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The punch-drunk boxer and the battered wife: Gender and brain injury research

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ABSTRACT

This essay uses gender as a category of historical and sociological analysis to situate two populations—boxers and victims of domestic violence—in context and explain the temporal and ontological discrepancies between them as potential brain injury patients. In boxing, the question of brain injury and its sequelae were analyzed from 1928 on, often on profoundly somatic grounds. With domestic violence, in contrast, the question of brain injury and its sequelae appear to have been first examined only after 1990. Symptoms prior to that period were often cast as functional in specific psychiatric and psychological nomenclatures. We examine this chronological and epistemological disconnection between forms of violence that appear otherwise highly similar even if existing in profoundly different spaces.

1. Introduction

In 1990 a letter appeared in *The Lancet:* "A 76-year-old woman was admitted to hospital unconscious after being found at home with multiple injuries. She had rib fractures, multiple bruises and abrasions to the head, and signs of left-sided weakness. She had a history of a stroke and had become demented over the past few years, this manifesting predominantly as memory loss and mental confusion. Relatives told us that her husband had been violent towards her for many years, particularly in relation to his drinking, and the patient had often been seen with cuts and bruises."[2] The letter, titled "Dementia in a Punch-Drunk Wife," was followed by a post-mortem description of a battered woman with a pathology found in deceased boxers with chronic traumatic encephalopathy. *The Lancet* connected two patient populations—boxers and victims of intimate partner violence—together for the first time.[3]

Both conditions, then referred to as punch-drunk disease and battered woman syndrome respectively, linked violence and medicine. Both drew together men, masculinity, and violence in their aetiology. Both produced the same cluster of symptoms in a patient. But the conditions varied in significant ways, including character and origin. One was licit, the other illicit. One was derived from a public spectacle;

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[2] Roberts, G. W., H. L. Whitwell, Peter R. Acland, and C. J. Bruton., 1990. Dementia in a punch-drunk wife. Lancet 335 (8694), 918–919.

[3] Ross, Ryan. 2018. The Place of Post-Traumatic Amnesia in the Assessment of Blunt Head Trauma: The Epistemic, Professional and Material Factors Shaping British Neurology, circa 1920–40. Medical History 62 (4), 449–467; Ross, Ryan, 2018. Between Shell Shock and PTSD? 'Accident Neurosis' and Its Sequelae in Post-War Britain. Social History of Medicine 32 (3), 565-585; also: Schmitt, Michael N., and Chad E. Highfill. 2018. Invisible Injuries: Concussive Effects and International Humanitarian Law. Harvard National Security Journal 9, 75-100; Gillett, Grant. 2018. Concussion in sport: the unheeded evidence. Cambridge Quarterly of Healthcare Ethics 27 (4), 710–716; Henne, Kathryn, and Matt Ventresca. 2019. A criminal mind? A damaged brain? Narratives of criminality and culpability in the celebrated case of Aaron Hernandez. Crime, Media, Culture, 1741659019879888.; Gregory, Hollin. 2019. Making a murderer: Media renderings of brain injury and Aaron Hernandez as a medical and sporting subject. Social Science and Medicine 244 (2019): 112598.

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the other broke domestic tranquility. One involved men perpetrating violence on other men for public accolades; the other involved men perpetrating violence on the women in their private lives, usually in secret (and men were found to be the main perpetrators of such violence).[4] Whereas pathologist Harrison Martland had first described punch-drunk syndrome classically in 1928, the battered woman syndrome emerged with physician J. J. Gayford's 1975 foundational study.[5] It was not the difference in the gender composition of these populations, or even the difference in when they were identified, that made them so distinct.

Most significantly, where "punch-drunk" had been from its origins medically conceptualized as a brain disease consequent of repeated blows to the head, sufferers of battered woman syndrome—defined by Gayford as women who have "received deliberate, severe and repeated demonstrable physical injury from her marital partner"—passed rapidly, even in Gayford's own analysis, from medical knowledge into psychosocial frameworks that sidelined concerns about lasting consequences of brain damage.[6] Acute pathological problems of repeated violence were often passed over by human scientists in favor of discussing pathologies of the home and raising questions about why battered women stayed in dangerous relationships.[7] Gayford, for example, included in one of his articles figures with captions that said: "face of a woman within 48 h of attack by her husband with his fists" and "the bruising to the arm was caused by her being kicked when she had fallen to the ground, after being hit in the face with a fist" and "sites of bruising on the face."[8] Yet Gayford turned towards psychological rather than neurological symptoms, noting for instance that attempts to complete suicide had occurred frequently in the population he had studied but leaving unconsidered whether this might have importance in terms of underlying neurological disease processes.[9] Putting matters succinctly, questions about physical brain injury seem to have motivated no one, not even the pioneer researcher of "battered women." The diagnoses and medical attention granted to these two different populations were themselves inextricably gendered phenomena.

