

SUPPLEMENTARY MATERIALS

Supplementary material 1: Search equations

1/ Pubmed

1. severe trauma[tiab]
2. severe injur*[tiab]
3. poly trauma [tiab]
4. multiple wound*[tiab]
5. multiple injur*[tiab]
6. multiple trauma[tiab]
7. major trauma[tiab]
8. major injur*[tiab]
9. polytrauma[tiab]
10. multiple trauma [MeSH Terms]
11. #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10
12. #11 AND **Humans** [MeSH Terms] AND **Adult** [MeSH Terms] AND "2014/01/01"[Date - Publication] : "2019/09/17"[Date - Publication]) AND (English[Language] OR French[Language])
13. #12 NOT (Case Reports[publication type] OR Editorial[publication type] OR Systematic Review[publication type] OR Letter[publication type])

2/ EMBASE

1. ("severe trauma"):ab,ti
2. (severe NEXT/1 injur*):ab,ti
3. ("poly trauma"):ab,ti
4. (polytrauma):ab,ti
5. (multiple NEXT/1 wound*):ab,ti
6. (multiple NEXT/1 injur*):ab,ti
7. ("multiple trauma"):ab,ti
8. ("major trauma"):ab,ti
9. (major NEXT/1 injur*):ab,ti
10. ("Multiple trauma")/exp
11. #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10
12. #11 AND [humans]/lim AND [english]/lim AND [1-1-2014]/sd NOT [1-10-2019]/sd AND [adult]/lim AND [embase]/lim
13. #12 NOT ([conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [erratum]/lim OR [letter]/lim OR [review]/lim)

3/ Clinicaltrials.gov

"Multiple Trauma/Injuries" OR "multiple Trauma"

Filters:

- Adult (18-64) + Older Adult (65+)

Supplementary material 2 : Outcomes classified according to the taxonomy proposed by Clarke and Williamson (n=403) ²⁹

Categories	Number (%) of outcomes classified in the category
Mortality/survival	25 (6)
Physiological/clinical	48 (12)
Infection	1 (0)
Pain	10 (2)
Function	105 (26)
Psycho social	0 (0)
Mental Health	60 (15)
Health Related Quality of Life	93 (23)
Compliance	0 (0)
Satisfaction	6 (1)
Resource use	39 (10)
Adverse events/effects	16 (4)

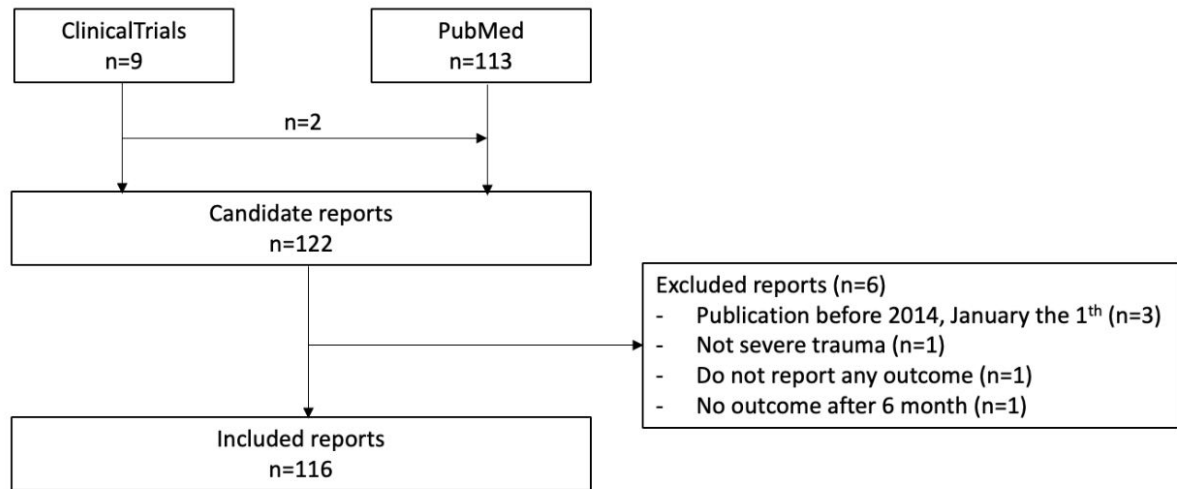
Supplementary material 3: Domain that matter to trauma survivors identified in the qualitative study (n=97). Domains that matter to severe trauma survivors were identified in previously published qualitative study where 340 severe trauma survivors, randomly sampled from a national register covering of all severe trauma patients cared for in level-1 trauma centres of the Paris region answered semi-structured telephone interviews. The 10 issues most frequently elicited by severe trauma survivors (colored) are considered as important domains for patients that should be considered in research ¹⁶

Domains identified in the qualitative study	n (%)
<i>I have pain</i>	170 (50.9)
<i>I have problems for walking</i>	115 (33.8)
<i>I can't work like I used to</i>	75 (22.1)
<i>I am concerned about the consequences of the trauma on my future</i>	67 (19.7)
<i>I still have to perform regular medical tests or consultation</i>	63 (18.5)
<i>I get tired faster</i>	56 (16.5)
<i>I feel moral pain</i>	56 (16.5)
<i>I can no longer practice sports</i>	51 (15.0)
<i>I have memory problems</i>	48 (14.1)
<i>My appearance has been altered, I have scars</i>	46 (13.5)
<i>I have difficulty performing certain daily activities (recreational activity, house chores, shopping, ...)</i>	42 (12.4)
<i>I am having trouble with administrative procedures</i>	39 (11.5)
<i>I can no longer perform certain movements</i>	39 (11.5)
<i>I feel dependent on others</i>	33 (9.7)
<i>I have joint stiffness</i>	33 (9.7)
<i>I have a loss of muscle mass</i>	33 (9.7)
<i>I do not sleep well</i>	32 (9.4)
<i>My personality is no longer the same</i>	32 (9.4)
<i>I am anxious in situations where the trauma could happen again</i>	32 (9.4)
<i>I feel like my life before the trauma has disappeared</i>	31 (9.1)
<i>This trauma has had an impact on my loved ones</i>	30 (8.8)
<i>I have to take some medication</i>	29 (8.5)
<i>I have difficulty accessing adapted care</i>	26 (7.6)
<i>I have become disagreeable</i>	25 (7.4)
<i>I have neuropathic disorders</i>	25 (7.4)
<i>I feel dizzy, I have balance problems</i>	24 (7.1)
<i>I have trouble getting dressed, washing myself, eating, going to the toilet</i>	23 (6.8)
<i>I have side effects from my care</i>	23 (6.8)
<i>I am anxious when I think of the accident</i>	22 (6.5)
<i>I have noticed a lack of coordination between my caregivers</i>	21 (6.2)
<i>I have trouble speaking</i>	20 (5.9)
<i>I feel uncomfortable in certain positions</i>	20 (5.9)
<i>I have financial difficulties</i>	19 (5.6)

