

APPENDIX D

RELATIONSHIP BETWEEN DIFFERENT CHALLENGING BEHAVIOURS AND PROBLEMS ASSESSED ON HoNOS-ABI

Table D.1 shows the proportion of clients with challenging behaviour at each level of severity for accommodation problems as measured using the HoNOS-ABI.

Table D.1: Percentage (%) of different types of challenging behaviour by severity of problems with accommodation/living conditions

	No problem	Minor problem	Mild problem	Moderate problem	Severe problem
VA*	19.3	39.3	47.4	33.3	50.0
PAO	4.9	12.6	13.6	5.6	25.0
PAS	4.0	6.7	6.8	11.1	0.0
PAP*	7.3	13.3	15.9	38.9	33.3
ISB*	1.8	7.4	6.8	5.6	8.3
PR*	9.6	19.3	18.2	5.6	50.0
WA	1.3	5.9	6.8	0.0	16.7
ISOC*	21.6	48.9	47.7	55.6	50.0
ADL*	17.1	28.1	27.3	61.1	91.7

Note. *p<0.05.

VA=Verbal aggressive behaviour; PAO=Physical aggression against objects; PAS=Physical aggression against self; PAP=Physical aggression against other people; ISB=Inappropriate sexual behaviour; PR=Perseveration/ repetitive behaviour; WA=Wandering/absconding; ISOC=Inappropriate social behaviour; ADL=Adynamia/lack of initiation.

TABLE D.2 REPORTS THE CHI-SQUARED STATISTIC FOR EACH RELATIONSHIP DEPICTED IN TABLE D.1 AND THE CORRESPONDING P-VALUE.

The statistic was calculated with four degrees of freedom for each analysis. The table also shows the number and percentage of cells where the expected cell count in calculating the statistic was less than five.

Table D.2: Chi-square, p-value and number (percentage) of cells with expected cell count (ECC) less than five for relationship between mental health issues and individual challenging behaviours

	X ²	P	Low ECC
VA	37.37	.000	2 (20)
PAO	17.39	.001	3 (30)
PAS	4.18	.164	3 (30)
PAP	29.49	.000	3 (30)
ISB	12.58	.008	4 (40)
PR	26.25	.000	2 (20)
WA	19.43	.003	4 (40)
ISOC	52.30	.000	1 (10)
ADL	58.64	.000	2 (20)

TABLE D.3 REPORTS THE CHI-SQUARED STATISTIC FOR EACH RELATIONSHIP DEPICTED IN THE FIGURES AND THE CORRESPONDING P-VALUE.

The chi-squared statistic was calculated with four degrees of freedom for each analysis. The table also shows the number and percentage of cells where the expected cell count in calculating the chi-square statistic was less than five.

Table D.3: Chi-square, p-value and number (percentage) of cells with expected cell count (ECC) less than five for relationship between mental health issues and individual challenging behaviours

	χ^2	P	Low ECC
In relation to depressive symptoms			
VA	29.82	.000	0 (0)
PAO	8.25	.083	1 (10)
PAS	48.76	.000	2 (20)
PAP	4.19	.381	1 (10)
ISB	3.76	.437	3 (30)
PR	5.88	.209	1 (10)
WA	2.41	.661	3 (30)
ISOC	6.08	.193	0 (0)
ADL	9.84	.043	0 (0)
In relation to self-directed injury			
VA	12.09	.017	4 (40)
PAO	21.32	.000	4 (40)
PAS	201.93	.000	4 (40)
PAP	12.40	.015	3 (30)
ISB	6.11	.191	4 (40)
PR	4.48	.345	3 (30)
WA	6.92	.140	4 (40)
ISOC	5.38	.250	4 (40)
ADL	4.37	.359	4 (40)

Table D.3 Continued: Chi-square, p-value and number (percentage) of cells with expected cell count (ECC) less than five for relationship between mental health issues and individual challenging behaviours

	X ²	P	Low ECC
In relation to psychotic features/confabulation			
VA	23.71	.000	4 (40)
PAO	20.45	.000	5 (50)
PAS	1.73	.785	5 (50)
PAP	20.25	.000	5 (50)
ISB	17.23	.002	5 (50)
PR	43.12	.000	5 (50)
WA	9.34	.053	5 (50)
ISOC	28.33	.000	3 (30)
ADL	14.07	.007	4 (40)
In relation to other mental/behavioural problems			
VA	29.74	.000	0 (0)
PAO	15.41	.004	2 (20)
PAS	22.71	.000	3 (30)
PAP	13.46	.009	1 (10)
ISB	15.43	.004	4 (40)
PR	10.40	.034	1 (10)
WA	5.84	.212	4 (40)
ISOC	23.02	.000	0 (0)
ADL	4.26	.372	0 (0)