In the historical medical literature numerous essays and books appear describing individuals with single and repeated brain injuries who subsequently developing persistent, sometimes permanent psychological, psychiatric, and neurological conditions.[10] There are also extensive historical references in that literature to trauma as a significant factor in the production of organic brain disease, amyotrophic lateral sclerosis (ALS), dementia, and Parkinson's disease.[11] Among these and other neurological impairments was the punch-drunk condition, long recognized as a degenerative brain condition strongly associated with, and broadly accepted to be caused by, recurrent brain injury.[12] In the 1950s the condition came to be commonly called chronic traumatic encephalopathy (CTE).[13] While CTE was known in collision sports (boxing, football, hockey and rugby), law, and among veterans, other populations with medical histories of recurrent head injury exposure received scant attention – and potential exemplary populations for future pathological investigations exist.[14] Not least, as the letter in *The Lancet* above illustrates, among these populations are those with a history of acute medical emergencies arising from intimate partner violence.

Curiously, however, even while there has been extensive exploration of brain injury and neurological degeneration in collision sports, it was only in the 1990s, at a time approximately parallel to the period in which the criminalization of domestic violence took place,[15] that researchers began to examine brain injury among individuals with a history of intimate partner violence.[16] Some studies prior to this period mentioned it in connection to other factors for consideration. The main studies in which it was the primary scope in the 1990s were unpublished works, and it was in the late 1990s and early 2000s more mainstream medical and human science literature took up the issue

[4] The classic description is: Browne, A. 1993. Violence against women by male partners: Prevalence, outcomes, and policy implications. American Psychologist, 48 (10), 1077–1087; a review is Tjaden, P., Thoennes, N. (2000). Prevalence and consequences of male-to-female and female-to-male intimate partner violence as measured by the National Violence Against Women Survey. Violence against women, 6 (2), 142–161; and a contrasting study of women is Carney, M., Buttell, F., & Dutton, D. 2007. Women who perpetrate intimate partner violence: A review of the literature with recommendations for treatment. Aggression and Violent Behavior, 12 (1), 108–115.

[5] Martland, Harrison S. 1928. Punch drunk. Journal of the American Medical Association 91 (15), 1103–1107; Gayford, John J. 1975. Wife battering: a preliminary survey of 100 cases. British Medical Journal 1 (5951), 194–197. Gayford's was not the first usage. It is possible that Peter D. Scott, 1974. Battered wives. The British Journal of Psychiatry 125 (588), 433–441 was first. See also: Gayford, John J. 1977. The plight of the battered wife. International Journal of Environmental Studies 10 (4), 283–286.

[6] Gayford, J. J. 1975. Battered wives. Medicine, Science and the Law 15 (4), p. 237 and images of the hits to the head are available on 238–239 and description of psychological symptoms starts on 242.

[7] Gayford, J. J. 1979. The aetiology of repeated serious physical assaults by husbands on wives (Wife battering). Medicine, Science and the Law 19 (1), 19–24.

[8] Gayford, J. J. 1975. Battered wives. Medicine, Science and the Law 15 (4) at p. 237 and images of the hits to the head are available on 238-239.

[9] Gayford, J. J. 1975. Battered wives. Medicine, Science and the Law 15 (4) at p. 237 and images of the hits to the head are available on 242.

[10] Courville, Cyril B. 1953. Commotio cerebri; cerebral concussion and the postconcussion syndrome in their medical and legal aspects. Los Angeles: San Lucas Press; Gurdjian, Elisha S., and John E. Webster. 1958. Head injuries: mechanisms, diagnosis and management. Boston: Little Brown; Gurdjian, Elisha Stephens. 1973. Head injury from antiquity to the present, with special reference to penetrating head wounds. Springfield, Ill: Thomas; Levin, Harvey S., Jordan Grafman, and Howard M. Eisenberg. 1987. Neurobehavioral recovery from head injury. New York: Oxford University Press; Levin, Harvey S., Howard M. Eisenberg, and Arthur L. Benton. 1989. Mild Head Injury. New York: Oxford University Press.