<i>I can no longer drive</i>	19 (5.6)
<i>I can no longer carry heavy loads</i>	18 (5.3)
<i>I do not know if the care I receive is adequate</i>	17 (5.0)
<i>I do not have desires anymore, I do not know what to do with my life</i>	16 (4.7)
<i>I have difficulty relating to others</i>	16 (4.7)
<i>I have changed my life priorities</i>	16 (4.7)
<i>Some of my problems are not taken into account by doctors</i>	16 (4.7)
<i>I feel weaker</i>	15 (4.4)
<i>I have trouble concentrating</i>	15 (4.4)
<i>I am asked to be strong</i>	15 (4.4)
<i>I have hearing problems</i>	14 (4.1)
<i>I have trouble seeing</i>	14 (4.1)
<i>I have a chronic health problem now</i>	14 (4.1)
<i>I see less of my loved ones</i>	14 (4.1)
<i>I am limping</i>	12 (3.5)
<i>I feel like I am less intellectually alert</i>	12 (3.5)
<i>A part of my body is immobilized</i>	11 (3.2)
<i>I feel lonely</i>	11 (3.2)
<i>My caregivers are not available enough for me</i>	11 (3.2)
<i>My caregivers give me divergent opinions</i>	10 (2.9)
<i>I can no longer care of my loved ones</i>	10 (2.9)
<i>I am out of breath</i>	10 (2.9)
<i>I feel bad about myself</i>	10 (2.9)
<i>I fear the moment when I will return home</i>	10 (2.9)
<i>I am angry about what happened</i>	10 (2.9)
<i>I find it difficult to accept my new life</i>	9 (2.6)
<i>I am not informed enough about my care</i>	9 (2.6)
<i>I have nightmares</i>	8 (2.4)
<i>I think a lot about the consequences of the trauma</i>	8 (2.4)
<i>I feel like my caregivers sometimes do not care about me</i>	8 (2.4)
<i>Communication with caregivers is difficult</i>	8 (2.4)
<i>I am dissocialized</i>	8 (2.4)
<i>I have a decreased libido</i>	7 (2.1)
<i>I am bored</i>	7 (2.1)
<i>I have closed myself off</i>	6 (1.8)
<i>I no longer have any taste or smell</i>	6 (1.8)
<i>I am grieving for someone who died at that moment</i>	6 (1.8)
<i>Medical care is a burden to me</i>	6 (1.8)
<i>I do not leave my house anymore</i>	5 (1.5)
<i>Expressing my feelings is difficult</i>	5 (1.5)
<i>I have problems taking public transport</i>	5 (1.5)
<i>The way others look at me has changed</i>	5 (1.5)
<i>This accident aggravated a chronic pathology</i>	5 (1.5)
<i>I feel like I have aged all of a sudden</i>	4 (1.2)
<i>I lost weight</i>	4 (1.2)

<i>I need more time to do things</i>	4 (1.2)
<i>I have sphincter disorders</i>	4 (1.2)
<i>I have lost confidence in myself</i>	3 (0.9)
<i>I have eating disorders</i>	3 (0.9)
<i>I need to talk to somebody</i>	3 (0.9)
<i>I have been in denial about the accident</i>	3 (0.9)
<i>I have not yet realized what happened to me</i>	2 (0.6)
<i>I have trouble writing</i>	2 (0.6)
<i>I feel vulnerable</i>	2 (0.6)
<i>I have gained weight</i>	2 (0.6)
<i>I have dental problems</i>	2 (0.6)
<i>It is difficult for me to plan the tasks I have to do</i>	2 (0.6)
<i>I am now afraid of medical care</i>	1 (0.3)
<i>I have an invisible disability</i>	1 (0.3)
<i>I am less patient</i>	1 (0.3)
<i>I have to learn to get to know my body again</i>	1 (0.3)
<i>I have problems multitasking</i>	1 (0.3)
<i>I am less alert</i>	1 (0.3)
<i>I can no longer access my home</i>	1 (0.3)

Supplementary material 4: Flowchart of selection of studies included in the review



Supplementary material 5: Included studies (n=116)

Study registry number First author Publication date (if published)	Journal of publication or sources	Geographical area of the first author	Funding source	Sample size	Mono/ multicentric	Randomized controlled trial (Yes/No)	Number of outcome reported	Outcome measurement tools used in the trial
NCT01523626 Goslings, J. C.	Clinicaltrials.gov	Europe	Public	1083	Multicentric	Yes	10	In hospital mortality Mortality Radiation dose EuroQol-6D Number of readmissions HUI-3 QALY Transfusion requirement Lenght in ICU Lenght of ventilation
NCT03588767 Vávra, P.	Clinicaltrials.gov	Europe	Public	60	Monocentric	No	1	Lenght until consolidation assessed with radio diagnostic examination
10.1016/j.jcrc.2018.08.030 Haylett, R. 2018	Journal of Critical Care	Europe	None	57	Monocentric	No	1	WHODAS 2.0
10.1055/s-0039-1692480 Aita, M.A. 2019	J Wrist Surg	South America	None	35	Monocentric	Yes	3	Jamar Hand Dynamometer QuickDASH Pain numeric Scale
NCT03137420 Osterhoff G.	Clinicaltrials.gov	Europe	Public	100	Monocentric	No	3	Hospital Anxiety and Depression Scale (HADS) Brief Family Distress Scale (BFDS) Numeric Scale of Family Distress (NSFD)
NCT04074382 Giannoudis, P	Clinicaltrials.gov	Europe	NA	440	Multicentric	No	8	SF-36 Trauma and Outcomes Profile Hospital Anxiety and Depression Score EQ-5D Leeds Trauma Questionnaire Qualitative interviews Work status
NCT03730688 Novák, M	Clinicaltrials.gov	Europe	Public	70	Monocentric	No	1	Surgical complications
NCT03526029 Jakob, M.	Clinicaltrials.gov	Europe	Public		Multicentric	No	8	Mortality up to 5y Lenght in hospitalisaton Healthcare costs Need for treatment Lenght in rehabilitation Return to work Need for a new imaging