VA=Verbal aggression; PAO=Physical aggression against objects; PAS=Physical aggression against self; PAP=Physical aggression against other people; ISB=Inappropriate sexual behaviour; PR=Perseverative/repetitive behaviour; WA=Wandering/absconding behaviour; ISOC=Inappropriate social behaviour; ADL=Adynamia/lack of initiation

RELATIONSHIP BETWEEN DIFFERENT CHALLENGING BEHAVIOURS AND SPECIFIC MENTAL HEALTH ISSUES ASSESSED ON HONOS-ABI

Figures D.1 to D.4 shows the proportion of clients with challenging behaviour at each level of severity of the different mental health items of the HoNOS-ABI. Figures D.1, D.2, D.3 and D.4 relate to severity of depressive symptoms, self-directed injury, psychotic features/confabulation and other mental/behavioural problems, respectively.

Figure D.1: Percentage of clients with different types of challenging behaviour at each level of severity of depressive symptoms.

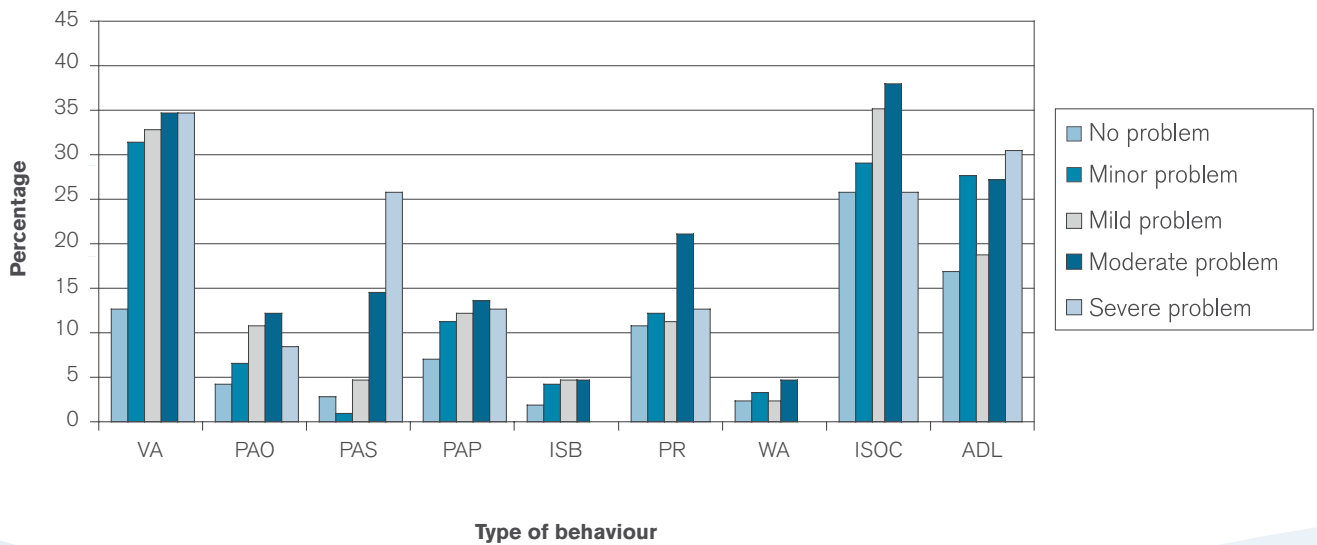


Figure D.2: Percentage of clients with different types of challenging behaviour at each level of severity of self-directed injury.

