment instruments were coded based on clinical files and, when the information was questionable, information was gathered from relevant keyworkers and support workers.

Violent and sexual incidents (significant incidents) were recorded independent of the study through the nursing casenotes. A significant incident was defined as verbal aggression, physical aggression, destruction of property, and inappropriate sexual behaviour. Reliability between raters was 100% for whether an incident was violent or not, sexual or not, and sexual or violent.



Inter-rater reliability was assessed on 30 cases with independent raters. For the VRAG, on Risk Categories 1–9, agreement was 92.2%. For the HCR-20, agreement was high (H subscale, 89.4%; C subscale, 93.1%; R subscale, 82.7%). For the RM 2000-V, reliability was 90.7% and for the RM 2000-S, 92.1%; for the Static-99, reliability for Risk Levels 1–4 was 97.2%.

The H subscale mean for whole sample was 12.09 ( $SD = 4.43$ ). The mean for the C subscale was 4.41 ( $SD = 2.40$ ), and for the R subscale the mean was 3.04 ( $SD = 1.78$ ). The VRAG mean was 6.73 ( $SD = 8.84$ ). Overall, the findings revealed significantly higher risk assessment scores for L1 over L3 (HCR-20 and VRAG) and L2 over L3 (HCR-20 only). Of the actuarial assessments, the VRAG, HCR-20-H, and the RM 2000-C showed a significant difference between groups. The VRAG and the H subscale significantly predicted violent incidents ( $AUC = .71, .72$  respectively). The H, C, and R subscales all significantly predicted violent incidents ( $AUCs$  of .68, .67, .62 respectively). The RM 2000-V was not significant. For sexual incidents, the Static-99 was the only significant predictor ( $AUC = .71$ ).

## Project and Scholarly Work

Pham, T. H., Ducro, C., Marghem, B., & Réveillère, C. (2005). Évaluation du risque de récidive au sein d'une population de délinquants incarcérés ou internés en Belgique francophone [Prediction of recidivism among prison inmates and forensic patients in Belgium]. *Annales Médico-Psychologiques*, 163, 842-845.

### Summary

Abridged abstract (English translation of the study not available):

This study assessed the convergent and predictive validities of the HCR-20, PCL-R, and VRAG. Participants were drawn either from high security prisons or a forensic hospital. The three instruments correlated highly ( $> 0.70$ ), sharing a large common variance. Receiver Operating Characteristics, survival curves analyses and correlation coefficients suggested that the three measures presented a moderate predictive validity both for general and violent recidivism.

## Project and Scholarly Work

Stadtland, C., Hollweg, M., Kleindienst, N., Dietl, J., Reich, U., & Nedopil, N. (2005). Risk assessment and prediction of violent and sexual recidivism in sex offenders: Long-term predictive validity of four risk assessment instruments. *Journal of Forensic Psychiatry & Psychology*, 16, 92-108.

### Summary

The long-term predictive validity of the HCR-20, Static-99, SVR-20, and PCL-R was examined among 134 male sex offenders in Germany. Participants included contact and non-contact sex offenders, none of whom had an Axis I diagnosis. Exclusion criteria included being found to be not guilty by reasons of insanity, or with diminished capacity due to severe mental disorders; being dead; or having emigrated. Some inclusion criteria included having been released from prison up to the year 2000 or never having been imprisoned.

The sample comprised three groups. The *assessment only group* consisted of 46 participants who were accused of sexual crimes and who were assessed for criminal responsibility in the forensic psychiatry department between 1975 and 1995. The *treatment group* consisted of 73 incarcerated sex offenders who underwent a two-year specialized psychosocial prison-based treatment program between 1972 and 1995. The *treatment refuser and treatment drop-out group* comprised the 15 individuals who did not complete this treatment program for a variety of reasons. Most participants were single (46.3%) and White Germans (94.2%). Participants' mean age was 30.7 years.

Two individuals trained in the administration of the measures coded all cases. Assessments were completed retrospectively between 2001 and 2003 on the basis of file information. All measures were coded for the treatment and drop-out groups, but only the Static-99 was coded for the assessment group because of missing data. Recidivism data were obtained from the National Conviction Registry and were coded for the period following the completion of the assessment. Four types of re-offences were considered: (1) any non-sexual and non-contact criminal offence; (2) any non-sexual violent offence; (3) any non-contact/"hands-off" sexual offence; and (4) any contact/"hands-on" sexual offence. All analyses were calculated for the worst re-offence (i.e., type 4). The mean follow-up time was 9 years (range: 1 - 340 months). Time at risk ended at the first entry into the National Conviction Registry for any kind of recidivism.