								Need for medication
10.1080/09638288.2019.1660914 Abedzadeh-Kalahroudi M. 2016	Injury	Asia	Public	220	Monocentric	No	1	Short-form 12
10.1016/j.apmr.2014.08.005 Abraham, C. M. 2014	Arch Phys Med Rehabil	North America	Unclear	173	Monocentric	No	3	SF-36 Beck Depression Inventory-II Davidson Trauma Scale
10.3109/02699052.2013.865266 Agrawal, M. 2014	Brain Injury	Asia	Unclear	58	Monocentric	No	2	FIM GOS or GOS-E
10.1177/0269215517712044 Ahmed, W. 2017	Clin Rehabil	Europe	None	429	Monocentric	No	3	EQ-5D Return to work Change of accommodation
10.1186/1754-9493-8-10 Ahrberg, A. B. 2014	Patient Safety in Surgery	Europe	Public	47	Monocentric	No	4	Hannover Score for Polytrauma Outcome (HASPOC) SF-36 AOFAS score Hannover Score for Polytrauma Outcome (HASPOC)
10.1111/jgs.16098 Albrecht, J. S. 2019	Journal of the American Geriatrics Society	USA	Unclear	1902	Multicentric	No	1	Mortality
10.1186/s13037-019-0187-3 Allemann, F 2019	Patient Safety in Surgery	Europe	Public	149	Monocentric	No	12	Joint stiffness Joint instability Muscle contractures Blood circulation disorders Weakness Peripheral nerve damage Muscle force Ability to use the upper extremity at work/hobby/sports related activities Ability to carry out complex movements Pain Improvement during the healing process
10.1002/brb3.1018 Andelic, N. 2018	Brain and Behavior	Europe	Unclear	44	Monocentric	No	4	GOS or GOS-E CIQ SF-36 Mortality rate
10.1097/CCM.0000000000002376 Andrews, P. J. D. 2017	Crit Care Med	Europe	Public	386	Multicentric	Yes	2	GOS OR GOS-E Mortality up to 5y
10.1007/s10195-015-0379-2 Aprato, A. 2016	Journal of Orthopaedics and Traumatology	Europe	Unknow	50	Monocentric	No	4	Return to work Return to work Return to work Return to work
10.1016/j.injury.2016.02.005 Asadollahi, S. 2016	Injury	Pacific	Public	134	Monocentric	No	1	Surgical complications
10.1097/TA.000000000000102 Ayoung-Chee, P.	J Trauma Acute Care Surg	North America	Unclear	1352	Monocentric	No	3	Mortality Need for hospital readmission

2014								Need to be discharge to a skilled nurse facility
10.1097/HTR.0000000000000317 Bailey, E. K. 2017	Journal of Head Trauma Rehabilitation	North America	Unclear	302	Multicentric	No	3	Supervision rating scale FIM Change of accommodation
10.1016/j.wneu.2019.02.194 Baucher, G. 2019	World Neurosurgery	Europe	Unclear	82	Monocentric	No	2	GOS or GOS-E Mortality up to 6m
10.1097/HTR.0000000000000341 Beaulieu-Bonneau, S. 2018	Journal of Head Trauma Rehabilitation	North America	Public	225	Monocentric	No	1	Semi-structured interview
10.1097/HTR.0000000000000208 Belanger, H. G. 2017	Journal of Head Trauma Rehabilitation	North America	Public	159	Multicentric	No	7	Posttraumatic Stress Disorder Checklist–Civilian (PCL-C) Satisfaction With Life Scale Disability Rating Scale FIM GOS or GOS-E Neurobehavioral Symptom Inventory Participation Assessment with Recombined Tools–Objective
10.1080/02699052.2019.1581257 Berger-Estilita, J. 2019	Brain Injury	Europe	Public	262	Monocentric	No	5	Mortality up to 5y GOS or GOS-E EQ-5D Mini Mental State Global health outcome score after trauma
NA Bocci, M. G. 2016	Minerva Anestesiologica	Europe	Unclear	32	Monocentric	No	8	Barthel index Sexual activity in a visual scale Therapy Impact Questionnaire Hospital Anxiety and Depression Scale (HADS) Change of accommodation Back to work Required surgery or family care need or rehabilitation after initial discharge Daily consumption of pain killer or antidepressant Alcohol or drug abuse
10.1186/s12955-018-0966-z Born, K. 2018	Health and Quality of Life Outcomes	Europe	Public	199	Monocentric	No	5	QOLIBRI GOS or GOS-E EQ-5D SF-36 Trauma Outcome Profile (TOP)
10.1097/BOT.0000000000001355 Bott, A. 2019	Journal of Orthopaedic Trauma	Europe	Public	64	Monocentric	No	2	SF-36 EQ-5D
10.1371/journal.pone.0170047 Bouman, A. I. E. 2017	PLoS ONE	Europe	Public	132	Multicentric	No	3	FIM SF-36 HADS
10.1186/s12913-018-2971-7 Braaf, S. 2018	BMC Health Serv Res	Europe	Public	65	Multicentric	No	1	GOS or GOS-E
10.1186/s13054-015-0987-5 Campbell, H. E.	Critical Care	Europe	Public	441	Multicentric	No	4	Mortality up to 5y Healthcare costs

