

Supplementary Table 1

Search Strategy in PsycINFO (Ovid)

#	Searches	Results	Type
1	exp Etiology/ or (etiolog* or etiopatho* or Aetiolog* or aetiopatho*).ti,ab.	73565	Advanced
2	exp Neurosciences/ or exp Biology/ or exp Psychobiology/ or exp Biological Psychiatry/ or Nervous System/ or (neuro* or biolog* or psychobiolog* or brain* or hypothalamic-pituitary-adrenal or HPA or cytokine* or chemokine* or t-cell or LC-NE or inflammation* or molecul* or adnephrin* or adrenalin* or noradrenalin* or norepinephrin* or epinephrin* or ceruleus or caeruleus or coeruleus or coerulus or adrenamine or adrenine or immune* or immuno* or vasotonin or (autonomo* adj3 (function* or system*)) or ((nervo* or parasympath* or sympath*) adj3 system) or (allostatic adj3 load)).ti,ab.	1653457	Advanced
3	exp Genetics/ or Hydrocortisone/ or exp Neurobiology/ or Neuropsychology/ or DNA/ or Biological Markers/ or Phenotypes/ or (Heredity or genetic* or epigenetic* or Epigenomic* or cortisol or Hydrocortisone or Epicortisol or 11?Epicortisol or Cortifair or Cortril or neurobiolog* or neuropsycholog* or DNA or Deoxyribonucleic Acid or biomarker* or ((Biologic* or Biochemical or Clinical or Laboratory or Serum or Viral or Immunologic or Immune or Surrogate) adj (end?point* or Marker*)) or phenotype*).ti,ab.	294976	Advanced
4	exp "Susceptibility (Disorders)"/ or Psychosocial Factors/ or Protective Factors/ or Risk Factors/ or (Vulnerab* or susceptib* or risk* or trigger* or predictor* or (psycho* adj3 (factor* or mechanism*)) or ((risk or protective) adj3 factor*).ti,ab.	677713	Advanced
5	exp Sensitization/ or (Sensitiz* or sensitiz* or sensibili*).ti,ab.	17788	Advanced
6	(exp Posttraumatic Stress Disorder/ and exp "Onset (Disorders)"/) or ((psychotrauma* or Trauma or traumas or traumata or PTSD or PTS or DES*NOS or C*PTSD or EPCACE or multitrauma or traumatised or traumatized or "Enduring Personality Change after Catastrophic Experience*" or (Stress adj3 disorder*) or ((combat or war) adj3 (experience* or disorder* or fatigue or neurosis or neuroses or stress)) or ((Emotional or Complex or chronic or Complicated or Multiple) adj3 Trauma*) or ((Post-Traumatic or posttraumatic or Trauma*) adj3 (stress or neurosis or neuroses or syndrome* or Disorder* or psychosis or psychoses or distress*)) or (type adj3 trauma)	3977	Advanced

	or (trauma adj2 (stressor adj2 disorders))) adj3 (delay* or late or later or onset or older or elderly or prior or previous or cumulative or anteced* or preced* or progressio*)).ti,ab.		
7	exp "Remission (Disorders)"/ or (remission or remitted or asymptomatic* or dormant or (symptom* adj3 (free or interval* or bridge))).ti,ab.	24171	Advanced
8	exp Literature Review/ or exp Meta Analysis/ or exp "Treatment Guidelines"/ or ((review* or overview).ti. or ("systematic review" or "systematic literature" or "integrative review" or "integrative literature" or "evidence-based review" or "evidence-based overview" or "evidence-based literature" or "evidence-based survey" or "literature search" or "scoping review" or ((review* or overview*) adj9 (systematic* or methodologic* or quantitativ* or research* or literature* or studies or trial* or effective* or evidence-based)) or ((hand or manual or database* or computer*) adj1 search*)).md,ti,ab,id. or (bibliograph* or "relevant journals").ab. or ((meta adj2 (analys* or synthesis or study or ethnograph*)) or metaanaly* or metasynthesis or metastudy or metaethnograph* or ((synthes* or extraction or selection) adj2 (literature* or research* or studies or data or evidence)) or (methodologic* adj3 quality) or (pooled and analys*) or ((data adj1 pool*) and studies) or medline or medlars or embase or cinahl or scisearch or psychinfo or psycinfo or psychlit or psyclit or cinhal or cancerlit or cochrane or bids or pubmed or ovid or (electronic adj1 (database* or data base or data bases))).md,ti,ab,id. or (guideline* or recommendation* or cpg or framework* or protocol*).md,ti,ab,id.)	4659446	Advanced
9	(epidemiolog* or cohort* or longitudinal or timeserie* or followup or (repeated adj1 measure*) or (pre adj1 post) or (time adj1 serie*) or (follow adj1 up) or (panel adj3 stud*) or "odds ratio" or etiol* or aetiol* or "natural history" or prospect* or retrospect* or predict* or prognos* or outcome or course or ((comparative or evaluation or cross-section*) adj1 stud*) or (disability and evaluation*) or ((time or risk or risks) and (factor or factors)) or (recover* and (function or functions)) or sensitivit* or "area under curve*" or auc).md,ti,ab,id.	1345302	Advanced
10	exp Case Report/ or (vignette* or (case* adj3 (study or studies or report* or review* or serie* or control* or match* or comparison or referent))).md,ti,ab,id.	204343	Advanced
11	exp Qualitative Methods/ or (interview* or delphi* or hermeneutic* or Phenomenolog* or Semi-Structured or	589021	Advanced

