

PTSD AND THE LAW

Abstract: This article looks at medical advances in PTSD and at anticipated future developments. The article traces the development of the law on negligently inflicted psychiatric damage and shows how law and medicine interface on this topic.

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Introduction

Post-Traumatic Stress Disorder (PTSD) has been described as 'Psychiatry's Problem Child',¹ in particular when looking at the provision of evidence to identify a duty of care not to cause a psychiatric injury. This paper looks at the difficulty in gauging the existence and severity of the psychiatric injury both medically and legally. It examines how the courts in various jurisdictions have addressed the complexities that arise in establishing that the disorder was reasonably foreseeable and resulted from a defendant's negligence.

The beginning of the paper examines the medical and scientific advances that have provided a better understanding of the condition of PTSD and its aetiology and then continues to outline the psychiatric criteria necessary for the diagnosis of the disorder in the forensic setting. The second part of the paper looks at how the law in this area has developed in the common law jurisdictions of Ireland, England, North America and Australia.

Diagnosis of PTSD: Medical Advances

Since the first codification of PTSD in the USA Psychiatric Association (APA) *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) and subsequently, in the World Health Organisation's (WHO) *International Classification of Disorders* (ICD-10), studies have shown that its development follows exposure to a variety of traumas, many of which have become a common occurrence in modern times. Those suffering PTSD typically experience flashbacks, avoidance of thoughts/feelings associated with trauma and hyperarousal or hypervigilance. Although medical advances are continuing to gain a more complete understanding of the impact of such trauma on the nervous system, Murray B. Stein MD, Professor of Psychiatry and Family Medicine and Public Health and Vice-Chair of Clinical Research in Psychiatry at the University of California, remarks how studies in pathophysiology have shown that PTSD is a disorder characterised by dysfunction within specific brain systems.²

Perhaps one of the greatest difficulties to date in providing a diagnosis of pure PTSD is the fact that the associated symptoms of the disorder are also present in other psychiatric

¹ Peter Gaughwin, 'Psychiatry's Problem Child: PTSD in the Forensic Context' (2008) 16(5) *Australian Psychiatry* 369, 369-370.

² Pathophysiology definition: 'The study of the physiological changes that occur in the body both naturally and as a result of disease'. See Murray B. Stein and others, 'Structural Brain Changes in PTS: Does Trauma Alter Neuroanatomy?', (1997) 21 *Ann NY Acad Sci* 76.

conditions such as major depressive disorder and panic disorder.³ In a legal context, such uncertainty as to a definitive diagnosis of PTSD creates difficulties in the recovery of damages and, as previously mentioned, has been described as ‘Psychiatry’s Problem Child’.⁴ However, despite the current inability of neuroscience to definitively make a diagnosis of PTSD, many medical and scientific advances in areas such as neuroimaging, electroencephalography (EEG) and genetic biomarkers have made strides towards piecing together the complex parts of the puzzle in an attempt to conclusively define its aetiology.

Neuroimaging

Neuroimaging such as Functional Magnetic Resonance Imaging (fMRI) and Diffusion Tensor Imaging (DTI), have contributed to a greater understanding of the physiology of fear and the pathophysiology of PTSD, by identifying three particularly affected areas of the brain, the hippocampus, the amygdala, and the medial frontal cortex.⁵ Across different stress and anxiety disorders, studies in neuroimaging have allowed scientists to identify patterns of hyper-activation in emotion generating regions and hypo-activation in prefrontal and regulatory regions of the brain. The different patterns emerging from such studies are contributing to the ability of scientists to better situate specific disorders along a continuum, ranging from fear-based reactivity to more diffuse and prolonged stress or apprehension.⁶

Regarding the latter, research and neuroscientist Lynn Selemon at the Yale School of Medicine explains that studies have identified three frontal lobe circuits that have proved important in the understanding of PTSD symptomology:

- (1) The conditioning fear extinction circuit.
- (2) The salience circuit. (Evaluation and response to stimuli).
- (3) The mood circuit.⁷

Selemon further explains that:

It is viewed that the circuitry of fear conditioning and fear-conditioned extinction are intimately involved in the Pathology of PTSD. In PTSD the unconditioned negative stimulus is the traumatic event, and the conditioned stimuli are the sights and sounds and other sensory experiences that occur concurrently with the event. In PTSD, a failure to extinguish fear responses, which would normally happen in people not experiencing the disorder, contributes to the persistent physical and cognitive symptoms of re-experiencing the trauma, including increased autonomic arousal and phobic behaviours.⁸

³ Hugh Koch and others, ‘Post-traumatic Stress Disorder – Contemporary Analysis of Medico Legal Evidential Issues’ (2019) 28 *The Expert Witness Journal*.

⁴ Gaughwin (n 1).

⁵ David J Nutt and Andrea L. Malizia, ‘Structural and functional brain changes in posttraumatic stress disorder’ (2004) 65 *The Journal of Clinical Psychiatry* 11.

⁶ Elizabeth R. Duval, Arash Javanbakht and Israel Liberzon, ‘Neural circuits in anxiety and stress disorders: a focused review’, (2015) 11 *Therapeutics and Clinical Risk Management* 115.

⁷ Lynn D. Selemon and others, ‘Frontal Lobe Circuitry in Posttraumatic Stress Disorder’ (2019) 3 *Chronic Stress* (2019) 1.

⁸ *ibid.*

As shown above, the advances in neuroimaging and the related research studies provide evidence of the physical and functional impact trauma has on the brain. Dr Elizabeth R Duval and others researched current analysis in *Therapeutics and Clinical Risk Management* and found that: 'All disorders involve some deficits in both emotion-generating regions and modulatory regions, suggesting fear and anxiety both play key roles across the anxiety spectrum. What differentiates disorders appears to be the degree of dispersion of the functional changes across the brain'.⁹

What is less definitive and requiring further investigation is whether those who experience PTSD have a predisposition to the disorder, or whether the alterations and disturbances in brain function are due to the specific traumatic exposure.

Biological Fingerprint of PTSD

The recent publication of the findings of a decade long USA study of PTSD led by Charles R. Marmar, MD, Professor, and chair of the Department of Psychiatry NYU School of Medicine, showed the analysis of 20,000 genes in the human genome in individuals during high and low states of stress.¹⁰ The individual's blood tests showed detectable changes in the expression of genes between the two different states of anxiety which could serve as biological markers for stress. The researchers were able to narrow the focus down to 285 individual biomarkers that have the potential to objectively help diagnose patients with PTSD, as well as determine the severity of the stress.¹¹ However, although the 77% diagnostic success rate achieved is encouraging, the research findings must be treated cautiously, as the study focused exclusively on male war veterans and did not include female or paediatric subjects, or varied types of trauma.