2015								Need for hospital readmission Need for care after discharge
10.1097/SLA.0000000000002666 Collie, A. 2019	Annals of Surgery	Pacific	Public	1086	Multicentric	No	1	Return to work
10.1001/jama.2018.6452 Costa, M. L. 2018	JAMA - Journal of the American Medical Association	Europe	Public	460	Multicentric	Yes	3	Disability Rating Index EQ-5D SF-36
NA Czuba, K. J. 2019	New Zealand Medical Journal	Pacific	Public	112	Multicentric	No	6	GOS or GOS-E Pain numeric scale World Health Organization Disability Assessment Schedule 2 (WHODAS 2.0) Work status EQ-5D SF-12
10.1186/s13049-018-0507-0 Danielsson, F. B. 2018	Scand J Trauma Resusc Emerg Med	Europe	Public	455	Multicentric	No	2	EQ-5D Stress Disorder Checklist
10.1016/j.injury.2018.11.021 Diacon, A. L. 2019	Injury	Pacific	Public	122	Multicentric	No	2	SF-12 American Academy of Orthopedic Surgeons Foot and Ankle Score
10.1097/HTR.0000000000000275 Dillahun-Aspillaga, C. 2017	Journal of Head Trauma Rehabilitation	North America	Public	293	Multicentric	No	1	Return to work
10.1016/j.apmr.2017.05.012 Dillahun-Aspillaga, C. 2018	Archives of Physical Medicine and Rehabilitation	North America	Public	712	Multicentric	No	8	Need to receive a treatment for a mental health issue FIM PTSD Checklist Civilian Version (PCL-C) Neurobehavioral Symptom Inventory Anxiety Disorder Questionnaire (GAD-7) Patient Health Questionnaire (PHQ-9) Galveston Orientation and Amnesia Test (GOAT) Work status
10.1007/s00068-015-0558-0 Dinh, M. M. 2015	Eur J Trauma Emerg Surg	Pacific	Public	179	Monocentric	No	3	SF-12 EQ-5D Return to work
10.1016/j.apmr.2018.06.022 DiSanto, D. 2019	Archives of Physical Medicine and Rehabilitation	North America	Public	1204	Multicentric	No	6	Return to work Generalized Anxiety Disorder Patient Health Questionnaire-9 Orientation Log (O-LOG) California Verbal Learning Test II (CVLT-II) Reitan Trail Making Tests (TMTs)
10.1136/emmermed-2014-204596 Duchateau, F. X. 2017	Emergency Medicine Journal	Europe	Public	88	Multicentric	No	2	Mortality Cerebral Performance Categories
10.1016/j.sleep.2018.11.012 El-Khatib, H. 2019	Sleep Medicine	North America	Public	94	Monocentric	No	7	Epworth Sleepiness Scale (ESS) Fatigue Severity Scale (FSS) Pittsburgh Sleep Quality Index (PSQI) Actigraph device (Actiwatch Spectrum or Actiwatch-L, Philips-

								Respironics, Andover, MA) Glasgow Outcome Scale Extended (GOS OR GOS-E) Beck Anxiety Inventory (BAI) Beck Depression Inventory Pain Numeric Scale
10.1097/TA.0000000000000727 Eriksson, M. 2015	Journal of Trauma and Acute Care Surgery	Europe	Both	413	Multicentric	No	2	Renal function assessed with the Modification of Diet in Renal Disease (MDRD) Mortality
10.1503/cmaj.180368 Evans, C. C. D. 2018	CMAJ	North America	Public	19338	Multicentric	No	2	Need for an admission in psychiatric units or with mental health diagnoses Suicide
10.1186/s13049-016-0322-4 Fagevik Olsen, M. 2016	Scand J Trauma Resusc Emerg Med	Europe	Public	61	Monocentric	No	8	Pain characteristics Forced Vital Capacity (FVC) with Spirometry Peak Expiratory Flow (PEF) with Spirometry Breathing movements measured with a Respiratory Movement measuring Instrument Thorax excursion measured with tape measure Fear of movement measured with the Tampa Score Disability Rating Index Active flexion and abduction in the shoulders measured with a goniometer
10.1186/s40001-017-0282-9 Falkenberg, L. 2017	European Journal of Medical Research	Europe	Private	324	Monocentric	No	6	SF-12 SF-36 Hannover Score for Polytrauma Outcome (HASPOC) Posttraumatic Stress Diagnostic Scale Impact of Event Scale-Revised (IES-R) Hospital Anxiety and Depression Scale (HADS-D)
10.3109/02699052.2015.1063161 Farrell-Carnahan, L. 2015	Brain Injury	North America	Unclear	112	Monocentric	No	7	Item #18 Neurobehavioural Symptom Inventory (NSI) Patient Health Questionnaire-9 item scale (PHQ-9) Generalized Anxiety Disorder 7-item scale (GAD-7) Item #2 from Post-Traumatic Stress Disorder Checklist-Civilian (PCL-C) Item #4 Neurobehavioral Symptom Inventory (NSI) Alcohol or drug abuse Need to receive a treatment for a mental health issue
10.1016/j.jse.2016.05.023 Ferree, S. and Hietbrink, F. 2017	Journal of Shoulder and Elbow Surgery	Europe	Unclear	71	Monocentric	No	2	Quick Disability of the Arm, Shoulder, and Hand (QuickDASH) Radiological evolution
10.1016/j.injury.2017.02.034 Ferree, S. 2017	Injury	Europe	Unclear	72	Monocentric	No	2	Quick Disability of Arm, Shoulder and Hand questionnaire (QDASH) Patient-Rated Wrist/Hand Evaluation (PRWHE)
10.1097/HTR.0000000000000357 Finn, J. A. 2018	Journal of Head Trauma Rehabilitation	North America	Public	155	Monocentric	No	6	Patient Health Questionnaire-9 (PHQ-9) Generalized Anxiety Disorder-7 Posttraumatic Stress Disorder Checklist-Civilian (PCL-C) Suicide attempt within the past year Problematic substance use within the past year Mental health treatment utilization
10.1016/j.injury.2017.10.020 Fleischhacker, E.	Injury	Europe	None	168	Multicentric	No	2	EQ-5D-5L GOS or GOS(E)