	(qualitative adj3 (research* or method* or study or studies or Report or Reports or review* or data)) or (focus adj3 group*) or (Grounded adj3 Theor*) or ((narrative or content or discourse or sentiment or thematic) adj3 (analys* or inquir*))).md,ti,ab,id.		
12	(1 or 2 or 3 or 4 or 5) and 6 and (8 or 9 or 10 or 11)	2661	Advanced
13	6 and 7 and (8 or 9 or 10 or 11)	64	Advanced
14	12 or 13	2678	Advanced

Note. The search strategy was carried out in APA PsycINFO (1806 to November Week 5 2020) and then translated to the other databases, with the following remarks:

- thesaurus terms were adapted or replaced by search terms for title/abstract
- Ovid Medline: subheadings were used
- Ovid Medline, Ovid Evidence Based Medicine Reviews and Embase: because "trauma" in Medline often refers to physical trauma in these databases, these terms were left out of the search in set 6: trauma, multitrauma, traumatised, traumatized, ((Complex or chronic or Complicated or Multiple) adj3 Trauma*), (type adj3 trauma)
- Embase: we removed "pts" from set #6: it was much more often than in other databases used as an abbreviation for "patients"

Supplementary Table 2

Items retrieved, duplicates and collected in the search systems

Database	Number retrieved	External duplicates	New articles added
PsycINFO (Ovid)	2678	75	2603
Ovid Medline ALL (Ovid)	3193	676	2517
EBMR: CDSR, DARE	3	0	3
Embase	1496	960	536
Totals	7370	1711	5659

Supplementary Table 3

Full details of included human studies

Study	Population (N)	Trauma/ stressor	Assessment times	PTSD assessment	PTSD and delayed PTSD	Neurobiological observation methods
Admon et al. 2013	Soldiers (33)	Treating a fellow soldier with severe combat injury	Pre-deployment and 18 months later	Posttraumatic Stress Diagnostic Scale	57.6% (n = 19) had increased PTSD symptoms from pre- to post-deployment	MRI, functional MRI, diffusion tensor imaging
Alway et al. 2016	TBI patients (85)	Motor vehicle accidents (76.5%), other accidents, assaults	6 months, 1-, 2-, 3-, and 4- years post-injury	Structured Clinical Interview for DSM-IV	5.9% (n = 5) had PTSD at 6 months; 11.8% (n = 10) had delayed PTSD (of whom n = 3 had subthreshold PTSD at 6 months)	Posttraumatic amnesia duration
Bryant et al. 2009	Traumatic injury patients with no (708) or mild TBI (459)	Transport accident, assault, fall, work injury, other injury	During hospital admission and at 3 months post-injury	Clinician Administered PTSD Scale-IV	9.4% (n = 90) had PTSD: 11.8% (n = 50) in the group with mild TBI, 7.5% (n = 40) in the No-TBI group	Presence of mild TBI with posttraumatic amnesia of less than 24 hours