None of the total scores on the four risk assessment measures was significantly better in predicting violent recidivism. AUC values for the total sample without the treatment drop-out group were as follows: HCR-20 total ( $AUC = .65, p = .01, SE = .05, 95\% CI: .55-.75$ ); Historical scale ( $AUC = .68, p = .01, SE = .05, 95\% CI: .57-.78$ ); Clinical scale ( $AUC = .58, p = .16, SE = .06, 95\% CI: .47-.68$ ); Risk Management ( $AUC = .48, p = .68, SE = .06, 95\% CI: .37-.59$ ); PCL-R total ( $AUC = .64, p = .01, SE = .05, 95\% CI: .54-.74$ ); SVR-20 total ( $AUC = .68, p = .00, SE = .05, 95\% CI: .58-.78$ ); Static-99 total ( $AUC = .72, p = .00, SE = .05, 95\% CI: .62-.82$ ). Values for the Static-99 for the

total sample including the treatment drop-out group were: (AUC = .71,  $p = .00$ , SE = .05, 95% CI: .62-.80).

AUC values predicting all re-offences for the total sample excluding the treatment drop-out group were: HCR-20 total (0.67,  $p < .01$ ); PCL-R total (0.65,  $p = ns$ ); SVR-20 total (0.68,  $p < .01$ ). The AUC value for the Static-99 for the total sample including the treatment drop-out group was 0.73 ( $p < .001$ ).

AUC values predicting all non-contact sexual re-offences (which were included in the “all re-offences” category) for the total sample excluding the treatment drop-out group were: HCR-20 total (.41,  $p = ns$ ); PCL-R total (.65,  $p = ns$ ); SVR-20 total (.54,  $p = ns$ ). The AUC value for the Static-99 for the total sample including the treatment drop-out group was .74 ( $p < .05$ ).

AUC values predicting all contact sexual re-offences (which were included in the “all re-offences” and “all violent re-offences” categories) for the total sample excluding the treatment drop-out group were: HCR-20 total (.67,  $p < .01$ ); PCL-R total (.60,  $p = ns$ ); SVR-20 total (.68,  $p < .01$ ). The AUC value for the Static-99 for the total sample including the treatment drop-out group was .66 ( $p < .01$ ).

Finally, the assessment and treatment groups were analyzed separately for predicting violent re-offending. In the assessment group, the accuracy of the Static-99 was numerically superior (AUC = .79,  $p = .00$ ) than the other measures. In the treatment group, the Static-99 (AUC = .67,  $p = .028$ ) performed better than the HCR-20 (AUC = .63,  $p = .07$ ), PCL-R (AUC = .61,  $p = .10$ ), and SVR-20 (AUC = 0.65,  $p = .03$ ). The differences between instruments in the treatment group were not statistically significant.

## Project and Scholarly Work

Tengström, A. & Hodgins, S. (in press). Criminal behavior of forensic and general psychiatric patients with schizophrenia: Are they different? *Acta Psychiatrica Scandinavica*.

### Summary

This study compared the rate of past criminal behavior among male patients being discharged from forensic and general psychiatric hospitals in four countries (same study as Hodgins et al., in press, above). Clinicians also assessed the risk of violent behavior in the future using the Psychopathy Checklist and the HCR-20. The sample consisted of 110 forensic patients and 47 general psychiatry patients. Patients, all of whom were men, had either schizophrenia, schizoaffective, or schizophreniform disorder. Within each site, each patient being discharged from a forensic hospital was matched to a patient of the same sex, age, and primary diagnosis being discharged from a general psychiatric service.