2018								
10.1136/injuryprev-2014-041336 Gabbe, B. J. 2015	Inj Prev	Pacific	Public	2369	Multicentric	No	10	GOS or GOS(E) SF-12 EQ-5D Perceived disability assessed using a likert-type scale Pain numeric Scale Return to work Impact of Event Scale revised (IES-R) Posttraumatic Stress Disorder checklist (PCL) Craig Hospital Inventory of Environmental Factors (CHIEF-SF) The King's Outcome Scale for Childhood Head Injury (KOSCHI)
10.1111/ans.12700 Gabbe, B. J. 2015	ANZ J Surg	Pacific	Public	111	Multicentric	No	1	Return to work
10.1097/SLA.0000000000000522 Gabbe, B. J. 2015	Annals of Surgery	Pacific	Public	7828	Multicentric	No	3	EQ-5D DALY Healthcare costs
10.1136/bmjopen-2015-009907 Gabbe, B. J. 2015	BMJ Open	Pacific	Public	2605	Multicentric	No	3	EQ-5D GOS or GOS-E Return to work
10.1097/SLA.0000000000001564 Gabbe, B. J. 2016	Annals of Surgery	Pacific	Public	8128	Multicentric	No	2	Glasgow Outcome Scale Return to work
10.1371/journal.pone.0113467 Gabbe, B. J. 2014	PLoS ONE	Pacific	Public	27840	Multicentric	No	3	The Glasgow Outcome Scale – Extended (GOS-E) EQ-5D SF-12
10.1097/HTR.0000000000000309 Gause, L. R. 2017	Journal of Head Trauma Rehabilitation	North America	Public	278	Multicentric	No	3	Functional Independence Measure (FIM) Alcohol or drug abuse Need to receive a treatment for a mental health issue
10.1097/BOT.0000000000000864 Gitajn, I. L. 2017	J Orthop Trauma	North America	Public	1849	Monocentric	No	1	Mortality
10.1016/j.injury.2017.12.012 Gitajn, I. L. 2017	Injury	North America	Public	1746	Monocentric	No	1	Mortality
10.1016/j.apmr.2017.08.465 Gray, M. 2018	Archives of Physical Medicine and Rehabilitation	North America	Public	44	Monocentric	No	2	FIM Mortality
10.2147/CIA.S158344 Gross, T. 2018	Clinical Interventions in Aging	Europe	Public	718	Monocentric	No	6	GOS OR GOS-E Euro Quality of Life EQ-5D Trauma Outcome Profile Quality of Life after Brain Injury SF-36
10.1016/j.jss.2018.10.024 Gross, T. 2019	Journal of Surgical Research	Europe	Unclear	335	Monocentric	No	7	GOS OR GOS-E Euro Quality of Life EQ-5D

								Trauma Outcome Profile Quality of Life after Brain Injury SF-36
10.1186/s13049-017-0375-z Gunning, A. 2017	Scand J Trauma Resusc Emerg Med	Europe	Public	1870	Monocentric	No	2	EQ-5D SF-36
10.1016/j.surg.2018.07.017 Herrera-Escobar, J. P. 2018	Surgery	North America	Unclear	512	Multicentric	No	1	Breslau 7-item questionnaire
10.1097/TA.0000000000002017 Herrera-Escobar, J. P. 2018	Journal of Trauma and Acute Care Surgery	North America	Public	650	Multicentric	No	3	Trauma Quality of Life (TQoL) SF-12 Breslau seven-item questionnaire
10.1016/j.surg.2019.04.004 Herrera-Escobar, J. P. 2019	Surgery	North America	Public	805	Multicentric	No	4	SF-12 Breslau abbreviated scale Trauma Quality of Life instrument Return to work
10.1016/j.injury.2014.03.007 Honeybul, S. 2014	Injury	Pacific	Public		Multicentric	No	1	GOS or GOS-E
10.3171/2014.1.JNS131559. Honeybul, S. 2014	Journal of Neurosurgery	Pacific	Public	270	Multicentric	No	2	GOS or GOS-E Discharge location
10.1016/j.injury.2019.05.031 Johnson, L. 2019	Injury	Europe	Unclear	63	Monocentric	No	2	IES-R CORE-10
10.1016/j.injury.2014.08.028 Kaske, S. 2014	Injury	Europe	Unclear	129	Monocentric	No	10	POLytrauma Outcome (POLO) Chart European Quality of Life (EuroQoL) Short Form Health Survey (SF-36) Trauma outcome profile (TOP) Return to work Personal loss of income Need for care at home Need for medication Loss of work Need for help for independent daily living
10.1136/emered-2014-204376 Kennedy, M. P. 2015	Emergency Medicine Journal	Pacific	Unclear	3009	Multicentric	No	4	GOS or GOS-E Personal loss of income Return to work Need for help for independent daily living
10.1016/j.apmr.2016.02.017 Kesinger, M. R. 2016	Arch Phys Med Rehabil	North America	Public	293	Multicentric	No	5	Patient Health Questionnaire-9 PHQ-8 FIM Substance use Suicide
10.1111/aas.13380 Kolstadbraaten, K. M. 2019	Acta Anaesthesiologica Scandinavica	Europe	Unclear	68	Multicentric	No	1	Pain numeric scale

10.1016/j.bbi.2014.12.021. Kumar, R. G. 2015	Brain, Behavior, and Immunity	North America	Public	98	Monocentric	No	1	GOS or GOS-E
10.1016/j.jvs.2015.01.045 Lang, N. W. 2015	J Vasc Surg	Europe	Unclear	64	Monocentric	No	1	FIM
10.1097/JNN.000000000000106 Langhorn, L. 2014	J Neurosci Nurs	Europe	Unclear	24	Monocentric	No	1	GOS or GOS-E
10.1007/s00402-016-2550-5 Larsen, P. 2016	Archives of Orthopaedic and Trauma Surgery	Europe	Public	53	Monocentric	No	3	EQ5D SF-36 Work status
10.1007/s00701-019-03893-6 Lenell, S. 2019	Acta Neurochirurgica	Europe	Public	220	Monocentric	No	1	GOS or GOS-E
10.1302/0301-620X.99B2.37999 MacKe, C. 2017	Bone and Joint Journal	Europe	Public	307	Monocentric	No	6	SF-12 HASPOC GOS or OR GOS-E Return to work Satisfaction with rehabilitation Work status
0.1016/j.injury.2014.06.014 Marasco, S. 2015	Injury	Pacific	Public	397	Multicentric	No	3	GOS OR GOS-E SF-12 Numeric pain scale
10.1016/j.injury.2018.11.005 Marasco, S. 2018	Injury	Pacific	Public	67	Multicentric	No	3	GOS or GOS-E SF-12 Numerical rating scale
10.1093/ejcts/ezw369 Martin, C. 2017	European Journal of Cardio-thoracic Surgery	Europe	Public	60	Monocentric	No	3	Need for a new surgery Surgical complication Mortality
10.1097/HTR.0000000000000242 McGarity, S. 2017	Journal of Head Trauma Rehabilitation	North America	Public	154	Multicentric	No	6	Disability Rating Scale Functional Independence Measure Patient Health Questionnaire-9 Posttraumatic Stress Checklist - Civilian version Generalized Anxiety Disorder Scale-7 Participation Assessment with Recombined Tools-Objective (PART-O)
10.1097/SHK.0000000000000219 Mitra, B. 2014	Shock	Pacific	Public	365	Multicentric	No	3	GOS or GOS-E Mortality Return to work
10.1016/j.apmr.2016.11.026 Mortera, M. H. 2018	Archives of Physical Medicine and Rehabilitation	North America	Public	236	Multicentric	No	1	Neurobehavioral Symptom Inventory
10.1016/j.injury.2016.10.038 Nguyen, T. Q. 2017	Injury	Pacific	Public	425	Multicentric	No	3	death rate GOS or GOS-E return to work
10.4088/JCP.14m09721 O'Donnell, M. L.	Journal of Clinical Psychiatry	Pacific	Public	592	Multicentric	No	5	Mini International Psychiatric interview Clinician administrated PTSD scale (CAPS)