In light of the above advances in medical science, when seeking the illusive definitive medical diagnosis, 'Psychiatry's problem child' is responding to treatment.¹² It is likely in the future one could witness the involvement of specific medical tests and procedures in providing definitive evidence of the presence of PTSD. Diagnosis of psychiatric injury continues to be made on a clinical basis where psychological and psychiatric experts working in the civil forensic context are expected to furnish an opinion on the absence or presence of a psychological injury, basing their findings on diagnosis, causation and prognosis.¹³

Both the above schemes of diagnostic criteria for PTSD have undergone revisions to reflect advancement in scientific research, identifying new diagnoses and disorder subtypes and addressing any weaknesses in previous criteria classifications. PTSD is classified as an anxiety disorder where the symptoms can begin to manifest years after the trauma. There is also the emergence of the concept of Complex PTSD (CPTSD) which, subject to endorsement by the Member States of the World Health Assembly, will be adopted by the upcoming ICD-11 in January 2022.¹⁴ This paper, however, will focus its attention on DSM-5, which is the

⁹ Duval (n 6).

¹⁰ Charles R. Marmar and others, 'Speech-based markers for posttraumatic stress disorder in Us veterans' (2019) 36 *Depress Anxiety* 607.

¹¹ Kelsey Dean and others. 'Multi-omic biomarker identification and validation for diagnosing warzone-related post-traumatic stress disorder' (2019) *Mol Psychiatry*

¹² Gaughwin (n 1).

¹³ Koch (n 3).

¹⁴ 'International Classification of Diseases, 11th revision (ICD-11)' (World Health Organisation <<https://www.who.int/classifications/icd/en/>> accessed 9 October 2020.

preferred classification of the Irish courts as alluded to by Hanna J in *W v The Minister for Health and Children*:

It is a valuable tool, but in my view, one must weigh heavily the essential and important ingredient of the diagnosis of an experienced medical professional coming to an informed view aided, as I say, by the collective wisdom and guidance to be found in DSM-5 in this case, or indeed ICD 10 which is occasionally mentioned, but seems to lag somewhat behind DSM-5 in popularity of reference when evidence is given before this Court.¹⁵

ICD-11

As mentioned above, although not yet the current reality, the future of PTSD diagnoses is to be confirmed in the upcoming 11th revision of the ICD classification. It is anticipated that this will introduce the concept of CPTSD. Diagnostic criteria for PTSD will be;

- (i) Re-experiencing the traumatic experience in the here and now. (Includes nightmares and flashbacks).
- (ii) Heightened sense of current threat.

The revised edition differs somewhat from previous definitions (as laid out in DSM-5 – see appendix), as non-specific symptoms that are found in other conditions (poor concentration and sleep problems) will be removed. The duration of required symptoms and the degree of functional impairment are used to differentiate normal reactions to traumatic stressors from PTSD. It is anticipated that CPTSD will encompass the above and add;

- (i) Affect dysregulation.
- (ii) Negative self-concept.
- (iii) Difficulties in relationships, characterised by disturbances in self-organisation.¹⁶

Whereas PTSD is generally related to a specific single event, complex PTSD is related to a series of events or a prolonged event.¹⁷ A traumatic experience and functional impairment still remain key to the diagnosis.¹⁸ What can be envisaged from all the above criteria is the profound effect such symptoms would have on all aspects of a victim's life.

Use of DSM-5 as a Legal Reference

DSM-5 criteria are also used as a reference in legal issues in assessing the forensic consequences of mental disorders. However, attention should be drawn to the Cautionary Statement for Forensic use of DSM-5,¹⁹ which advises 'DSM-5 was developed to meet the

¹⁵ [2016] IEHC 692 [17]

¹⁶ Chris R. Brewin, 'Complex post-traumatic stress disorder: a new diagnosis in ICD – 11' (2019) 26(3) BJPsych Advances 145, 145.

¹⁷ Paul Rosenfield, Alexandra Stratyner and Sumru Tufekcioglu, 'A Case Report on a New Diagnosis', (2018) 24(5) Journal of Psychiatric Practice 364.

¹⁸ Brewin (n 16).

¹⁹ American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders: DSM-5* (5th ed, American Psychiatric Association 2013).

needs of clinicians, public health professionals, and research investigators rather than all of the technical needs of the courts and legal professionals'.²⁰ It further elaborates:

DSM-5 may facilitate legal decision makers' understanding of the relevant characteristics of mental disorders. The literature related to diagnoses also serves as a check on ungrounded speculation about mental disorders and about the functioning of a particular individual. Finally, diagnostic information about longitudinal course may improve decision making when the legal issue concerns an individual's mental functioning at a past or future point in time.²¹

As a cautionary note it states:

[T]he use of DSM-5 should be informed by an awareness of the risks and limitations of its use in forensic settings. When DSM-5 categories, criteria and textual descriptions are employed for forensic purposes, there is a risk that diagnostic information will be misused or misunderstood. These dangers arise because of the imperfect fit between the questions of ultimate concern to the law and the information contained in a clinical diagnosis.²²

The 'tick boxing' exercise employed by some legal practitioners when attempting to establish or disprove the existence of a recognised psychiatric disorder has the potential of devaluing the severity of the symptoms experienced and their impact on all areas of life. Such misapplication runs counter to the true purpose of the classification scheme.²³ The reliance on the classification schemes to provide a pathological explanation for presenting symptoms, at the expense of assessing severity of a condition, was addressed by Jyoti Ahuja, a Clinical Psychologist and Teaching Associate at the Birmingham School of Law, in '*Liability for Psychological and Psychiatric Harm: The Road to Recovery*':

Psychiatrists are concerned primarily with abnormal emotions and behaviour: decisions about whether distress is a matter for psychiatry are not based primarily on its severity, but on whether it indicates an underlying pathology. Using psychiatric diagnosis as a measure of the intensity of distress is to apply it to a different question from what it was designed for – and bound, therefore, to yield the wrong answer.²⁴

The Law in Relation to Negligently Inflicted Psychiatric Damage

The expansion of liability in Tort Law as per *Donoghue v Stevenson* typically brings to mind the 'duty of care' and 'neighbour' principle.²⁵ Being able to claim against someone without being in a contractual relationship with them was seen as a huge step in 1932. When applying a 'duty of care' to a psychiatric injury, damages are recoverable where a defendant has caused a reasonably foreseeable recognised psychiatric injury through a negligent act or omission, as was demonstrated in the early Irish cases of *Byrne v Southern and Western Ry Co*,²⁶ and *Bell v*

²⁰ *ibid.*

²¹ *ibid.* 25.