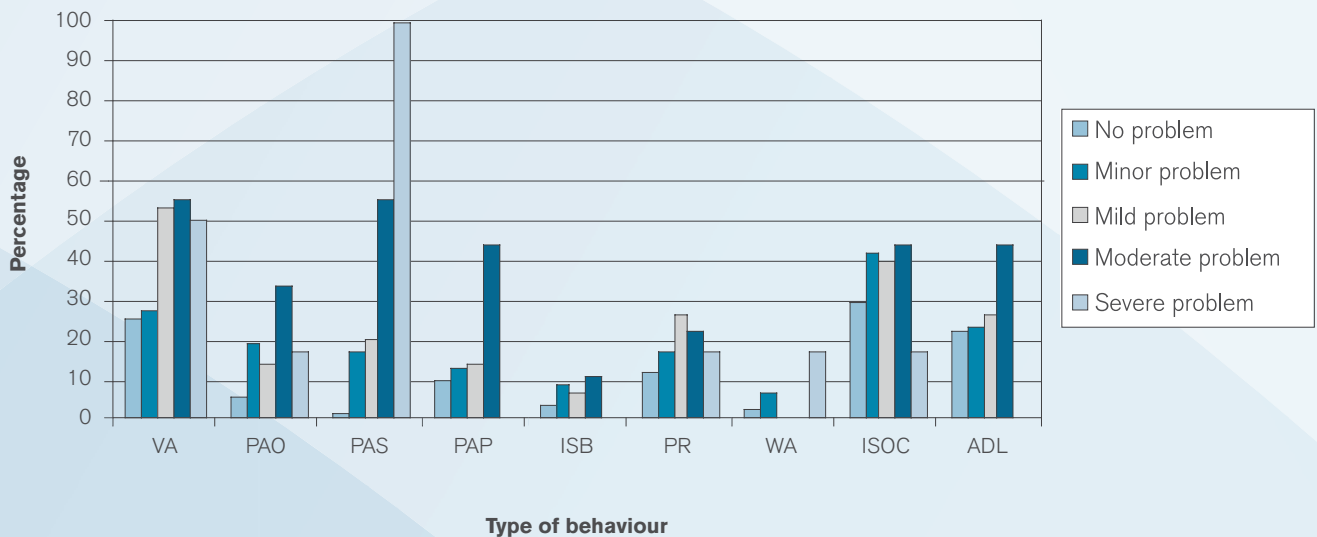


Figure D.3: Percentage of clients with different types of challenging behaviour at each level of severity of psychotic features/confabulation.

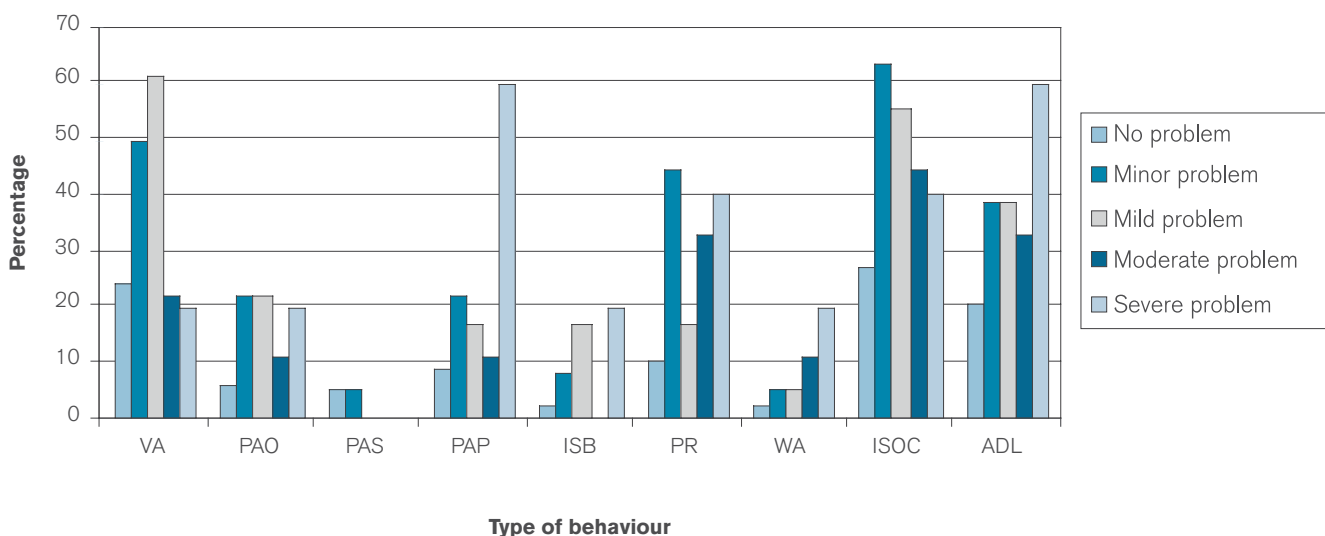
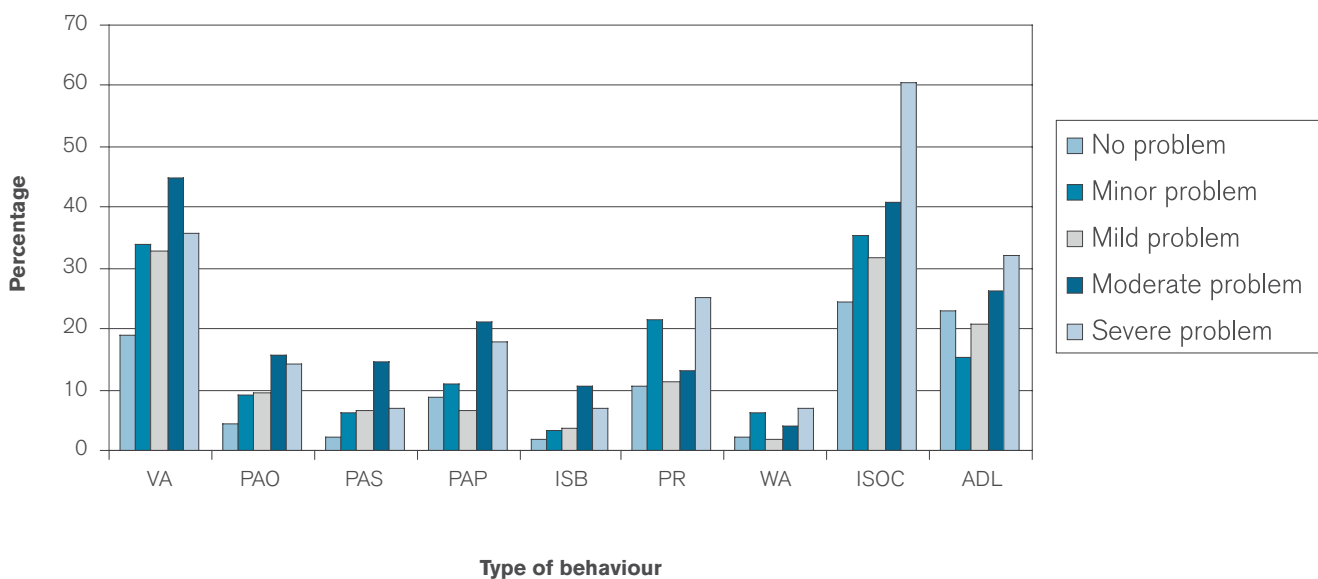