[11] I. S. Wechsler, "The Relationship of Brain Injury and Other Organic Brain Diseases" in Samuel Brock ed. 1949. Injuries of the Brain, Spinal Cord, and Coverings: Neuro-Psychiatric, Surgical, and Medico-Legal Aspects. 3rd edition. Baltimore: Williams and Wilkins Company, pp. 426–427; see also: Woods, Andrew H. 1911. Trauma as a cause of amyotrophic lateral sclerosis. Journal of the American Medical Association 56 (25) , 1876–1877; Bruetsch, Walter L., and Murray Dearmond. 1935. THE PARKINSONIAN SYNDROME DUE TO TRAUMA*: A Clinico-Anatomical Study of A Case. The Journal of Nervous and Mental Disease 81 (5), 531–543.

[12] Strauss, I., Savitsky, N. 1934. Head Injury: Neurologic and Psychiatric Aspects. Archives of Neurology and Psychology 31 (5), 893–955; Parker, H.L., 1934. Traumatic Encephalopathy ("Punch Drunk") of Professional Pugilists. Journal of Neurology and Psychopathology 15 (57), 20–28; Carroll, Edward. 1936. Punch-Drunk. American Journal of Medical Science 191 (5), 706–712 at 706; Winterstein, C. E. 1937. Head injuries attributable to boxing. The Lancet 230 (5951), 719–722; Millspaugh, J. A. 1937. Dementia pugilistica. United States Naval Medicine Bulletin 35 (297), 297-303.

[13] Casper, Stephen T. 2018. How the 1950s changed our understanding of traumatic encephalopathy and its sequelae. Canadian Medical Association Journal 190 (5), E140-E142.

[14] See, for instance, CDC National Center for Injury Prevention and Control, "Traumatic Brain Injury In Prisons and Jails: An Unrecognized Problem." https://www.cdc.gov/traumaticbraininjury/pdf/Prisoner_TBI_Prof-a.pdf Accessed on January 9, 2019.

[15] Walker, L. E. 1985. Psychological impact of the criminalization of domestic violence on victims. Victimology, 10 (1–4), 281–300. For the wider context see: Martin, D. L., & Mosher, J. E. 1995. Unkept promises: Experiences of immigrant women with the neo-criminalization of wife abuse. Canandian Journal of Women & Law 8, 3–44; Fagan, J. 1996.The criminalization of domestic violence: Promises and limits. Washington, DC: US Department of Justice, Office of Justice Programs, National Institute of Justice.

[16] Monahan, K., O'Leary, K. D. 1999. Head injury and Battered Women, An Initial Inquiry. Health & Social Work 24 (4), at 270.

directly and explored the symptoms from a broadly neurological and neuroscientific perspective.[17] By the 2010s, the lay press began covering the story as well.[18]

As we argue in this paper, these developments demonstrate the peculiar way gender has historically produced differentiated outcomes in clinical practice.[19] While separated by an astonishing sixty years in their initiation, studies of brain injury in boxers and intimate partner violence reveal highly similar patient groups, albeit one situated in masculine displays and the other invisibly centered in domestic realms. By drawing comparisons between these two types of medical inquiry, this study seeks to make an original contribution in historical sociology that can thus shed some modest light on the ways that gendered narratives structure the visibility and consequences of brain injury in society and culture, both in the past and now.[20] It also further reveals the cultural mechanisms behind processes of medicalization that promote ecologies of invisibility and silence in medical practice.[21]

In this paper we draw on historical and sociological understandings of gender as a category of analysis to situate these two populations in context and explain the temporal and ontological discrepancies between them as potential brain injury patients.[22] The injuries sustained by boxers are delivered as a public spectacle, in a ring surrounded by eager fans. Pay-per-view matches, or those streamed via the Internet, broadcast these blows to potentially millions of viewers. These moments of contact are meant to be seen and celebrated—a performance of toughness and masculinity for the entire world to see. On the other hand, the physical violence sustained by women, delivered by a loved one, is more intimate than the modern term "intimate partner violence" might suggest. The classic stereotype of women covering their bruises with makeup hints at this containment of violence within the privacy of their homes, to which women have been historically associated and confined. It should be no coincidence, then, that it was during the social upheavals of the 1970s, with the massive influx of women into the public world of the work force, that domestic violence should become a topic of widespread interest. But the gendering of traumatic brain injury in these case studies is subtler than a public/private analysis alone can account for, as we elaborate below.[23] The disjuncture of these diagnoses is in fact a microcosm of the social and cultural circumstances of their respective patient populations. The individualizing, somaticizing impulse of neurological research fit the masculinist, sometimes tragically heroic, spectacle of the punch-drunk boxer. The battered woman, in contrast, was ironically shunted back into a diagnostic domestic sphere, with social scientists reifying her location in the marital household, her auxiliary status within the family, and the primacy of her emotional state above all else.