²² *ibid.* 25.

²³ Jyoti Ahuja, 'Liability for Psychological and Psychiatric Harm: The Road to Recovery' (2015) 23 *Medical Law Review* 27.

²⁴ *ibid.*

²⁵ *Donoghue v Stevenson* [1932] SC (HL) 31.

²⁶ *Byrne v Southern and Western Ry Co* (Court of Appeal, February 1884).

*GN Ry Co.*²⁷ It was not until 1980 that PTSD was officially recognised as a diagnosable condition by the American Psychological Association. In subsequent years, the judicial approach to this recognition of PTSD and psychiatric injury in general has, at times, been somewhat illogical, and could be viewed as conflicting with empirical psychiatric and medical evidence.²⁸

To gain a better understanding of why the law in this area of tort has become so complex, the following sections will outline the chronological development of the law relating to psychiatric injury in Irish, English, and American jurisdictions.

The Early Years

Until the latter part of the nineteenth century, the common law courts were reluctant to entertain compensation claims for psychiatric injury. Initially, there was a gradual increase in accommodation of compensation for injuries that were not strictly physical, such as anger or depression that had resulted from negligently caused physical injuries. Successful claims for psychological injury were only those which formed a ‘parasitic element’ to the physical injuries.²⁹

Damages for nervous shock have been recoverable in Ireland for over a hundred years. In the early case of *Byrne v Southern Western Ry Co.*,³⁰ the plaintiff was a superintendent working at the telegraph office at Limerick Junction when a train crashed through the wall of his office after a railway point was negligently left open. Although not physically injured he sustained a nervous shock which resulted in injuries to his health. In giving evidence he explained that ‘although not a hair on [his] head was touched’ he got a great shock on hearing the noise and seeing the wall of his office collapse. The court held that he was entitled to damages and was awarded £325.

Due to the belief that psychiatric injuries were too difficult to scientifically measure and quantify, courts were disinclined to untangle the two forms of injury, as was evidenced in *Victorian Railway Commissioner v Coultas*,³¹ where a woman at a train crossing, suffered severe nervous shock when she was almost hit by a passing train, due to the defendant’s negligence. Sir Richard Couch took a cautious approach to mental illness emphasising that the damage could not be proven and the injury was too remote. This was to prevent ‘a wide field [being] opened for imaginary claims’,³² also known in modern times as the ‘floodgates’ argument. In the case of *Bell v Great Northern Railway Company of Ireland*,³³ the Armagh Train disaster where 89 people died and many more were injured, the court recognised the relationship between mind and body. In this case, the plaintiff was a passenger of the defendant’s train when part of it unhooked and reversed rapidly down a hill. The carriage then stopped suddenly and the plaintiff was thrown to the floor and witnessed other people who were seriously injured and killed. Although not physically hurt she suffered severe shock which affected her mental health, with medical evidence indicating that the shock might result in paralysis. Finding for the plaintiff, Pallas CB held that if a person suffered nervous shock leading to some physical or psychiatric injury they could be able to recover damages from the one whose negligence

²⁷ *Bell* (n 27).

²⁸ *Ahuja* (n 23).

²⁹ Bryan M.E. McMahon and William Binchy, *Law of Torts* (4th edn, Bloomsbury Professional 2013) para 17.02.

³⁰ *Byrne v Southern Western Ry Co* [1884] 26 LR (IR).

³¹ *Railway Commissioner v. Coultas* [1888] 13 AC 222 (PC).

³² *ibid* [226].

³³ *Bell* (n 27).

caused the shock. The shock did not have to be contemporaneous with the physical injury. In *Dulieu v White & Sons*,³⁴ there was some movement by the courts in England in accommodating compensation claims for psychiatric injury, such as, anger or depression which resulted from negligently caused physical injury. Such claims formed a parasitic element to physical injury causes of action. A further judicial expansion of this development in the law was to include plaintiffs who had not suffered any actual physical injury but were put in a position where they reasonably feared physical injury to themselves due to the negligent act of the defendant. This is evidenced in *Dulieu, Hambrook v Stokes Brothers* facilitated the next logical step of extending recovery in damages for a nervous shock to those who had a reasonable fear of physical injury to their children.³⁵ In this case, a mother saw a runaway lorry heading for her children and feared they had been killed.

In subsequent years, the main focus of the English court's concern became the issue of foreseeability of psychiatric injuries. As a result, they introduced a distinction between 'primary' victims, who were directly impacted by and were participants in, the incident, and 'secondary' victims, who were observers of the incident or the immediate aftermath. This initial curtailing of claimants created anomalies, injustice, and confusion when courts addressed the foreseeability test in conjunction with the duty of care test.

Elsewhere, in the USA, there are several different rules regarding a successful claim for emotional distress, they vary somewhat from state to state and the federal Supreme Court tends not to interfere in the decisions of the State Supreme Courts in this respect. Unlike in Ireland, the USA has two judicial systems. One is the Federal system with District Courts, a Court of Appeals, and Supreme Court, which is the highest and most controversial court due to the power struggle between conservative and liberal views and the close ties it has with those in politics. The second is the individual State law system which also has Supreme Courts and a hierarchy of courts that start at District Court level and has, much like Ireland, a District, Circuit, and Appeals Court. When a breach of the law occurs, it is either in breach of State laws or Federal laws, so crimes sometimes result in dual jurisdiction, in other words, the crime is or can be brought from both limbs of the judicial system as the crime breached both limbs. In most US states, those who were psychically and mentally injured in an incident were more likely to succeed in a case for damages than those who witnessed the incident. Similarities with English law when considering secondary victims include the closeness in proximity of the relationship between the parties, and proximity of time and space. The requirement as to the necessary degree of proximity differs somewhat between US states.

