SUPPLEMENTARY TABLE S1. CHARACTERISTICS OF THE STUDY POPULATION WITH POST-CONCUSSION SYNDROME PER CLASSIFICATION METHOD WITH RATING SCORE 2

	Mapped ICD-10/DSM-IV			RPQ total score			RPQ3			Three-factor model		
	PCS	No PCS	p value	PCS	No PCS	p value	PCS	No PCS	p value	PCS	No PCS	p value
n	283	448		234	497		261	470		231	500	
Gender (male)	161 (56.9%)	302 (67.4%)	< 0.01	133 (56.8%)	330 (66.4%)	0.01	132 (50.6%)	331 (70.4%)	< 0.01	133 (57.6%)	330 (66.0%)	0.03
Age[a] (years)	45 (31-56)	43 (26-57)	0.14	47 (32-57)	42 (25.5-56)	0.01	44 (30.5-56.5)	43 (26-57)	0.26	45 (31-56)	43.5 (26-57)	0.32
Education			<0.01			< 0.01			0.01			< 0.01
Primary	6 (2.1%)	15 (3.3%)		5 (2.1%)	16 (3.2%)		7 (2.7%)	14 (3.0%)		2 (0.9%)	19 (3.8%)	
Secondary	142 (50.2%)	194 (43.3%)		122 (52.1%)	214 (43.1%)		127 (48.7%)	209 (44.5%)		123 (53.2%)	213 (42.6%)	
Higher professional	32 (11.3%)	76 (17.0%)		27 (11.5%)	81 (16.3%)		35 (13.4%)	73 (15.5%)		28 (12.1%)	80 (16.0%)	
Academic	18 (6.4%)	66 (14.7%)		14 (6.0%)	70 (14.1%)		17 (6.5%)	67 (14.3%)		14 (6.1%)	70 (14.0%)	
Unknown	85 (30.0)	97 (21.7%)		66 (28.2%)	116 (23.3%)		75 (28.7%)	107 (22.8%)		64 (27.7%)	118 (23.6%)	
Injury mechanism			0.03			< 0.01			0.01			< 0.01
Road traffic accident	139 (49.1%)	212 (47.3%)		113 (48.3%)	238 (47.9%)		134 (51.3%)	217 (46.2%)		109 (47.2%)	242 (48.4%)	
Fall	96 (34.9%)	144 (32.1%)		77 (32.9%)	163 (32.8%)		77 (29.5%)	163 (34.7%)		79 (34.2%)	161 (32.2%)	
Sports	19 (6.7%)	58 (12.9%)		14 (6.0%)	63 (12.7%)		18 (6.9%)	59 (12.6%)		13 (5.6%)	64 (12.8%)	
Assault	22 (7.8%)	19 (4.2%)		22 (9.4%)	19 (3.8%)		22 (8.4%)	19 (4.0%)		22 (9.5%)	19 (3.8%)	
Other/Unknown	7 (2.6%)	14 (3.3)		8 (3.4%)	14 (2.8%)		10 (3.8%)	12 (2.6%)		8 (3.5%)	14 (2.8%)	
Injury characteristics												
ISS[a]	8 (5-16)	5 (4-13)	< 0.01	9 (5-17)	5 (4-12)	< 0.01	6 (4-14)	6 (4-14)	0.67	8 (5-17)	5 (4-13)	< 0.01
AISH[a]	2 (2-3)	2 (1-2)	< 0.01	2 (2-3)	2 (1-2)	< 0.01	2 (2-3)	2 (1-2)	0.02	2 (2-3)	2 (1-2)	< 0.01
Head AIS 3	42 (14.8%)	51 (11.4%)		35 (15.0%)	58 (11.7%)		39 (14.9%)	54 (11.5%)		30 (13.0%)	63 (12.6%)	
Head AIS 4	30 (10.6%)	27 (6.0%)		30 (12.8%)	27 (5.4%)		25 (9.6%)	32 (6.8%)		26 (11.3%)	31 (6.2%)	
Head AIS 5	6 (2.1%)	5 (1.1%)		7 (3.0%)	4 (0.8%)		5 (1.9%)	6 (1.3%)		7 (3.0%)	4 (0.8%)	
Comorbidity[b]			< 0.01			<0.01			0.10			< 0.01
No pre-existing disease	102 (36.0%)	227 (50.7%)		82 (35.0%)	247 (49.7%)		101 (38.7%)	228 (48.5%)		82 (35.5%)	247 (49.4%)	
1 comorbid disease	36 (12.7%)	56 (12.5%)		29 (12.4%)	63 (12.7%)		27 (10.3%)	65 (13.8%)		30 (13.0%)	62 (12.4%)	
2 comorbid disease	13 (4.6%)	20 (4.5%)		11 (4.7%)	22 (4.4%)		15 (5.7%)	18 (3.8%)		12 (5.2%)	21 (4.2%)	
3 or more comorbidities	24 (8.5%)	16 (3.6%)		23 (9.8%)	17 (3.4%)		21 (8.0%)	19 (4.0%)		22 (9.5%)	18 (3.6%)	
Unknown	108 (38.2%)	129 (28.8%)		89 (38.0%)	148 (29.8%)		97 (37.2%)	140 (29.8%)		85 (36.8%)	152 (30.4%)	
CT scan			0.95			0.37			0.86			0.86
No CT scan	17 (6.0%)	28 (6.3%)		11 (4.7%)	34 (6.8%)		16 (6.2%)	29 (6.2%)		13 (5.7%)	32 (6.4%)	
CT scan, no abnormalities	223 (78.8%)	368 (82.1%)		181 (77.7%)	410 (82.5%)		207 (79.6%)	384 (81.7%)		178 (77.4%)	413 (82.6%)	
CT scan, abnormalities	42 (14.8%)	52 (11.6%)		41 (17.6%)	53 (10.7%)		37 (14.2%)	57 (12.1%)		39 (17.0%)	55 (11.0%)	
Hospitalization[c]			< .01			< 0.01			0.12			< 0.01
Hospital admission	180 (63.6%)	193 (43.1%)		149 (63.7%)	224 (45.1%)		143 (54.8%)	230 (48.9%)		145 (62.8%)	228 (45.6%)	
Number of days[a]	4 (1-9)	3 (1-6)	.37	5 (1-10)	2 (1-6)	0.01	3 (1-9)	3 (1-7.25)	0.37	4 (1-9)	3 (1-7)	< 0.01
ICU admission	22 (7.8%)	13 (2.9%)	< .01	20 (8.5%)	15 (3.6%)	< 0.01	15 (5.7%)	20 (4.3%)	0.37	18 (7.8%)	17 (3.4%)	0.01