2. Methods

Finding historical sources that bring together reports of violence and brain injury is a simple enough historical exercise. In the much larger study that underpins this specific essay, we focused on research and activism primarily in the English-Speaking world (mainly the United States, the United Kingdom, Canada, Australia, and New Zealand) from 1850 to 2012. Our sources indicated that there was a transnational exchange of ideas (in activism, medicine, and sport) across English-speaking countries. We do not aim in this essay to make universalist claims, but rather to demonstrate historical trends in the sociology of medicine.

We identified historically appropriate keywords using the *Index Catalogue of the Library of the Surgeon-General Office*. Examples of subject headings include "head injury" and "brain, concussion." Those sources provide a composite picture of changing medical nomenclature from the period preceding this study through to the present. That medical literature cited therein was acquired and read comprehensively. Sources cited within that medical and scientific literature were also acquired and also read comprehensively.

We also used those medical terms in an applied cross-reference with newspapers and periodical databases, including Proquest Historical Newspapers, Chronicling American (the Library of Congress's newspapers archive) and archives of such leading newspapers as *The Times (London)*, the *New York Times*, and the *Washington Post*. Such a careful search turned up thousands of media sources on brain injury and violence, most of which were read in their entirety. Among those were many sources that described violence in sports, violence among individuals, and violence against women, and these form the basis of this essay's analysis. Sources on brain injury and violence against women were then organized chronologically and interpreted using strict historical methods.

This study begins with an overview of studies of brain injury, before turning to examine the specific case of boxing by reviewing journalistic and medical literature from across the twentieth century. Boxers became in this rendering a controversial population with potential vulnerabilities. As will become obvious, much of that literature showcased the vulnerability of battered women in intimate relationships too. As the penultimate section describes, that shared vulnerability was passed over in silence, while emerging psychosocial paradigms instead sought to understand this violence in frameworks that largely elided the long-term effects of acute episodes of brain injury.

3. Brain injuries in context

Concussions and contusions were long understood as brain injuries that could occur in any setting. They were also understood to have varying levels of severity and to be dangerous, especially if repeated. By

[17] The pioneering study appears to have been by Coffey-Guenther, K. 1998. Assessing battered women for the presence of mild brain injuries. Doctoral Dissertation, Marquette University. She wrote in a letter in 2017: "… I was part of a team planning a conference on restorative justice in DV cases at our law school this year, and I was shocked to see that the knowledge and implications of MTBI were still not considered as any part of regular assessment despite all the publicity of PCS." Personal Communication to Casper. June 3, 2017. See for later works: Jackson, Helene, Elizabeth Philp, Nuttall, Ronald L. and Diller, Leonard, 2002. Traumatic brain injury: A hidden consequence for battered women. Professional Psychology: Research and Practice 33 (1), 39-45.

[18] See, for instance, "The Queens Square 13: CTE?" Pink Concussions, 12 December 12, 2015 http://www.pinkconcussions.com/blogreal/2015/12/12/the-queens-square-13 Accessed on January 9, 2019; see also Rachel Louise Snyder, "No Visible Bruises: Domestic Violence and Traumatic Brain Injury" *The New Yorker*, 30 December 2015 https://www.newyorker.com/news/news-desk/the-unseen-victims-of-traumatic-brain-injury-from-domestic-violence Accessed on January 9, 2019.

[19] Fine, Cordelia. 2010. Delusions of gender: how our minds, society, and neurosexism create difference. London and New York: W. W. Norton.

[20] Cooter, R. Malingering in Modernity: Psychological Scripts and Adversarial Encounters During the First World War. In Cooter, R, Harrison. M, and Sturdy, S. eds. 2000. War, Medicine and Modernity. Somerset: Sutton. Also see Micale, Mark S., Lerner, Paul eds, 2001. Traumatic Pasts: History, Psychiatry, and Trauma in the Modern Age, 1870–1930. Cambridge: Cambridge University Press.