In 1893 in Florida, a new rule called the 'Impact Rule' stemmed from the case of *International Ocean Telegraph Company v Charles Saunders*.³⁶ The 'impact rule' stated that in order to seek compensation for emotional distress, known as nervous shock in the UK and Ireland, the applicant had to prove that they had suffered some physical injury caused by an impact, or, that their physical injuries caused by a non-impacted event had manifested to such an extent that it was either visible, or a doctor could testify and make a medical argument to establish physical outward proof of a mental injury. In *Robb v Pennsylvania Railroad*,³⁷ the Delaware Supreme Court reversed a judgment that had cited the 'impact rule' and held for the defendants. This case in 1965 was almost identical to the UK case of *Victorian Railway Commissioners v James Coultas and Mary Coultas* (Victoria, Australia, but decided whilst still under

³⁴ *Dulieu v White & Sons* [1901] 2 KB 669.

³⁵ *Hambrook v Stokes Brothers* [1925] 1 KB 141.

³⁶ *International Ocean Telegraph Company, Appellant v Charles Saunders* 32 Fla. 434 (1893).

³⁷ *Robb v Pennsylvania Railroad*, May 28, 1965, 58 Del. 454 (Del. 1965).

English rule) that had happened almost 100 years earlier.³⁸ Here, the Supreme Court held in favour of the claimant for ‘negligent infliction of emotional distress’ and rejected the ‘impact rule’. The claimant was physically unharmed when she escaped her car that had become stuck on a railway crossing. Within a few seconds of jumping out of the car, it had been struck and smashed to pieces.

A larger number of States are more understanding when it comes to negligent infliction of emotional harm. In the US, The Restatement of the Law, Torts (3d) *Liability for Physical and Emotional Harm* is comparable to McMahon and Binchy’s *Law of Torts* book in Ireland. It is produced by the highest legal Academics, Judges, and Lawyers and is based on a combination of legal rules, regulations, and rulings of the courts. In claims for psychiatric injury that have policy implications, the US courts refer to the area of ‘emotional harm’ as sometimes weighty enough to require the withdrawal of liability. These policies might dictate that a withdrawal of liability be simply because the emotional harm suffered was not serious.

More Modern Direction of the Courts – in the 1980s, 1990s, and 2000s

In *McLoughlin v O’Brian*,³⁹ the English courts continued to show reluctance in recognising ‘nervous shock’ as a medical condition. The plaintiff, although not present at the scene of an accident that killed one of her children and seriously injured the remaining members of her family, had suffered a severe shock after seeing the aftermath in hospital. However, the House of Lords set out three supplemental hurdles that the plaintiff, a secondary victim, had to satisfy before being entitled to damages, as follows:

- (i) The claimant has or had a close tie of love and affection with the primary victim.
- (ii) The claimant had a temporal and spatial proximity to the shocking event or immediate aftermath.
- (iii) The claimant witnessed the shocking aftermath with their own senses (sight, hearing).

In the decision of Denham J in *Mullally v Bus Éireann*,⁴⁰ one of the first cases in Ireland to accept the criteria laid down in DSM 111-R in the diagnosis of PTSD, there were initial signs of differing directions between the Irish and English jurisdictions concerning secondary victims. In this case, the plaintiff’s husband and children were involved in a bus accident and the court held that she had developed PTSD after seeing three of her children in a badly injured state in the immediate aftermath of the accident. The court held that the causal nexus between the defendant’s negligence and the psychiatric injury was a reasonably foreseeable consequence of the defendant’s negligence in causing the accident. All the events she experienced, from hearing of the accident, her journey to the hospital, seeing her badly injured sons and being told that her husband was dying, were caused by the defendant’s negligence. The issue of foreseeability of a negligently inflicted psychiatric injury in a primary victim was addressed in the controversial English case of *Page v Smith*.⁴¹ This case involved a car accident where neither of the parties were injured. However, due to the shock of the

³⁸ *Victorian Railway Commissioners v James Coultas and Mary Coultas* (Victoria) [1888] UKPC 3 (21 January 1888).

³⁹ *McLoughlin v O’Brian* [1983] 1 AC 410.

⁴⁰ *Mullally v Bus Éireann* [1992] IRLM 722 (HC).

⁴¹ *Page v Smith* [1996] 1 AC 155 (HL).

accident, the plaintiff suffered a relapse of a prior condition; chronic fatigue illness. By a small majority, the House of Lords held that provided the physical injury was foreseeable, it did not matter whether the injury was physical or psychiatric, thus negating the need to establish that the psychiatric injury was foreseeable in a primary victim. In the subsequent case of *Alcock v Chief Constable of South Yorkshire Police*,⁴² negligent mismanagement of a football match by the police led to overcrowding which resulted in the deaths of 96 spectators. The application of the test for secondary victims set out in *McLoughlin v O'Brian*⁴³ was narrowed, where the requirements such as:

- (i) a close tie of love and affection could not stray beyond spouse, parent or child (siblings excluded),
- (ii) perception of the event on television was not viewed as direct perception by one's own senses, and,
- (iii) discovery by a father of his child's body in the morgue 8 hours after the horrific event was not viewed as sufficiently proximate in time and thus failed the aftermath test. This policy driven direction is viewed by many as a 'low water mark' in psychiatric injury cases.

In an attempt to remedy the perceived injustice of this decision, the 1998 UK Law Commission recommended the abandonment of the second and third elements of the test.⁴⁴ This proposal was not adopted by the English courts, but they did have a strong presence in subsequent Australian decisions such as *Tame v New South Wales and Annetts v Australian Stations Pty Ltd*.⁴⁵ The control mechanisms of direct perception, witnessing the aftermath and sudden shock were no longer pre-requisites in Australian law but could be relevant to questions of foreseeability, effectively acknowledging that psychiatric injuries were as real as physical ones. In *White v Chief Constable of South Yorkshire*,⁴⁶ police officers who had been on duty at the scene of the Hillsborough Stadium in which many people were killed brought an action against their employer for the psychiatric harm they had suffered when witnessing the tragedy. The House of Lords held that there was no extension of the duty of care to protect employees from psychiatric harm when they had not been exposed to physical danger. Lord Steyn described the law on recovery of damages for pure psychiatric harm as a 'patchwork quilt' that is difficult to justify, and that the only sensible general strategy for the courts is to say 'thus far and no further'. In *Frost v Chief Constable of South Yorkshire Police*,⁴⁷ Lord Hoffman echoed similar sentiments to those of Lord Steyn concerning the lack of consensus and coherence in this area of law but felt that the control measures should not be applied too rigidly or mechanically.

