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: $e^z/1+e^z$, 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 ($e^{1.24}/1+e^{1.24}=0.87$).