2016								WHODAS2 Pain numeric Scale Need to visit a physician
10.1002/bjs.10813 Pengelly, S. 2018	Br J Surg	Europe	Public	155	Monocentric	No	3	Mortality Surgical complication Need for hospital readmission
10.7196/SAJS.2407 Pillai, J. 2015	S Afr J Surg	Africa	Public	55	Monocentric	No	1	Surgical complication
10.1371/journal.pone.0103396 Rainer, T. H. 2014	PLoS ONE	Asia	Public	261	Multicentric	No	2	GOS OR GOS-E SF-12
10.1097/HTR.0000000000000294 Ren, D. 2017	Journal of Head Trauma Rehabilitation	North America	Public	129	Monocentric	No	2	Brief System Inventory Diener Satisfaction with Life Scale
10.1016/S0020-1383(17)30801-X Renovell-Ferrer, P. 2017	Injury	Europe	Unclear	86	Monocentric	No	2	American Orthopedic Foot and Ankle Society ankle-hindfoot scale (AOFAS score) SF-36
10.1016/j.apmr.2017.06.012 Rivers, C. S. 2018	Archives of Physical Medicine and Rehabilitation	North America	Public	340	Monocentric	No	3	FIM SF-36 LiSat-11
10.1097/BOT.0000000000000884 Roden-Foreman, K. 2017	J Orthop Trauma	North America	Private	214	Monocentric	No	3	Primary Care 121 Posttraumatic Stress Disorder Screen (PC-PTSD) PTSD Checklist-Civilian (PCL-C) Patient Health Questionnaire 8-Item
10.1080/02699052.2017.1307449 Schulz-Heik, R. J. 2017	Brain Inj	North America	unclear	119	Monocentric	No	7	TBI Follow-up Interview (TBIFI) Need for service utilisation Need for service last year Un-addressed needs Barriers to satisfy unmet needs Community Integration Questionnaire (CIQ) Rappaport Disability Rating Scale (DRS)
10.1097/TA.0000000000001594 Skrifvars, M. B. 2017	Journal of Trauma and Acute Care Surgery	Pacific	Public	603	Multicentric	Yes	3	Mortality GOS or GOS-E Deep venous thrombosis
10.1097/TA.0000000000000541 Soberg, H. L. 2015	Journal of Trauma and Acute Care Surgery	Europe	Public	58	Monocentric	No	2	Brief Approach/Avoidance Coping Questionnaire (BACQ), SF-36
10.1089/neu.2018.5850 Spitz, G. 2019	Journal of Neurotrauma	Pacific	Public	666	Multicentric	No	2	Return to Work Need for service utilization
10.1177/0269215517730 Spreadborough, S. 2017	Clin Rehabil	Europe	Public	99	Monocentric	No	5	Return to work rate Change in role Work status Trauma Outcome Profile Multiple Sclerosis Neuropsychological Screening Questionnaire
10.1016/j.ejvs.2015.05.012 Steuer, J. 2015	European Journal of Vascular and Endovascular	Europe	Public	74	Multicentric	No	3	Surgical complication Mortality Need for a re-intervention

	Surgery							
10.1186/s13017-018-0217-y Tan, A. L. 2018	World J Emerg Surg	Asia	Public	478	Multicentric	No	1	GOS or GOS-E
10.1016/j.injury.2017.03.033 Tosounidis, T. H. 2017	Injury	Europe	Public	59	Monocentric	No	8	Pain numeric Scale Neurological deficit Urological deficit Leg length discrepancy less than 2 cm Work status Infection rate Pulmonary embolism Surgical complications
10.1016/j.injury.2016.12.001 van Dongen, T. T. C. F. 2016	Injury	Europe	Public	84	Multicentric	No	3	SF-36 EuroQol-6D Lower Extremity Functional Scale (LEFS)
10.1016/j.injury.2013.10.019 Van Erp, S. 2014	Injury	Europe	Public	214	Multicentric	No	7	Guide to Evaluation of Permanent Impairment, fourth edition, of the American Medical Association (AMA) Work status Return to work GOS or GOS-E Health and Labour Questionnaire Permanent impairment
10.1016/j.injury.2017.10.001 Wad, M. S. 2017	Injury	Europe	Public	63	Multicentric	No	1	EQ-5D
10.1136/emermed-2012-202101 Wang, H. E. 2014	Emergency Medicine Journal	North America	Public	1544	Multicentric	No	3	Mortality GOS or GOS-E Disability Rating Score (DRS)
10.1097/JSM.0000000000000373 Weber, C. D. 2017	Clin J Sport Med	Europe	unclear	637	Monocentric	No	5	Return to sport SF-12 HASPOC GOS or GOS-E Need for medical AIDs
10.1037/a0035693 Wegener, S. T. 2014	Rehabilitation Psychology	North America	Both	60	Monocentric	No	5	Readiness to Engage in Self-Management after Acute Traumatic Injury Self-Efficacy Scale Kessler 6-item depression scale PTSD Checklist–Civilian (PCL-C) SF-12
10.1371/journal.pone.0213980 Wijnen, B. F. M. 2019	PLoS ONE	Europe	Public	132	Monocentric	No	6	Functional Independence Measure SF-36 In patient related health care cost Patient and family related health care cost Society related Health care cost Productivity and Disease Questionnaire (PRODISQ)
10.3109/02699052.2015.1022882 Willmott, C. 2015	Brain Injury	Pacific	Public	145	Multicentric	No	2	Structured Outcome Questionnaire Return to work

10.1007/s00167-017-4784-3 Woodmass, J. M. 2018	Knee Surg Sports Traumatol Arthrosc	North America	Public	62	Unclear	No	2	International Knee Documentation Committee (IKDC) Lysholm scores
10.1089/neu.2013.3122 Zelnick, L. R. 2014	J Neurotrauma	North America	Public	1282	Multicentric	No	2	GOS or GOS-E Mortality
10.1016/j.injury.2015.11.015 Zibung, E. 2015	Injury	Europe	Private	148	Monocentric	No	1	Hadorn's Quality of Life and Health Questionnaire
10.1097/MD.0000000000003515 Zwingmann, J. 2016	Medicine (United States)	Europe	Public	156	Monocentric	No	6	Mortality GOS or GOS-E EuroQol-6D SF-36 Trauma Outcome Profile Beck Depression Inventory (BDI) II
10.5055/jom.2015.0280 Zwisler, S. T. 2015	Journal of Opioid Management	Europe	Unclear	938	Monocentric	No	2	Need for opioids prescription Mortality