In the American case of *Zell v Meek*,⁴⁸ a woman saw her father pick up a box on the doorstep which exploded, killing him. She was physically unharmed in the incident but nine months later physical injuries manifested in the form of an ulcer that led to a blocked oesophagus which prevented her from swallowing and breathing with ease. She also had depression, insomnia, short-term memory loss, fear, and nightmares. Her claim for damages for nervous shock was upheld because of the physical manifestations exception, even the 9-month delay

⁴² *Alcock v Chief Constable of South Yorkshire Police* [1992] 1 AC 310.

⁴³ *McLoughlin v O'Brian* [1983] 1 AC 410.

⁴⁴ Law Commission, *Liability for Psychiatric Illness* (Law Com No 249, 1998).

⁴⁵ *Tame v New South Wales, and Annetts v Australian Stations Pty Ltd* [2002] HCA 35, 211 CLR 37.

⁴⁶ *White v Chief Constable of South Yorkshire* [1999] ICR 216; [1999] IRLR 110 (HL).

⁴⁷ *Frost v Chief Constable of South Yorkshire Police* [1998] QB 254 [1999] 2 AC 455.

⁴⁸ *Zell v. Meek*, 665 So. 2d 1048 (1995).

in these surfacing physical attributes was overlooked as they were medically deemed to be a direct result of the trauma she had suffered in seeing what happened to her father. The Supreme Court in *Zell* stated:

we rejected the impact rule to the extent that we held that no impact need be shown where psychological trauma could be demonstrated to cause a demonstrable physical injury, but we retained the rule as a bar to psychic injuries resulting from such trauma.[4] Of course, in addition to the requirement of a physical injury, we limited the class of claimants to those who, because of [their] relationship to the [directly] injured party and [their] involvement in the event causing that injury, [are] foreseeably injured.⁴⁹

The court in *Zell* also referred to a change in the law since 1985 concerning the ‘impact rule’, as established in *Champion v Gray*,⁵⁰ namely that ‘persons who suffer a physical injury as a result of emotional distress arising from their witnessing the death or injury of a loved one, may maintain a cause of action for negligent infliction of emotional distress’. Before this judgment, there was a strict adherence to the fact that some ‘physical impact’ to the claimant must be demonstrated before damages for personal injury could be recovered. Here, we saw the strength of the Supreme Court to overturn policy/law in a moment of humanity, or at the very least, outside the norm, when a man recovered damages who had suffered ‘intense emotional devastation’ after his wife died of a heart attack on the spot after hearing the impact and seeing the body of their daughter on the ground who had just been struck and killed by a drunk driver. The Trial Court and District Court had refused the application of the claimant based on the ‘physical impact’ rule. The rationale for the decision was summed up nicely: ‘The court ruled that there is a point at which the price of death or significant physical injury that is caused by psychological trauma causes too great a harm to impose the additional physical contact requirement’.

Meanwhile in Ireland at this time, the Supreme Court decision of *Kelly v Hennessey*⁵¹ established the modern authority in this area of law. The plaintiff was informed by a telephone call that her husband and two daughters had been seriously injured in a car crash. When she arrived at the hospital and saw her horrifically injured family, she developed PTSD. Hamilton CJ summarised the five factors that a plaintiff must establish to succeed in an action for damages for negligently inflicted psychiatric injury.⁵² They are as follows:

- a) he or she actually suffered a recognisable psychiatric illness;
- b) such illness was shock-induced;
- c) the nervous shock was caused by the defendant's act or omission;
- d) the nervous shock sustained was by reason of actual or apprehended physical injury to the plaintiff or to a person other than the plaintiff; and
- e) the defendant owed him or her a duty of care not to cause him or her a reasonably foreseeable injury in the form of nervous shock as opposed to personal injury in general.

⁴⁹ *ibid* [20].

⁵⁰ *Champion v Gray* 478 So. 2d 17 (Fla. 1985).

⁵¹ *Kelly v Hennessey* [1995] 3 IR 253.

⁵² *ibid* [24]-[37].

While criteria (a), (b) and (d) are more medically-based and plaintiff-experience focused when intending to establish causality, the remaining factors (c) and (e) are more based on the facts of the individual case, and are grounded in their unique circumstances. Clinical psychologist and Professor in Law and Psychology at Birmingham City University Hugh Koch, recommends that in establishing the presence of PTSD and a link to a generating event, experts should focus on the functional and behavioural aspects of a claimant's circumstances and not just the diagnosis.⁵³ The establishment of causality and duty of care concerning the recovery for the new category of complex PTSD as set out in the new revision of ICD11, may also prove difficult when pinpointing a specific traumatic event and the associated symptoms, from repeated past traumatic experiences.

In the more recent case of *Curran v Cadbury (Ireland) Ltd*,⁵⁴ McMahon J noted that the separation of victims into two categories, primary and secondary, as occurred under English Law, did nothing to assist the development of legal principles that guide the courts in this complex area of law. Here the plaintiff sustained a psychiatric injury at work; when, upon switching on a machine, she believed, with good reason, that she had killed or seriously injured a fellow work colleague, who was working inside the machine unbeknownst to her. The safety procedures in place for such circumstances had not been employed by the company and the Circuit Court found that the shock that the plaintiff experienced was due to the defendant's negligence. McMahon J held, that through her employer's negligence, the plaintiff had unwittingly become an essential link in the causative chain that resulted, to her mind, in an injury to her colleague, and that the plaintiff's injury was foreseeable.

In the case of *Fletcher v Commissioners of Public Works*,⁵⁵ the plaintiff worked as a general operative in Leinster House in Dublin for a number of years. During his employment, his employer knew that he was working in dangerous conditions and that he had come into contact with asbestos. The plaintiff, who was in good health, was told that there was a chance he could develop lung cancer and a remote chance that he could develop a disease called mesothelioma anytime up to 20 years in the future. Tests carried out by a respiratory consultant showed that the plaintiff's lungs showed no evidence of disease or abnormality. As a result of being informed of the risks, the plaintiff suffered psychiatric disturbance and became very anxious. In the High Court, O'Neill J held that the plaintiff had developed a reactive anxiety neurosis and awarded £48,000 in damages. The defendant's appealed to the Supreme Court on the ground that the trial judge had erred in awarding damages for a psychiatric illness which was not accompanied by a physical injury. The Supreme Court found in favour of the defendant, holding that on the facts of the case there was no shock in the sense of a sudden perception of a frightening event or its immediate aftermath and that liability cannot arise in 'fear of disease' cases. Keane CJ cited policy reasons which must be taken into consideration in novel cases such as this:

- (i) The undesirability of compensating such plaintiffs whose psychiatric condition is solely due to an unfounded fear;
- (ii) The implications for "the health care field" of such a relaxed rule of recovery; and
- (iii) The serious implication for medical negligence cases.⁵⁶

⁵³ Koch (n 3).