Figure D.4: Percentage of clients with different types of challenging behaviour at each level of severity of other mental/behavioural problems.



APPENDIX E

Table E.1: Final binary logistic regression model for absence/presence of challenging behaviour

	B	P	Odds ratio
No pre-injury alcohol problem			
Pre-injury alcohol problem	0.72	.004	2.05
No drug/alcohol problems			
Minor/mild drug/alcohol problems	0.67	.009	1.95
Moderate/severe drug/alcohol problems	1.39	.000	3.99
No cognitive problems			
Minor cognitive problems	0.50	.227	1.64
Mild cognitive problems	1.21	.004	3.35
Moderate to severe cognitive problems	1.51	.002	4.54
No depressive symptoms			
Minor depressive symptoms	0.70	.004	2.01
Mild depressive symptoms	0.69	.015	1.99
Moderate to severe depressive symptoms	0.94	.004	2.55
No other mental/behavioural problems			
Mild other mental problems	0.06	.806	1.06
Moderate other mental problems	0.73	.035	2.07
Severe other mental problems	2.14	.000	8.48
No disability			
Mild to partial disability	0.34	.305	1.41
Moderate disability	1.50	.000	4.47
Severe disability	2.09	.000	8.05

How to predict which clients will have challenging behaviour?

If a clinician has information pertaining to variables contained in Table E.1 for an individual client, then the probability of that client having challenging behaviour can be computed. This is done by adding the B-values in the table to the constant of the binary logistic model, which is -2.65. This will determine the log-odds of challenging behaviour for individual clients (formally represented by the letter z). The value of z can then be used to determine the probability of having challenging behaviour for individual cases using the formula: $\frac{e^z}{1+e^z}$, where e^z is the exponent of z.

Case example:

A male TBI client does not have any history of drug and alcohol abuse but he does have mental health co-morbidity, specifically severe depression. He also has moderate cognitive problems and moderate disability.

For this client the only relevant B-values relate to moderate cognitive problems, moderate disability and severe depressive symptoms. By adding these values to the constant -2.65 we obtain $z = -2.65 + 1.51 + 2.09 + 0.94 = 1.89$. Using z we can then calculate that this client has 87% probability of demonstrating challenging behaviour ($\frac{e^{1.89}}{1+e^{1.89}} = 0.87$).