Study	Population (N)	Trauma/ stressor	Assessment times	PTSD assessment	PTSD and delayed PTSD	Neurobiological observation methods
Bryant et al. 2013	Road traffic accidentsurvivors admitted to trauma hospital (1084)	Transport accident, assault, fall, work injury, other injury	During hospital admission and at 3-, 12-, and 24-months post-injury	Clinician Administered PTSD Scale-IV	8.5% (n = 60 of 705) had PTSD at 3 months; 4.7% (n = 33) had delayed-onset PTSD at 12 months (of whom n = 8 had subthreshold PTSD at 3 months) and 1.3% (n = 9) at 24 months (of whom n = 5 had subthreshold PTSD)	Mild TBI in n = 437: documented injury to the head, loss of consciousness < 30 minutes, no focal neurologic abnormalities, normal CT-scan; heart rate
Busso et al. 2014	Adolescents exposed to bombing (78)	Terrorist attack at the 2013 Boston marathon	1 year prior to trauma (N = 44), 4-6 weeks posttrauma (N = 78)	Impact of Events Scale-6	Media exposure, preattack psychopathology, and prior violence exposure were associated with PTSD symptoms	Pretrauma sympathetic reactivity assessed during Trier Social Stress Test: respiratory sinus arrhythmia, preejection period
Cacciaglia et al. 2017	Healthy rescue ambulance workers (18), non-exposed matched controls (18)	Exposed group: vehicle accident (41%), traumatic loss of a loved one, domestic violence, childhood abuse	Cross-sectional; trauma occurred on average 7.41 years ago	Trier Inventory of Chronic Stress, State-Trait Anxiety Inventory	Higher levels of chronic and current stress as well as trait anxiety	Amygdala volume; cued fear conditioning; sensitivity of the HPA axis using a dexamethasone suppression test

Study	Population (N)	Trauma/ stressor	Assessment times	PTSD assessment	PTSD and delayed PTSD	Neurobiological observation methods
Chase et al. 2015	Help-seeking veterans (16) and family members (10)	Exposure to blast during employment to combat-intense settings	Cross-sectional; >7 years after exposure	Retrospective self-report	PTSD symptoms in most participants; months to years passed before medical attention was sought	TBI: memory loss
Do Prado et al. 2017	Adolescents with childhood trauma (30), controls without history of early life stress (ELS) (27)	Sexual abuse, physical abuse, emotional abuse, physical neglect, emotional neglect	Cross-sectional; maltreatment ended > 12 months ago	Childhood Trauma Questionnaire	Participants had no self-reported history of mental disorders; biological alterations associated with ELS could increase the lifetime risk of mental disorders	Immune activation and pro-inflammatory profile
Gandubert et al. 2016	Emergency room patients (123)	Physical assault, sexual assault, serious accident, other	During the first week and at 1-, 4-, and 12-months post-trauma	Watson's PTSD Interview	PTSD after 4- and 12-months in 21.2% and 17.5%, respectively. Peritraumatic distress and dissociation predicted 1- and 4-month PTSD	Cortisol, (nor)epinephrine, c-reactive protein, total and HDL cholesterol, glycosylated hemoglobin, waist-to-hip ratio, body mass index, blood pressure, heart rate

Study	Population (N)	Trauma/ stressor	Assessment times	PTSD assessment	PTSD and delayed PTSD	Neurobiological observation methods
Gil et al. 2005	TBI patients (120)	Traffic accident	< 1 week, 3 months, and 6 months later	Clinician Administered PTSD Scale	14% (n = 17) had 6- month PTSD, patients with memory of the accident were more likely to develop PTSD than those without	Mild TBI
Glenn et al. 2017	Soldiers deployed to Afghanistan (852)	Combat experience, difficult living and working environment	4 weeks before and 22 weeks after deployment	Clinician Administered PTSD Scale	PTSD in 4% of no TBI group (n = 570), 9% of recent TBI only (n = 102), 13% of deployment TBI only (n = 98), and 18% of multi-hit TBI (n = 82) group	TBI as evidenced by a history of head injury resulting in loss of consciousness and/or altered mental state, fear-potentiated startle (FPS)
Jung et al. 2019	Community- dwelling women (nurses) (50,020)	Various self- reported on Brief Trauma Questionnaire	Biennial from enrollment	Short Screening Scale for DSM- IV PTSD	Of N = 14,374 reporting trauma during follow-up, 9.1% (n = 1,301) had 6- 7 PTSD symptoms	Time spent TV-viewing in relation to onset of PTSD symptoms
Monfort & Trehel 2017	93-year-old veteran (1)	WW II combat experiences	65 years later	Clinical diagnosis	PTSD developed following entry into a nursing home and spousal death	Diagnosis of Alzheimer dementia