⁵⁴ *Curran v Cadbury (Ireland) Ltd* [2000] 2 ILRM.

⁵⁵ *Fletcher v Commissioners of Public Works* [2003] 1 I.R. 465.

⁵⁶ *Ibid* [62] – [64].

In fulfilling the criteria set out in *Kelly v Hennessey*,⁵⁷ the Supreme Court decision of Denham J in *Devlin v National Maternity Hospital* held that the law would not be extended by disapplying a limb of the test.⁵⁸ The plaintiffs in this case were the parents of a stillborn infant upon whom the defendant hospital had performed a post-mortem, removing and retaining some of the infant's organs without the parent's consent. The mother developed PTSD after learning of this. At trial and on appeal the court held that the 4th limb of the test in *Kelly v Hennessey*⁵⁹ had not been met. Denham J reaffirmed that the nervous shock sustained must be by reason of actual or apprehended physical injury to the plaintiff, or, a person other than the plaintiff and damages would only be awarded where a person had perceived an accident or its immediate aftermath and suffered a recognised psychiatric illness.

In the case of *Cuddy v Mays and Ors*,⁶⁰ Kearns J, while accepting that policy issues must be taken into consideration, was reluctant to narrowly define the proximity of a relationship for recovery of damages for nervous shock. In this case the plaintiff, a porter at a hospital, was on duty when the victims of a horrific car crash were admitted. All involved in the accident came from the plaintiff's community – his sister had been seriously injured and his brother was among the dead. Based on the criteria laid down in *Kelly v Hennessey*,⁶¹ the defendant argued that it was not reasonably foreseeable that the porter at the hospital would be a relative of the victims. Kearns J did not accept this argument stating, had he not been working he would still have come to the hospital in the immediate aftermath and would have been exposed to all the traumatic consequences of the accident.

Meanwhile, the English courts have, since the early 2000's adopted an approach of 'cautious incrementalism' to deal with this legal area,⁶² as affirmed by Lord Slynn in *W v Essex County Councilors*,⁶³ who stated that there was a need for flexibility, especially when dealing with new situations which were not clearly covered by existing decisions. In *Glamorgan NHS Trust v Walters*,⁶⁴ the criteria of *McLoughlin v O'Brian* were adhered to, but flexibility was given to the cases' individual facts and circumstance. The court held that the horrifying event in question, witnessed by a mother, was not confined to one moment in time, but over a 36-hour period, and that each key event leading to the death of her child had a devastating impact at the time of the occurrence. Therefore, the plaintiff's awareness was not gradual, but sudden. This view was echoed in *Galli-Atkinson v Seghal*,⁶⁵ where the series of circumstances that a mother experienced, over a period of time, after her daughter was killed by a motorist whilst walking to a ballet class, was viewed as the aftermath of the event and was sufficiently proximate to the accident.

In assessing damages in Ireland, O'Neill J in *Courtney v Our Lady's Hospital Crumlin* held that the defendants were liable for past and future psychological suffering caused to plaintiffs by reason of tragic incidents, separate from the natural grief that results following death.⁶⁶ This case concerned the mother of a two and half-year-old daughter who became ill. The child was hallucinating when the parents brought her to the defendant's hospital. She was initially given paracetamol by a triage nurse and was then diagnosed by a doctor as having a gastric

⁵⁷ *Kelly v Hennessey* [1995] 3 IR 253.

⁵⁸ *Devlin v National Maternity Hospital* [2008] 2 IR 222.

⁵⁹ *Kelly* (n 51).

⁶⁰ *Cuddy v Mays and Ors* [2003] IEHC 103.

⁶¹ *Kelly* (n 51).

⁶² Bryan M.E. McMahon and William Binchy, *Law of Torts* (4th edn, Bloomsbury Professional 2013) p 664.

⁶³ *W v Essex County Councilors* [2002] 2 WLR 601 (HL).

⁶⁴ *NHS Trust v Walters* [2002] EWCA Civ. 1792.

⁶⁵ *Galli-Atkinson v Seghal* [2003] EWCA Civ 697.

⁶⁶ *Courtney v Our Lady's Hospital Crumlin* [2011] IEHC 226.

bug. Later the child developed purple spots, was put on intravenous fluids and transferred to ICU. She died the following morning from meningitis. The plaintiff had stayed with her daughter the entire time and had observed the deterioration of her condition. The case of *Liverpool Women's Hospital NHS Foundation Trust v Ronayne* highlights the reluctance of the English courts to stray away from the policy control mechanisms set out in *Alcock v Chief Constable of South Yorkshire Police*,⁶⁷ regarding secondary victims, especially the observation of the consequences of clinical negligence.⁶⁸ Although the events occurred over a 36 hour period, the court distinguished the case from *Glamorgan NHS Trust v Walters* in that there was no seamless tale of obvious beginning and equally obvious end and that what was observed could not be viewed as horrifying by objective standards. *Re (a minor) and other v Calderdale Huddersfield NHS Foundation Trust* further highlighted inconsistencies in the treatment of secondary victims by the English courts.⁶⁹ The plaintiff was successful in her claim, namely, suffering with severe mental distress upon witnessing the negligently protracted and shocking birth of her grandchild. However, questions arose as to why the court found that labour, which is a normal, natural life experience, was horrifying and how the sudden shock criteria was fulfilled, especially since the grandmother was in a position to leave the delivery suite at any time. This decision raises concerns about the sudden shocking event requirement and the floodgates argument.

In *Holmes v Slay*,⁷⁰ the US Court of Appeal discussed the 1960's case of *Zoeller v Terminal R.R. Ass'n of St. Louis*,⁷¹ which required 'that before a recovery may be allowed for future pain and suffering there should be competent medical findings and the unsupported subjective statements of the injured party are not sufficient.'⁷² Holmes's therapist, who had diagnosed him with PTSD as a result of his incarceration testified at trial confirming that the medical condition was ongoing and likely to continue into the future, which is permissible under Missouri Law. In *Ewan v Islamic Republic of Iran*,⁷³ the US District Court of Columbia was concerned with Mr. Ewan, a former U.S marine, who was suing the Islamic Republic of Iran for Iran's alleged material support of the Hezbollah terrorists who perpetrated attacks on the U.S Embassy in Beirut, Lebanon, which killed over fifty people and injured dozens of others. The plaintiffs were stationed at the Embassy and were injured as a result of the attack. In the wake of the attacks, Ewan, who was at the scene at the time the attacks occurred, was 'shocked and sickened' at the sight of the devastation and the uncertainty of who among his friends had died. He and other Marines 'immediately began securing the area, gathering all body parts and human remains and placing them in body bags,' and in the aftermath, he often had the duty of informing local family members of the deaths of their relatives. After being discharged seven months after the attack, Ewan suffered from PTSD, which put a strain on both his personal life and ability to work as a real estate agent. The Court held that he was entitled to recover \$2 million in damages for pain and suffering caused by the bombing. This determination falls close to the typical award of \$1.5 million for servicemen suffering from psychological, but no physical injuries.