A number of comparisons between the forensic and general psychiatric groups was undertaken (e.g., age at discharge, various criminal history indices, type and history of psychiatric admissions). In addition to criminal history variables, comparisons of a more clinical nature were made between the general psychiatric patients with and without criminal histories. Relative to general psychiatric patients without a criminal history, those with a criminal history had significantly higher HCR-20 total scores ( $X = 21.00$ ,  $SD = 5.54$  vs.  $X = 15.54$ ,  $SD = 6.18$ ;  $t(47) 2.70$ ,  $p = .01$ ), R-scale scores ( $X = 6.25$ ,  $SD = 1.42$  vs.  $X = 4.23$ ,  $SD = 2.21$ ;  $t(47) 3.64$ ,  $p = .001$ ), and PCL-R total scores ( $X = 13.27$ ,  $SD = 6.36$  vs.  $X = 9.34$ ,  $SD = 5.42$ ;  $t(47) 2.07$ ,  $p = .04$ ). No significant difference between patients with versus without a criminal history was observed for H-scale scores ( $X = 9.75$ ,  $SD = 5.05$  vs.  $X = 7.29$ ,  $SD = 3.16$ ;  $t(47) 1.59$ ,  $p = .13$ ), C-scale scores ( $X = 5.00$ ,  $SD = 1.81$  vs.  $X = 4.03$ ,  $SD = 1.98$ ;  $t(47) 1.50$ ,  $p = .14$ ), PCL-R Factor 1 scores ( $X = 4.67$ ,  $SD = 3.42$  vs.  $X = 3.43$ ,  $SD = 2.62$ ;  $t(47) 1.31$ ,  $p = .19$ ), or PCL-R Factor 2 scores ( $X = 7.41$ ,  $SD = 2.67$  vs.  $X = 5.60$ ,  $SD = 3.67$ ;  $t(47) 1.56$ ,  $p = .13$ ). A global clinical judgment (it was not specified whether this judgment was based solely on information gathered during the completion of the HCR-20) of risk for future behavior (low, moderate, high) over the subsequent 6 months did not distinguish the two groups. It was not specified whether this clinical judgment was made according to the SPJ model, or was unstructured.

The patients with a criminal history were assessed as having a greater risk for violent behavior in the community after discharge as indicated by higher total scores on the PCL-R and on the HCR-20. Lastly, the global clinical judgment of risk of future violence did not distinguish between the two study groups (forensic and general psychiatry).

## END OF MIXED SETTING STUDIES

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## JUVENILE OFFENDER AND FORENSIC SETTINGS

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### Project and Scholarly Work

Lusignan, R., & Marleau, J.D. (2007). Risk assessment and offender-victim relationship in juvenile offenders. *International Journal of Offender Therapy and Comparative Criminology*, 51, 433-443.

#### Summary

The aim of this study was to compare HCR-20 scores in two groups of adolescents; those who had known victims (family members and acquaintances) and those with unknown victims (strangers). All adolescents (N=104) admitted to the Adolescents Program of the Philippe-Pinel Institute of Montreal between February 1998 and April 2003 were interviewed. Their families or foster families were also interviewed systematically. The mean age at the time of admission was 16 years (SD = 1.4) and all participants were from Quebec, Canada. The most serious offences committed by the participants were grouped into 11 categories: homicide, aggravated assault, assault, other violence (such as robbery), arson, sexual assault, morality related, threats, public disorder, theft, or drug related. The French version of the HCR-20 was completed for each case but several items were modified for use with adolescents (H4 Employment Problems, H7 Psychopathy, H9 Personality Disorder and H10 Prior Supervision Failure). The family victims included victims who were the father, mother, brother, sister, or grandparents of the offender (N=15 adolescents) and the known group included victims who were the natural parent's new spouse, half siblings, teachers, peers, or other persons known to the adolescent whether a close relationship existed or not (N=48 adolescents). The unknown group included victims who were strangers to the adolescent (N=41 adolescents).

The mean ranks (mr) of the global score of the HCR-20 differed between the two groups (mr = 48.6 for family/known victims, mr = 64.1 for unknown victims,  $z = -2.49$ ,  $p = .013$ ). Significant differences were also found on the H scale ( $z = -2.43$ ,  $p = .015$ ) and the R scale ( $z = -2.28$ ,  $p = .022$ ). Analysis of individual items on the HCR-20 differed between the two groups for H2 ( $z = -2.72$ ,  $p = .006$ ), H10 ( $z = -3.67$ ,  $p = .001$ ); C2 ( $z = -2.50$ ,  $p = .013$ ), R2 ( $p = .041$ ) and R3 ( $z = -2.63$ ,  $p = .009$ ). For all analyses, the mean rank scores were higher for adolescents who victimized strangers, compared to those who victimized family/known victims.

### Project and Scholarly Work

MacEachern, A. (2001). *Violence risk assessment: Comparing the predictive validity of the HCR-20 and the SAVRY in a population of adolescent offenders*. Unpublished Master's Thesis, Department of Psychology, Simon Fraser University.