[21] Palladino, Paolo; Moreira, Tiago. 2006. On silence and the constitution of the political community. Theory & Event 9 (2), doi:10.1353/tae.2006.0028; Oudshoorn, Nelly, 2008. Diagnosis at a distance: the invisible work of patients and healthcare professionals in cardiac telemonitoring technology. Sociology of Health & Illness 30 (2), 272–288; Berg, Marc, and Annemarie Mol. 1998. Differences in medicine: Unraveling practices, techniques, and bodies. Durham, NC: Duke University Press.

[22] Scott, Joan W. 1986. Gender: A Useful Category of Historical Analysis. The American Historical Review 91 (5), 1053–1075.

[23] Feminist scholars and women's historians in particular have long examined (and critiqued) the notion of a public/private divide or separate spheres. See Kerber, Linda. 1988. Separate Spheres, Female Worlds, Woman's Place: The Rhetoric of Women's History. Journal of American History 75 (1), 9–39.

the mid-nineteenth century, observers noted the possibility of long-term consequences, including degenerative neurological disease.[24] Authorities considered it likely that they had structural and functional features. Where the definition of brain injuries today possesses clearest differences from those used in the past is in the elaboration of the biomechanical mechanisms (explanations of the physics involved in cellular destruction or degradation) and biochemical ones (explanations of the chemical changes created by such violence). These changes in definition developed out of physics and engineering research that commenced in the 1940s and 1950s.[25] Yet a clear point to emphasize about brain injuries in which the skull was not fractured is that the severity and extent of injury to the brain's tissues was invisible. Injury became a matter of art, deliberation, and inference.

As research on closed head injuries continued, a number of diagnostic categories emerged that spoke to the subjective neurological and psychiatric complaints that sometimes accompanied them for short periods, longer ones, or in rare instances became permanent. These changes in nomenclature for the mental and neurological sequelae following head injury reflected at once the emerging language of chronic disease and also the trends in advancing psychiatric nomenclatures.[26] The injuries, too, were distinctly masculine and youthful, with epidemiologists calling attention by 1980 to the fact that men and boys were more than two times at risk from them than women and girls, aged 15–24, a fact that historian Kathleen Bachynski has written about extensively.[27]

The medical literature makes clear that a number of important contexts shaped head injury research from the 1870s to the present, none more so than World Wars I and II. In these wars, thousands of male head injured patients came to the attention of doctors on all sides of the war. Many had histories of brain injuries.[28] Today authorities still observe the difficulties of differentiating post-concussion symptoms from PTSD in veterans with a history of closed head injury and indeed recognize the possibility of co-morbidity even as the link remains weakly established.[29] This cultural discussion echoed one that began in 1915 with shell shock,[30] and continued over subsequent decades, a finding that historian Ben Shepherd demonstrated continued to the recent past.[31] Another noteworthy context in head injuries research was automobile accidents. From the 1950s onwards, this was the most important context in brain injury research, with journalists proclaiming and epidemiologists establishing a head injuries epidemic as a consequence of vehicular collisions.[32] The broader pattern was that the public lives of men and boys placed them visibly at risk, while the supposed domestic lives of women and girls (and their less boisterous nature) diminished their exposure.

If medicine's dominant reason for investigating these injuries had been originally because of their commonality in the factory, in mining accidents, and in similar industrial exposures, the literature turned over the period with ever greater frequency to these narrower sites of cultural engagement. Household accidents were recorded, and often these involved women who had fallen down stairs or men who had fallen off ladders. But it was car accidents and contact sports that became increasingly determinative in the post-war period in how these injuries were viewed. Car accidents brought with them a litigious context. Sports, in contrast, struck people increasingly as a “laboratory” for investigating neurological injuries and their sequelae in other contexts.[33] And among them, of course, the sport looked at most closely was boxing.