The evolving nature of the law relating to PTSD is demonstrated in two recent Irish cases. In the first case of *Sheehan v Bus Éireann*,⁷⁴ the successful plaintiff was a hairdresser who was

⁶⁷ *Alcock v Chief Constable of South Yorkshire Police* [1992] 1 AC 310.

⁶⁸ *Liverpool Womens Hospital NHS Foundation Trust v Ronayne* [2015] EWCA Civ. 588.

⁶⁹ *Re (a minor) and other v Calderdale Huddersfield NHS Foundation Trust* [2017] EWHC 824.

⁷⁰ *Holmes v Slay* [2018] 895 F.3d 993, US CoA for the 8th Circuit.

⁷¹ *Zoeller v. Terminal R.R. Ass'n of St. Louis*, 407 S.W.2d 73, 78 (Mo. Ct. App. 1966).

⁷² *Holmes* (n 70) [1003].

⁷³ *Ewan v Islamic Republic of Iran* [2020] U.S. Dist. LEXIS 101880, US District Court of Columbia.

⁷⁴ *Sheehan v Bus Éireann* [2020] IEHC160.

travelling home from work on a dark evening when she came upon an accident between a car and a bus. She did not witness the accident but her car was hit by debris on approach to the scene. She stopped her car and went to see if she could be of assistance. In one of the vehicles, she saw the partially decapitated body of the driver. She then checked to see if any other victims had been thrown from the car and called the emergency services. The plaintiff was diagnosed with PTSD in reaction to what she had witnessed. One of the main issues considered by the court was; what was the nature and scope of the duty of care not to cause a reasonably foreseeable psychiatric injury to a person who was not directly involved in the accident which caused the breach of duty? In his judgment Keane J reviewed the law set out in *Bell v Great Northern Railway Company of Ireland*,⁷⁵ *Mullally v Bus Éireann*,⁷⁶ *Alcock v Chief Constable of South Yorkshire Police*,⁷⁷ *White v Chief Constable of South Yorkshire*,⁷⁸ *Curran v Cadbury (Ireland) Ltd*,⁷⁹ *Fletcher v Commissioners of Public Works*,⁸⁰ and *Glencar Exploration Plc v Mayo County Council (No. 2)*.⁸¹

In the *Sheehan* case, the defendants looked to English case law to categorise the plaintiff as a secondary victim, described as one who is no more than a passive and unwilling witness of an injury caused to others. In the strict test laid down in the English case of *Alcock v Chief Constable of South Yorkshire Police*,⁸² secondary victims must prove that they have proximity of relationship, time and space to the event and to those injured or killed. The defence argued that the plaintiff in the present case could not succeed in her claim for damages as she had no ties to the driver of the car and she was not present when the accident occurred. In addressing the categorisation of victims Keane J cited McMahon J in *Curran v Cadbury (Ireland) Ltd*,⁸³ who viewed that the separation of victims into two categories in English cases such as *Page v Smith*,⁸⁴ and *White v Chief Constable of South Yorkshire*,⁸⁵ did not assist the development of legal principles to guide courts in this complex area of law. He further noted that the law is far from settled in either jurisdiction and that there was some divergence of approach taken between the Irish and English Courts. Keane J noted that subsequent Irish case law had relied on the authority of the Supreme Court decision of *Kelly v Hennessey*,⁸⁶ rather than the rigid primary/secondary victim distinction in *Alcock v Chief Constable of South Yorkshire Police*,⁸⁷ which 'entailed an inflexible adherence to the *Alcock* control mechanisms' and therefore had no role to play in the application of the test for the existence of a duty of care in the Irish jurisdiction.⁸⁸ In addressing the argument of the defendant, that the plaintiff did not fulfil the 5th element of the test in *Kelly v Hennessey*.⁸⁹ Keane J held that because expert evidence had shown that she was no more than a 100 metres from the accident when her car was hit by debris from the crash, she had become a participant in the accident and was therefore in the area of foreseeable physical injury. She therefore was owed a duty of care by the defendant not to cause a reasonably foreseeable psychiatric injury. Keane J also held that in searching

⁷⁵ *Bell* (n 27).

⁷⁶ *Mullally* (n 40).

⁷⁷ *Alcock* (n 43).

⁷⁸ *White* (n 46).

⁷⁹ *Curran* (n 54).

⁸⁰ *Fletcher* (n 55).

⁸¹ *Glencar Exploration Plc v Mayo County Council (No.2)* [2002] 1 IR 84.

⁸² *Alcock* (n 43).

⁸³ *Curran* (n 54).

⁸⁴ *Page v Smith* [1996] 1 AC 155.

⁸⁵ *White* (n 46).

⁸⁶ *Kelly* (n 51).

⁸⁷ *Alcock* (n 43).

⁸⁸ *Sheehan* (n 74) [48].

⁸⁹ *Kelly v Hennessey* [1995] 3 IR 253.

for additional victims in the dark, the plaintiff had put herself in danger and could be viewed as a rescuer who was in the range of foreseeable physical injury.

In the second case of *Harford v Electricity Supply Board*,⁹⁰ the plaintiff was an electrical technician who had worked for the Electricity Supply Board (ESB) for 20 years. During a procedure at work, he was exposed to a potentially fatal electric shock due to the faulty equipment provided by the defendant, in which he had received no training. The defendant admitted negligence but argued that to be successful in a claim for damages, causation, proximity and reasonable foreseeability had to be proven by the plaintiff in order to come within the definition of nervous shock. In applying the principles of *Kelly v Hennessy*,⁹¹ and citing Hanna J in *W v The Minister for Health and Children*,⁹² O'Hanlon J held, that on the evidence before the court, the plaintiff was suffering from PTSD. The condition was caused by the visual shock of handling a 10,000-kilovolt cable, (due to the negligence of the defendant) and the apprehension of the danger he had been exposed to. O'Hanlon J held that the plaintiff had proven he fulfilled all the limbs of the test set out in *Kelly v Hennessy*.⁹³ The judge also noted the approach taken by Keane J in *Sheehan*.⁹⁴ It should be noted that the circumstances in *Sheehan*⁹⁵ and *Harford*⁹⁶ are quite unusual on their facts.