[a]Data are displayed as median, with the first and third quartile given within parentheses.

[b]Comorbidity is defined as the presence of any co-existing diseases or disease processes additional to injury that the traumatic brain injury (TBI) patients sustained. The following diseases were assessed as comorbid disease: asthma, chronic bronchitis, chronic nonspecific lung disease (not asked about), heart disease, diabetes, back hernia or chronic backache, osteoarthritis, rheumatoid arthritis, and cancer.

[c]Hospital or ICU admission for ≥1 day after arrival at emergency department.

ICD, International Classification of Diseases; DSM, Diagnostic and Statistical Manual of Mental Disorders; RPQ, Rivermead Post-Concussion Symptoms Questionnaire; PCS, post-concussion syndrome; ISS, Injury Severity Scale; AISH, Abbreviated Injury Severity Scale of the Head; AIS, Abbreviated Injury Scale; ICU = intensive care unit.

Supplementary Table S2. Characteristics of the Study Population with Post-Concussion Syndrome per Classification Method with Rating Score 3

	Mapped ICD-10/DSM-IV			RPQ total score			RPQ3			Three factor model		
	PCS	No PCS	p value	PCS	No PCS	p value	PCS	No PCS	p value	PCS	No PCS	p value
n	113	618		125	606		96	635		83	648	
Gender (male)	59 (52.2%)	404 (65.4%)	< 0.01	68 (54.4%)	395 (65.2%)	0.02	46 (47.9%)	417 (65.7%)	< 0.01	48 (57.8%)	415 (64.0%)	0.27
Age[a] (years)	43 (30.5 - 54)	44 (27 - 57)	0.83	46 (31.5 - 55.5)	43 (27 - 57)	0.32	46.5 (34.25 - 53.75)	43 (26 - 57)	0.42	42 (26 - 53)	44 (27 - 57)	0.46
Education			< 0.01			< 0.01			0.02			0.03
Primary	1 (0.9%)	20 (3.2%)		3 (2.4%)	18 (3.0%)		2 (2.1%)	19 (3.0%)		-	21 (3.2%)	
Secondary	63 (55.8%)	273 (44.2%)		68 (54.4%)	268 (44.2%)		50 (52.1%)	268 (45.0%)		48 (51.8%)	293 (45.2%)	
Higher professional	11 (9.7%)	97 (15.7%)		12 (9.6%)	96 (15.8%)		10 (10.4%)	98 (15.4%)		7 (8.4%)	101 (15.6%)	
Academic	6 (5.3%)	78 (12.6%)		7 (5.6%)	77 (12.7%)		5 (5.2%)	79 (12.4%)		5 (6.0%)	79 (12.2%)	
Unknown	32 (28.3%)	150 (24.3%)		35 (28.0%)	147 (24.3%)		29 (30.2%)	153 (24.1%)		28 (33.7%)	154 (23.8%)	
Injury mechanism			<0.01			< 0.01			< 0.01			0.02
Road traffic accident	53 (46.9%)	298 (48.2%)		57 (45.6%)	294 (48.5%)		44 (45.8%)	307 (48.3%)		40 (48.2%)	311 (48.0%)	
Fall	37 (32.7%)	203 (32.8%)		44 (35.2%)	196 (32.3%)		32 (33.3%)	208 (32.8%)		27 (32.5%)	213 (32.9%)	