Supplementary material 6: Measurement tools used in the included studies (n=154)

Measurement tools	Number (%) of studies using the tool	Number of domain covered
Glasgow Outcome Scale (Extended) - GOS(E)	36 (31.0)	27
Mortality	24 (20.7)	-
Return to work	24 (20.7)	1
EQ-5D	22 (19.0)	21
Short Form Health Survey (SF-36)	20 (17.2)	32
Short-form 12-item (SF-12)	15 (13.9)	23
Functional Independence Measure (FIM)	12 (10.3)	18
Work status	11 (9.5)	1
Posttraumatic Stress Disorder Checklist–Civilian (PCL-C)	10 (8.6)	19
Pain numeric Scale	8 (6.9)	2
Surgical complication (scars non/mal union, hernia, fistula, endoprosthesis leak, ...)	7 (6.0)	1
Trauma Outcome Profile (TOP)	7 (6.0)	47
Patient Health Questionnaire-9 (PHQ-9)	6 (5.2)	23
Alcohol or drug abuse	5 (4.3)	0
Anxiety Disorder Questionnaire (GAD-7)	5 (4.3)	9
Disability Rating Score (DRS)	5 (4.3)	9
Hannover Score for Polytrauma Outcome (HASPOC)	5 (4.3)	30
Hospital Anxiety and Depression Scale (HADS)	5 (4.3)	12
Neurobehavioural Symptom Inventory (NSI)	5 (4.3)	24
Beck Depression Inventory (BDI) II	4 (3.4)	20
American Orthopedic Foot and Ankle Society ankle–hindfoot scale (AOFAS score)	3 (2.6)	9
Breslau 7-item questionnaire	3 (2.6)	20
Change of accommodation	3 (2.6)	1
EuroQol-6D (EQ-6D)	3 (2.6)	27
Healthcare costs	3 (2.6)	1
Impact of Event Scale-Revised (IES-R)	3 (2.6)	16
Need for hospital readmission	3 (2.6)	1
Need to receive a treatment for a mental health issue	3 (2.6)	2
Quality Of Life in persons after traumatic BRain Injury (QOLIBRI)	3 (2.6)	45
Quick Disability of the Arm, Shoulder, and Hand (QuickDASH)	3 (2.6)	12
Suicide	3 (2.6)	1
World Health Organization Disability Assessment Schedule 2 (WHODAS 2.0)	3 (2.6)	17
Community Integration Questionnaire (CIQ)	2 (1.7)	15
Jamar Hand Dynamometer	2 (1.7)	5
Joints stiff	2 (1.7)	3
Need for medication	2 (1.7)	1
Need for service utilisation	2 (1.7)	1
Participation Assessment with Recombined Tools-Objective (PART-O)	2 (1.7)	12
Patient Health Questionnaire 8 (PHQ-8)	2 (1.7)	13
Personnal lost of income	2 (1.7)	1
Trauma Quality of Life (TQoL)	2 (1.7)	50
Ability to carry out complex movements	1 (0.9)	4
Ability to use the upper extremity at work/hobby/sports related activities	1 (0.9)	3
Active flexion and abduction in the shoulders measured with a goniometer	1 (0.9)	2
Barriers to satisfy unmet needs	1 (0.9)	1
Barthel index	1 (0.9)	5
Blood circulation disorders	1 (0.9)	1
Breathing movements measured with a Respiratory Movement Measuring Instrument	1 (0.9)	1
Brief Approach/Avoidance Coping Questionnaire (BACQ)	1 (0.9)	4
Brief Family Distress Scale (BFDS)	1 (0.9)	1
Brief System Inventory (BSI)	1 (0.9)	28
California Verbal Learning Test II (CVLT-II)	1 (0.9)	4
Cerebral Performance Categories (CPC)	1 (0.9)	6
Change in role	1 (0.9)	3
Clinician administrated PTSD scale (CAPS)	1 (0.9)	23
CORE outcome measure (CORE-10)	1 (0.9)	12
Craig Hospital Inventory of Environmental Factors (CHIEF-SF)	1 (0.9)	17
Daily consumption of pain killer or antidepressant	1 (0.9)	3
Davidson Trauma Scale	1 (0.9)	24
Deep venous thrombosis	1 (0.9)	0