Conclusion

The recent decisions in *Sheehan* and *Harford* give some indication of the evolutionary nature of the law relating to PTSD and the management of the complexities that arise in the application of current medical evidence to legal tests by the courts. Such approaches could be viewed as demonstrating an adaptive development of reasoned guiding principles in this area of law. It is important to note that as of June 2020, the decisions in *Sheehan* and *Harford* are under appeal and therefore may be subject to change in the near future. As highlighted above, often similarities between different jurisdictions can be observed in the treatment of plaintiffs, such as in UK case *Coultas* and US case *Robb v Pennsylvania*, as well as Ireland's *Sheehan* and the US case of *Ewan*. In both *Sheehan* and *Ewan*, neither plaintiff witnessed the actual event as it occurred, or knew anyone involved in the incident, but were nonetheless entitled to substantial compensation in the form of damages due to the PTSD they developed. The key elements found in the majority of cases, cross-jurisdictionally, are an examination of the proximity of time, space, and familial relationships to the accident or event.

Additionally, in light of the continuing research-based advances mentioned earlier and the consideration by courts of the disabling impact symptoms of the disorder have on the functional element of a plaintiff's life, it is not an unreasonable conclusion to draw that scientific testing of a medical and scientific nature, may in the future, form part of medical evidence where a party seeks to prove or disprove PTSD. Notwithstanding the envisaged advances in medical science to provide an accurate diagnosis of PTSD and the degree of severity suffered, cases in this area will still be determined on legal issues, particularly on liability, causation and quantum.

⁹⁰ *Harford v Electricity Supply Board* [2017 No. 4712 P] (Decision given by O'Hanlon J in the High Court on 2nd June 2020)

⁹¹ *Kelly* (n 51).

⁹² *W v The Minister for Health and Children* [2016] IEHC 692.

⁹³ *Kelly* (n 51).

⁹⁴ *Sheehan* (n 74).

⁹⁵ *ibid.*

⁹⁶ *Harford* (n 90).

Appendix

The functions of the three areas of the brain viewed as experiencing structural and functional adverse impacts in PTSD are as follows:

- **Hippocampus** – This area of the brain has a role in formation, organisation and storage of new memories as well as connecting certain sensations and emotions to these memories.
- **Amygdala** – This part of the brain mediates emotion-related processing, including fear conditioning and extinction.
- **Medial Frontal Cortex** – This part of the brain is associated with the long term retention of fear conditioned extinction.

DSM-5 are diagnostic criteria primarily designed to assist clinicians in conducting clinical assessment, case formulation, and treatment planning. The criteria are divided into sub-groups as outlined below;

- (A) Exposure to actual or threatened death, serious injury, or sexual violence in one (or more of the following ways;
 - (i) Directly experiencing the traumatic event(s).
 - (ii) Witnessing, in person, the event(s) as it occurred to others.
 - (iii) Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
 - (iv) Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse). Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work-related.
- (B) Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred;
 - (i) Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s). In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.
 - (ii) Recurrent distressing dreams in which the content and/or effect of the dream are related to the traumatic event(s). In children, there may be frightening dreams without recognizable content.

- (iii) Dissociative reactions (e.g. flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings). In children, trauma-specific re-enactment may occur in play.
 - (iv) Intense or prolonged psychological distress at exposure to internal and external cues that symbolise or resemble an aspect of the traumatic event(s).
 - (v) Marked physiological reactions to internal or external cues that symbolise or resemble an aspect of the traumatic event(s).
- (C) Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following;
- (i) Avoidance of or efforts to avoid distressing memories, thoughts, or feeling about or closely associated with the traumatic event(s).
 - (ii) Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
- (D) Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following;
- (i) Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia, and not to other factors such as head injury, alcohol, or drugs).
 - (ii) Persistent and exaggerated negative beliefs or expectations about oneself, other or the world (e.g. “I am bad,” “No one can be trusted,” “The world is completely dangerous,” “My whole nervous system is permanently ruined”).
 - (iii) Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
 - (iv) Persistent negative emotional state (e.g. fear, horror, anger, guilt, or shame).
 - (v) Markedly diminished interest or participation in significant activities.
 - (vi) Feelings of detachment or estrangement from others.

- (vii) Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).
- (E) Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
 - (i) Irritable behaviour and angry outbursts (with little or no provocation), typically expressed as verbal or physical aggression toward people or objects.
 - (ii) Reckless or self-destructive behaviour.
 - (iii) Hypervigilance.
 - (iv) Exaggerated startle response.
 - (v) Problems with concentration.
 - (vi) Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).
- (F) Duration of the disturbance (Criteria B, C, D and E) is more than 1 month.
- (G) The disturbance causes clinically significant distress or impairment in social, or occupational, or other important areas of functioning.
- (H) The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

With dissociative symptoms, the individual's symptoms meet the criteria for PTSD, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following;

- **Depersonalisation** – Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (feeling of unreality, of being in a dream)
- **Derealisation** – Persistent or recurrent experiences of unreality of surroundings (world is experienced as distant, distorted, unreal).

Electroencephalography

Electroencephalography (EEG) is used to measure electrical brain signals to provide a better understanding of the mechanisms and circuitry that are functionally disrupted in conditions such as PTSD.⁹⁷ In a study conducted by Dr Ali Mazaheri, Associate Professor, School of Psychology, University of Birmingham, patients who developed PTSD showed enhanced

⁹⁷ Mamona Butt and others, 'The Electrical Aftermath: Brain Signals of Post-Traumatic Stress Disorder Filtered Through a Clinical Lens' (2019) 10 *Frontiers in Psychiatry* 368.

brain responses to deviant tones, suggesting their brain over-processed any change in the environment. Such studies have the potential to identify neurobiological markers for PTSD patients that map to their own individual symptoms.⁹⁸

⁹⁸Patients with post-traumatic stress disorder respond differently to certain sounds, research finds' (*Science Daily*, University of Birmingham, November 30 2017).
< www.sciencedaily.com/releases/2017/11/171130093952.htm > accessed June 1, 2020