Sports	5 (4.4%)	72 (11.7%)		5 (4.0%)	72 (11.9%)		5 (5.2%)	72 (11.3%)		3 (3.6%)	74 (11.4%)	
Assault	13 (11.5%)	28 (4.5%)		12 (9.6%)	29 (4.8%)		13 (13.5%)	28 (4.4%)		10 (12.0%)	31 (4.8%)	
Other/Unknown	5 (4.4%)	17 (2.6%)		7 (4.0%)	14 (2.5%)		2 (2.1%)	20 (3.1%)		2 (2.4%)	18 (2.9%)	
Injury characteristics												
ISS[a]	9 (4 - 17)	6 (4 - 13)	0.01	9 (4.5 - 17)	6 (4 - 13)	< 0.01	6 (5 - 15.5)	6 (4 - 14)	0.80	9 (4 - 17)	6 (4 - 13)	0.04
AISH[a]	2 (1 - 3)	2 (2 - 2)	0.02	2 (1 - 3)	2 (2 - 2)	0.02	2 (2 - 2)	2 (2 - 2)	0.19	2 (2 - 3)	2 (1.25 - 2)	< 0.01
Head AIS 3	11 (9.7%)	82 (13.3%)		16 (12.8%)	77 (12.7%)		8 (8.3%)	85 (13.4%)		6 (7.2%)	87 (13.4%)	
Head AIS 4	18 (15.9%)	39 (6.3%)		18 (14.4%)	39 (6.4%)		10 (10.4%)	47 (7.4%)		14 (16.9%)	43 (6.6%)	
Head AIS 5	4 (3.5%)	7 (1.1%)		4 (3.2%)	7 (1.2%)		4 (4.2%)	7 (1.1%)		4 (4.8%)	7 (1.1%)	
Comorbidity[b]			0.32			0.04			0.10			0.60
No pre-existing disease	43 (38.1%)	286 (46.3%)		44 (35.2%)	285 (47.0%)		35 (36.5%)	294 (46.3%)		31 (37.3%)	298 (46.0%)	
1 comorbid disease	8 (7.1%)	84 (13.6%)		12 (9.6%)	80 (13.2%)		8 (8.3%)	84 (13.2%)		8 (9.6%)	84 (13.0%)	
2 comorbid disease	6 (5.3%)	27 (4.4%)		8 (6.4%)	25 (4.1%)		6 (6.3%)	27 (4.3%)		4 (4.8%)	29 (4.5%)	
3 or more comorbidities	13 (11.5%)	27 (4.4%)		14 (11.2%)	26 (4.3%)		12 (12.5%)	28 (4.4%)		6 (7.2%)	29 (4.5%)	
Unknown	43 (38.1%)	194 (31.4%)		47 (37.6%)	190 (31.4%)		35 (36.5%)	202 (31.8%)		34 (41.0%)	203 (31.3%)	
CT scan			0.37			0.45			0.36			0.29
No CT scan	4 (3.6%)	41 (6.6%)		5 (4.0%)	40 (6.6%)		4 (4.2%)	41 (6.5%)		3 (3.6%)	42 (6.5%)	
CT scan, no abnormalities	86 (76.8%)	505 (81.7%)		96 (77.4%)	495 (81.7%)		79 (82.3%)	512 (80.8%)		60 (72.3%)	531 (82.1%)	
CT scan, abnormalities	22 (19.6%)	72 (11.7%)		23 (18.5%)	71 (11.7%)		13 (13.5%)	81 (12.8%)		20 (24.1%)	74 (11.4%)	
Hospitalization[c]												
Hospital admission	73 (64.6%)	300 (48.5%)	< 0.01	83 (66.6%)	290 (47.9%)	< 0.01	49 (51.0%)	324 (51.0%)	0.93	54 (65.1%)	319 (49.2%)	< 0.01
Number of days[a]	4 (2 - 13.5)	3 (1 - 7.75)	0.45	2 (0 - 7.75)	3 (1 - 7)	< 0.01	4 (2 - 11.5)	3 (1 - 8)	0.47	3 (1.8 - 10.8)	3 (1 - 8)	< 0.01
ICU admission	7 (6.2%)	28 (4.5%)	0.02	11 (8.8%)	24 (4.0%)	0.02	6 (6.3%)	29 (4.6%)		7 (8.4%)	28 (4.3%)	0.10

[a] Data are displayed as median, with the first and third quartile given within parentheses.