Diener Satisfaction with Life Scale	1 (0,9)	2
Disability-Adjusted Life Years (DALY)	1 (0,9)	0
Discharge location	1 (0,9)	2
Epworth Sleepiness Scale (ESS)	1 (0,9)	2
Fatigue Severity Scale (FSS)	1 (0,9)	5
Forced Vital Capacity (FVC) with Spirometry	1 (0,9)	1
Fracture consolidation evaluated with radio	1 (0,9)	1
Galveston Orientation and Amnesia Test (GOAT)	1 (0,9)	1
Global health outcome score after trauma (GHOST)	1 (0,9)	21
Guide to Evaluation of Permanent Impairment, fourth edition, of the American Medical Association (AMA)	1 (0,9)	17
Hadorn's Quality of Life and Health Questionnaire	1 (0,9)	18
Health and Labour Questionnaire	1 (0,9)	7
Health Utilities Index (HUI-3)	1 (0,9)	16
Improvement during the healing process	1 (0,9)	1
In hospital health care costs	1 (0,9)	1
Infection rate	1 (0,9)	1
International Knee Documentation Committee (IKDC)	1 (0,9)	17
Joints instability	1 (0,9)	1
Kessler 6-item depression scale	1 (0,9)	14
Leeds Trauma Questionnaire	1 (0,9)	0
Leg length discrepancy less than 2 cm	1 (0,9)	2
Length of hospitalisation	1 (0,9)	1
Length of time in ICU	1 (0,9)	0
Length of time in rehabilitation	1 (0,9)	1
Length of time with ventilation	1 (0,9)	0
Length of time until consolidation assessed with radiography	1 (0,9)	0
Life Satisfaction Questionnaire (LISAT-11)	1 (0,9)	21
Lower Extremity Functional Scale (LEFS)	1 (0,9)	13
Lysholm scores	1 (0,9)	8
Mini International Psychiatric interview	1 (0,9)	17
Mini Mental State (MMS)	1 (0,9)	4
Multiple Sclerosis Neuropsychological Screening Questionnaire	1 (0,9)	7
Muscle contractures	1 (0,9)	4
Muscle force	1 (0,9)	3
Need for a new imaging	1 (0,9)	1
Need for a new surgery	1 (0,9)	1
Need for a reintervention	1 (0,9)	1
Need for an admission in psychiatric units or with mental health diagnoses	1 (0,9)	1
Need for care after discharge	1 (0,9)	2
Need for care at home	1 (0,9)	2
Need for financial support	1 (0,9)	2
Need for help for an independent daily living	1 (0,9)	3
Need for medical support	1 (0,9)	2
Need for opioid prescription	1 (0,9)	2
Need for service last year	1 (0,9)	1
Need for treatment	1 (0,9)	2
Need to be discharge to a skilled nurse facility	1 (0,9)	3
Need to change occupation	1 (0,9)	1
Need to visit a physician	1 (0,9)	1
Neurologic deficit	1 (0,9)	2
Number of readmissions	1 (0,9)	1
Numeric Scale of Family Distress (NSFD)	1 (0,9)	2
Orientation Log (O-LOG)	1 (0,9)	0
Pain	1 (0,9)	1
Pain characteristics	1 (0,9)	2
Patient-Rated Wrist/Hand Evaluation (PRWHE)	1 (0,9)	8
Patient and family related health care cost	1 (0,9)	1
Peak Expiratory Flow (PEF) with Spirometry	1 (0,9)	1
Perceived disability assessed using a likert-type scale	1 (0,9)	21
Peripheral nerve damage	1 (0,9)	2
Permanent impairment	1 (0,9)	1
Pittsburgh Sleep Quality Index (PSQI)	1 (0,9)	5
POLYtrauma Outcome (POLO) Chart	1 (0,9)	61
Primary Care 121 Posttraumatic Stress Disorder Screen (PC-PTSD)	1 (0,9)	10
Productivity and Disease Questionnaire (PRODISQ)	1 (0,9)	2
Pulmonary embolism	1 (0,9)	0
Qualitative interviews to assess satisfaction	1 (0,9)	1

Quality-adjusted life year (QALY)	1 (0,9)	0
Radiation dose	1 (0,9)	0
Rappaport Disability Rating Scale (DRS)	1 (0,9)	7
Readiness to Engage in Self-Management after Acute Traumatic Injury	1 (0,9)	13
Reitan Trail Making Tests (TMTs)	1 (0,9)	5
Renal function assessed with the Modification of Diet in Renal Disease (MDRD)	1 (0,9)	0
Required surgery or family care need or rehabilitation after initial discharge	1 (0,9)	2
Return to sport	1 (0,9)	1
Return to Work	1 (0,9)	1
Satisfaction With Life Scale (SWLS)	1 (0,9)	5
Satisfaction with rehabilitation	1 (0,9)	8
Self-Efficacy Scale	1 (0,9)	3
Semi-structured interview for substance use	1 (0,9)	-
Sexual activity in a visual scale	1 (0,9)	1
Sleep-wake disturbances measured with Actigraph device	1 (0,9)	2
Society related Health care cost	1 (0,9)	0
Structured Outcome Questionnaire	1 (0,9)	-
Substance use	1 (0,9)	0
Supervision rating scale	1 (0,9)	2
Tampa Score	1 (0,9)	9
TBI Follow-up Interview (TBIFI)	1 (0,9)	-
Therapy Impact Questionnaire (TIQ)	1 (0,9)	27
Thorax excursion measured with tape measure	1 (0,9)	1
Transfusion requirement	1 (0,9)	0
Un-addressed needs	1 (0,9)	1
Urologic deficit	1 (0,9)	1
Weakness	1 (0,9)	3

Supplementary Material 7: Number of patient-important outcome(s) assessed by included studies

Number of patient-important outcome(s)	All studies n=116	Monocentrics studies n=61	Multicentrics studies n=55
At least 1	104 (89.7)	53 (86.9)	21 (38.2)
At least 2	88 (75.9)	48 (78.7)	17 (30.9)
At least 3	81 (69.8)	43 (70.5)	14 (25.5)
At least 4	76 (65.5)	41 (67.2)	14 (25.5)
At least 5	54 (46.6)	34 (55.7)	12 (21.8)
At least 6	45 (38.8)	27 (44.3)	10 (18.2)
At least 7	31 (26.7)	20 (32.8)	7 (12.3)
At least 8	18 (15.5)	12 (19.7)	3 (5.5)
At least 9	11 (9.5)	10 (16.4)	2 (3.6)
At least 10	1 (0.9)	0 (0.0)	0 (0)

For each category, values are reported as n (%)

Supplementary Material 8: Subgroup analysis of patients-important domains according to the existence of a TBI among patient that participate in the qualitative study

Among patients with an AIS head ≥ 3			Among all patients of the qualitative study			Among patients with an AIS head < 3		
Rank		Freq (%)	Rank		Freq (%)	Rank		Freq (%)
1	I have pain	43	1	I have pain	51	1	I have pain	56
2	I have problems for walking	28	2	I have problems for walking	34	2	I have problems for walking	37
3	I can't work like I used to	26	3	I can't work like I used to	22	3	I can't work like I used to	20
4	I have memory problems	25	4	I am concerned about the consequences of the trauma on my future	20	4	I can no longer practice sports	19
5	I get tired faster	23	5	I still have to perform regular medical tests or consultation	19	5	I am concerned about the consequences of the trauma on my future	19
6	I feel moral pain	23	6	I feel moral pain	17	6	I still have to perform regular medical tests or consultation	17
7	I am concerned about the consequences of the trauma on my future	22	7	I get tired faster	17	7	I feel moral pain	13
8	I still have to perform regular medical tests or consultation	21	8	I can no longer practice sports	15	8	My appearance has been altered	13
9	My appearance has been altered	15	9	I have memory problems	14	9	I get tired faster	12
10	My personality is no longer the same	15	10	My appearance has been altered	14	10	I can no longer perform certain movements	12
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20	I can no longer perform certain movements	10	12	I can no longer perform certain movements	11	23	I have memory problems	7
26	I can no longer practice sports	8	19	My personality is no longer the same	9	27	My personality is no longer the same	6

TBI: Trauma Brain Injury is defined as a head Abbreviated Injury Score