Study	Population (N)	Trauma/ stressor	Assessment times	PTSD assessment	PTSD and delayed PTSD	Neurobiological observation methods
Roy et al. 2015	Combat veterans without PTSD, depression, or post-concussive syndrome < 2 months after return (81)	Deployment to Iraq or Afghanistan > 3 months	< 2 months after return, 3, 6, and 12 months	Clinician Administered PTSD Scale	At 3-12 months post- deployment, n = 5 developed PTSD, n = 1 depression and PTSD, and n = 1 post- concussive syndrome	Single nucleotide polymorphisms; IL-6, IL-10, heat shock proteins, catecholamines, cortisol; fear acquisition and extinction; event-related potentials, (functional) MRI, diffusion tensor imaging
Smid et al. 2015	Deployed soldiers (693)	4-month deployment to Afghanistan	2 months prior to deployment and 1-, 6-, 12-, and 24- months following deployment	Self-report Inventory for PTSD	9.6% (n = 64) had PTSD at 1 month, 9.5% (n = 59) at 6 months, 7.2% (n = 33) at 12 months, and 5.7% (n = 22) at 24 months; 8.6% (n = 39) had late-onset PTSD at 6, 12, and/or 24 months	CD2/CD28-induced T- cell cytokine/chemokine production and Lipopolysaccharide- induced monocyte cytokine production

Study	Population (N)	Trauma/ stressor	Assessment times	PTSD assessment	PTSD and delayed PTSD	Neurobiological observation methods
Solomon & Mikulincer 2006	Combat veterans with combat stress reaction (CSR) (131) or without (83)	1982 Lebanon War	1, 2, 3, and 20 years after the war	PTSD Inventory	Soldiers with CSR more often had chronic PTSD than soldiers without CSR. In the no-CSR group, 23% (n = 20) had delayed PTSD at 2, 3, and/or 20 years	Combat stress reaction diagnosis following participation in frontline battles with no indication of serious physical injury and other psychiatric disorders
Solomon et al. 2017	Ex-prisoners of war (101), combat controls (15)	1973 Yom Kippur War	18, 30, 35, 42 years after the war	PTSD Inventory	Of n = 58 ex-POWs who provided biological data, 39.7% (n = 23) had delayed PTSD at 30 or more years, 5.2% (n = 3) had chronic PTSD, and 1.7% (n = 1) recovered PTSD	Body mass index, blood glucose, diabetes, blood pressure, hypertension, high-density lipoprotein cholesterol, triglyceride levels
Stein et al. 2013	Community- dwelling (25,018)	Lifetime exposure to 27 traumatic events	Cross- sectional	Composite International Diagnostic Interview	Dissociative symptoms were present in 14.4% of respondents with 12- month PTSD	Dissociative symptoms of depersonalization and derealization

Study	Population (N)	Trauma/ stressor	Assessment times	PTSD assessment	PTSD and delayed PTSD	Neurobiological observation methods
Uddin et al. 2010	PTSD-affected (23) and -unaffected individuals (77) from large sample	Lifetime exposure to 19 traumatic events	Cross-sectional	PTSD checklist	Lifetime and 12-month prevalences of PTSD were 14.4% and 10.0% in large sample (n = 1,547)	Methylation microarrays to assay CpG sites from more than 14,000 genes; IgG antibody levels to cytomegalovirus
Vaiva et al. 2005	Hospitalized traumatology patients (78)	Road traffic accident	1 & 6 weeks, 12 months	Clinician-Administered PTSD scale	37.2% (n = 29) had acute PTSD, 19.2% (n = 15) chronic, 9.0% (n = 7) delayed PTSD at 12 months	Plasma gamma aminobutyric acid (GABA) levels at 1 week
Wang et al. 2015	Blunt chest trauma patients (57)	Motor vehicle accidents (61.4%), falls, other accidents	1, 3, 6 months	Impact of Event Scale-Revised	39.6% (n = 21) had acute PTSD, 34.0% (n = 18) chronic, 7.5% (n = 4) delayed PTSD at 6 months	High-mobility group box 1 (HMGB1) protein in plasma
Waszczuk et al. 2020	First responders (1490)	Working at the WTC site, New York following the 9/11, 2001 terrorist attacks	Mean = 7.75 monitoring visits per 1.49 years, PTSD diagnosis at 12 years	PTSD Checklist, Structured Clinical Interview for DSM-IV	17.3% (n = 255) were in the high PTSD symptom trajectory group, of these, 69.0% (n = 118) had PTSD	Genotyping of blood samples: hypothesized polygenic risk scores