#### Summary

This study compared the HCR-20 and the SAVRY in a sample of 108 male juvenile offenders who were referred from court for inpatient psychiatric assessment (36 randomly selected who were nonrecidivists, 36 nonviolent recidivists, and 36 violent recidivists). This was a pseudo-prospective/retrospective follow-up study conducted from comprehensive youth justice, police, mental health, medical, and social-demographic files. The juvenile offenders were, on average, 15.3 at admission, and 25.1 at follow-up. Hence, this study evaluates the predictive validity of later adult violence of adolescent offenders. Follow-up national criminal records were used to code violence. Most participants were Caucasian.

Interrater reliability, based on a subset of 36 files, was good. ICC<sub>1</sub> for Total, H, C, and R scores was .86, .88, .80, and .77. Pearson correlation coefficients between the HCR-20 Total Score, H, C, and R and violence were as follows: .46, .42, .35, and .44.. Corresponding AUC values were .79, .76, .73, and .78.

Mean HCR-20 scores differed significantly between non-recidivists, nonviolent recidivists, and violent recidivists. Total, H, C, and R scale scores across these three groups were as follows: 15.1 vs. 20.0 vs. 23.9; 6.1 vs. 7.8 vs. 9.8; 4.5 vs. 5.8 vs. 6.5; 4.5 vs. 6.5 vs. 7.6.

Comparison to the SAVRY showed that the HCR-20 produced somewhat larger correlations and AUC values, although there were no tests of significance between the two measures. Logistic regression analyses with all HCR-20 and SAVRY subscales showed that the HCR-20 Total, H, C, and R scale scores remained significant in the final model along with the SAVRY total score.

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## END OF JUVENILE SETTINGS

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## GENERAL PSYCHIATRIC

### SETTINGS

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#### Project and Scholarly Work

Smith, H., & White, T. (2007). Feasibility of a structured risk assessment tool in general adult psychiatry admissions. *Psychiatric Bulletin*, 31, 418-420.

#### Summary

This study assessed the feasibility and clinical utility of the HCR-20 in general adult psychiatric admissions. During the 5-month study period, 144 patients were admitted to one of two general adult wards and 135 (75 males and 58 females) participated in the study. The HCR-20 (without the Psychopathy item due to time concerns) was completed by staff based on the medical and nursing notes from admission and an interview with the participant if the information was incomplete.

There was no difference between men and women with regards to their ages (males,  $M = 37.8$  years, females  $M = 38.1$  years), age at first symptoms and previous number of admissions. Male patients were more likely to have a primary diagnosis of schizophrenia and acute psychosis (males, 45.9%; females, 18%), and were more likely to have a comorbid diagnosis of drug and alcohol use (males, 43.9%; females, 21.6%), whereas female patients were more likely to have a primary diagnosis of affective disorder (males, 31.7%; females, 57.4%).

The average HCR-20 total score for all patients was 18.0 ( $SD = 7.3$ ). There was a significant difference between males and females for total scores ( $M = 19.2$ ,  $SD = 6.4$ ;  $M = 16.0$ ,  $SD = 8.2$  respectively). Participants in the high-risk group ( $n = 28$ ;  $HCR-20 > 25$ ) were just as likely to be female as male than the low risk group ( $n = 105$ ). They were more likely to have a primary diagnosis of personality disorder, much less likely to have an affective diagnosis, and more likely to have a comorbid substance problem. The HCR-20 total score, the H subscale and the R subscale scores were highest in those patients with a diagnosis of personality disorder. The C subscale was similar across diagnoses. In terms of length of stay in the hospital, patients who were in the hospital for less than 10 days had a significantly high H subscale score and those who stayed longer had a significantly higher C subscale score.

Logistic regression revealed that the total HCR-20 score did not predict length of stay but a diagnosis of personality disorder predicted a short stay in hospital. This remained significant when the HCR-20 total score and being defined as high risk were included in the model. In terms of feasi-

bility, it was possible to complete HCR-20s on 83.9% of admissions within 24-48 hours of admission.

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## END OF GENERAL PSYCHIATRIC SETTINGS

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## **META-ANALYSIS OF HCR-20 RESEARCH**

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### **Project and Scholarly Work**

Nikolova, N. L., Collins, M. J., Guy, L. S., Lavoie, J. A. A., Reeves, K. A., Wilson, C. M., & Douglas, K. S. (March, 2006). *HCR-20 violence risk assessment scheme: Quantitative synthesis of its application, reliability, and validity*. Poster presented at the annual conference of the American Psychology-Law Society, St. Petersburg, Florida.