[b] Comorbidity is defined as the presence of any co-existing diseases or disease processes additional to injury that the traumatic brain injury (TBI) patients sustained. The following diseases were assessed as comorbid disease: asthma, chronic bronchitis, chronic nonspecific lung disease (not asked about), heart disease, diabetes, back hernia or chronic backache, osteoarthritis, rheumatoid arthritis, and cancer.

[c] Hospital or ICU admission for ≥1 day after arrival at emergency department.

ICD, International Classification of Diseases; DSM, Diagnostic and Statistical Manual of Mental Disorders; RPQ, Rivermead Post-Concussion Symptoms Questionnaire; PCS, post-concussion syndrome; ISS, Injury Severity Scale; AISH, Abbreviated Injury Severity Scale of the Head; AIS, Abbreviated Injury Scale; ICU, intensive care unit.

SUPPLEMENTARY TABLE S3. DETERMINANTS IN RELATION TO PCS/NO PCS AT 6 MONTHS AFTER TBI WITH RATING SCORE 2

Post-concussion syndrome	Mapped ICD-10/DSM-IV		RPQ total score		RPQ3		Three factor model	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Patient demographics								
Gender (male)	0.532	0.382–0.721***	0.529	0.374–0.748***	0.379	0.273–0.525***	0.586	0.417–0.825***
Education								
Primary/Secondary	1.732	1.111–2.701**	1.685	1.098–2.585**	1.551	1.039–2.316**	1.619	1.041–2.516**
Injury mechanism								
Assault (no)	0.376	0.190–0.743***	0.252	0.127–0.501***	0.344	0.177–0.669***	0.272	0.138–0.538***
Injury characteristics								
ISS			1.030	1.004–1.056**				
AISH	1.209	1.007–1.452**	1.239	1.002–1.531**	1.292	1.087–1.535***	1.219	1.011–1.469**
Other								
Comorbidity (no)	0.536	0.378–0.761***	0.513	0.354–0.743***	0.650	0.463–0.912**	0.520	0.362–0.748***
Hospital admission (no)	0.447	0.317–0.631***	0.611	0.414–0.903**			0.518	0.361–0.742***
n	731		731		731		731	
R^2	0.131		0.138		0.100		0.111	

***$p<0.01$; **$p<0.05$; *$p<0.1$.

PCS, post-concussion syndrome; TBI, traumatic brain injury; ICD, International Classification of Diseases; DSM, Diagnostic and Statistical Manual of Mental Disorders; RPQ, Rivermead Post-Concussion Symptoms Questionnaire; OR, odds ratio; 95% CI, 95% confidence interval; ISS, Injury Severity Scale; AISH, Abbreviated Injury Severity Scale of the Head.

SUPPLEMENTARY TABLE S4. DETERMINANTS IN RELATION TO PCS/NO PCS AT 6 MONTHS AFTER TBI WITH RATING SCORE 3

Post-concussion syndrome	Mapped ICD-10/DSM-IV		RPQ total score		RPQ3		Three factor model	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Patient demographics								
Gender (male)	0.482	0.315–0.737***	0.542	0.360–0.816***	0.399	0.253–0.630***	0.636	0.497–0.813*
Education								
Primary/Secondary	1.802	1.110–2.925**	1.821	1.102–3.008**	1.796	1.014–3.182**		
Injury mechanism								
Assault (no)	0.264	0.128 – 0.547***	0.337	0.160–0.709***	0.211	0.101–0.443***	0.291	0.173–0.491**
Injury characteristics								
AISH					1.232	0.974–1.559*	1.296	1.025–1.640**
Other								
Comorbidity (no)			0.023	0.599–0.385**	0.591	0.366–0.954**		
Hospital admission (no)	0.450	0.291–0.694***	0.426	0.280–0.649***			0.532	0.316–0.895**
n	731		731		731		731	
R^2	0.092		0.109		0.096		0.06	

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

PCS, Post-concussion syndrome; TBI, traumatic brain injury; ICD, International Classification of Diseases; DSM, Diagnostic and Statistical Manual of Mental Disorders; RPQ, Rivermead Post-Concussion Symptoms Questionnaire; OR, Odds Ratio; 95% CI, 95% Confidence Interval; ISS, Injury Severity Scale; AISH, Abbreviated Injury Severity Scale of the Head.