### **Summary**

A meta-analytic review of published and unpublished research derived from psychiatric, correctional, adolescent, and mixed samples utilizing the HCR-20 ( $N = 6033$ ) was conducted to obtain an overall estimate of the effectiveness of the scale, and to identify need for revision. Sixty samples were identified from 57 disseminations. The forensic psychiatric population contributed 3393 participants from 35 samples. The civil psychiatric setting accounted for 446 participants over four samples. For the correctional setting, there were 1363 non-disordered offender cases from 11 samples, and 368 mentally disordered offenders from five samples. There was a single youth sample ( $N = 108$ ). Finally, there were 355 participants from 4 mixed samples.

Interrater reliability (IRR), averaged across 28 studies, was acceptable (Total score = .80;  $H = .88$ ;  $C = .75$ ;  $R = .75$ ). Across the 36 studies that addressed predictive validity, HCR-20 total score and subscale scores were predictive of violence, with moderate to large effect sizes (.66-.71). All reported average effect sizes are based on one effect size per study. Large effect sizes (.68-.79) were observed across different types of clinical-legal contexts on the total HCR-20 and H scale. On the C scale, there were moderate to large effect sizes (.60-.77). Small to high effect sizes were observed on the R scale (.48-.78). Similarly, there were moderate to large effect sizes (.68-.72) across different types of violence for HCR-20 total score and the C and R scales (.65-.82; .64-.72, respectively). The H scale scores had moderate effect sizes (.66-.69). The AUC values for SPJ decisions for physical violence based on 4 samples ( $n = 725$ ) were: .85 (de Vogel & de Ruiter, 2004); .70 (Fujii, Lickton, Tokioka, 2004); .78 (Douglas, Yeomans & Boer, 2005); and .74 (Douglas, Ogloff & Hart, 2003).

A number of moderator variables were examined. The context of violence outcome (i.e., institutional vs. community) also was examined as a moderator for mean AUC

values. Moderate to large effect sizes were observed for institutional violence (Total = .71;  $H = .68$ ;  $C = .73$ ;  $R = .62$ ), as well as for community violence (Total = .72;  $H = .71$ ;  $C = .67$ ;  $R = .69$ ).

Moderate to large AUC values were observed among samples comprising only men (Total = .72;  $H = .70$ ;  $C = .68$ ;  $R = .70$ ). Only a single effect size from a female sample was available (AUC for HCR-20 total = .62). Samples comprising both genders yielded moderate effect sizes (Total = .70;  $H = .68$ ;  $C = .67$ ;  $R = .63$ ).

Samples were analyzed for method of coding the HCR-20. The instrument was coded either by review of file alone, or by a combination of file review and interview. For samples using the 'file only' approach, moderate to large AUC values were found (Total = .71;  $H = .68$ ;  $C = .67$ ;  $R = .66$ ). For samples employing both file review and interview, large effect sizes were reported for the H (.73), C (.71) and Total (.73) scores. A moderate effect size was found for the R scale (.66).

Publication status seemed to have minimal impact: effect sizes for published (Total = .71;  $H = .68$ ;  $C = .69$ ;  $R = .65$ ) and unpublished disseminations (Total = .71;  $H = .70$ ;  $C = .66$ ;  $R = .67$ ) were of moderate to large magnitudes.

The country from which the samples were obtained was dichotomized as originating from either within or outside of North America. For North American samples, moderate effect sizes were observed (Total = .70;  $H = .70$ ;  $C = .69$ ;  $R = .69$ ). Moderate to large AUC values were found for the remainder of the samples (Total = .71;  $H = .68$ ;  $C = .66$ ;  $R = .64$ ).

Overall, results supported the robustness of the HCR-20 and will be used to guide recommendations for scale improvement.

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## **END OF META-ANALYTIC WORK**

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- Webster, C. D., Douglas, K. S., Eaves, D., & Hart, S. D. (1999). *HCR-20: Évaluation du risque de violence, version 2*. Burnaby, British Columbia: Mental Health, Law, & Policy Institute, Simon Fraser University (Original work published 1997).

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<sup>2</sup> All of the disseminations in this section spend at least some time on the HCR-20. Some are devoted largely to the HCR-20, whereas others provide more circumscribed discussion.

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## An Invitation and Request

We invite any and all qualified persons to carry out research on the HCR-20. Our hope is to understand its psychometric properties as well as possible, and this requires empirical investigation at different sites and in various diverse samples.

We ask any persons who may have carried out research on the HCR-20 to please forward a copy of any presentations, manuscripts, or publications that emerge therefrom. Documents may be sent to the address below. We aim to keep this annotated bibliography as current as possible, with as much existing research as possible.

Thank You!

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