4. The boxer's brain injury

Boxers and boxing culture became a source of fascination for those studying brain injuries. For scientists, the classically male pastime of beating someone in public for entertainment presented intriguing possibilities. Studies of a well-known side effect of the sport commenced. Throughout the twentieth century, these pathological investigations of the punch-drunk boxer were overlaid with cultural imaginaries about the boxer as a victim of violence. While healthy boxers possessed a positive masculine visibility, substantial medical literature after 1928 either directly focused on the pathologies of the boxer or made clear references to them. The classic medical articles analyzing punch-drunk boxers all explicitly stated that the phenomenon was readily recognized by boxing fans, trainers, high-stakes gamblers, and others, and not least because it harkened of a diminished manly future. There was, in other words, a whole vernacular economy that shaped the culture of boxing. It graced the pages of fan fiction. It entered military parlance, with soldiers in World War I describing the blast from shells as Jack Johnson's, the first Black World Champion.[34]

When Robert Creighton set out in *American Speech* in 1933 to describe boxing vocabulary and colorful phrases, he conjured the most commonplace deployment of the expression.[35] It was frequently the case that boxers – but not just boxers – would show evidence of drunkenness, grogginess and dizziness from a blow the head. “Reeling like a drunk man” was heard frequently on the streets of London and New

[24] Casper, Stephen T. 2018. Concussion: A History of Science and Medicine, 1870–2005. Headache: The Journal of Head and Face Pain 58, 6, pp. 795–810.

[25] Dagi, T Forcht. The Management of Head Trauma. pp. 289–343. In Samuel H. Greenblatt and T. Focht Dagi eds. 1997. A History of Neurosurgery in its Scientific and Professional Contexts. Park Ridge: American Association of Neurological Surgeons.

[26] W.J. Mickle, 1892. The Traumatic Factor in Mental Disease *Brain* 15 (1), 76–102; another example is A. Meyer, 1904. The Anatomical Facts and Clinical Varieties of Traumatic Insanity. American Journal of Psychiatry 60 (3), 373–441.

[27] Kalsbeek, W. D., McLaurin, R. L., & Miller, J. D. 1980. The national head and spinal cord injury survey: major findings. Journal of Neurosurgery, S19-31. Also Bachynski, K. E. 2019. The Duty of Their Elders”–Doctors, Coaches, and the Framing of Youth Football's Health Risks, 1950s–1960s. Journal of the history of medicine and allied sciences, 74 (2), 167–191 and Bachynski, K. 2019. No Game for Boys to Play: The History of Youth Football and the Origins of a Public Health Crisis. Chapel Hill: University of North Carolina Press.

[28] Casper, Stephen T. 2014. The Neurologists: A History of a Medical Speciality, c 1789–2000. Manchester: Manchester University Press, pp. 74–88.

[29] Polusny, Melissa A., Shannon M. Kehle, Nathaniel W. Nelson, Christopher R. Erbes, Paul A. Arbisi, and Paul Thuras. 2011. Longitudinal effects of mild traumatic brain injury and posttraumatic stress disorder comorbidity on postdeployment outcomes in national guard soldiers deployed to Iraq. Archives of General Psychiatry 68 (1), 79–89.

[30] Young, A. When traumatic memory was a problem: On the historical antecedents of PTSD. 127-146. In Rosen, Gerald M. ed. 2004 Posttraumatic stress disorder: Issues and controversies. Chichster, UK: John Wiley & Sons.

[31] Shephard, Ben. 2003 A War of Nerves: Soldiers and Psychiatrists in the twentieth century. Boston: Harvard University Press.

[32] Elliott, Harold, and H. L. Roundthwaite. 1953. Public Health and Head Injuries (due to road accidents). Canadian Medical Association Journal 68: 475–479; Brody, Jane E. 1983. “Personal Health: Head Injuries and the ‘Silent Epidemic’." New York Times, March 23: C11; see for a contemporaneous survey W.D. Kalsbeek et al., 1980. The National Head and Spinal Cord Injury Survey: Major Findings, Journal of Neurosurgery. 53 Supplement, S19–S31; Klauber, Melville, Elizabeth Barrett-Connor, Lawrence F. Marshall, and Sharon A. Bowers. 1981. The Epidemiology of Head Injury: A Prospective Study of an Entire Community - San Diego County, California, 1978. American Journal of Epidemiology 133 (5): 500–509.

[33] Schneider, Richard C. 1973. Head and Neck Injuries in Football: Mechanism, Treatment, and Prevention. Baltimore: Williams and Wilkins Company, p. vii.

[34] “It is all *the* Best Fun”: The Hon. Julian Grenfell Writes Homes, Flanders, 3 November 1914.” In Lewis, Jon E. 2003. A Brief History of the First World War: Eyewitness Accounts of the War to End All Wars, 1914-18. Philadelphia and London: Running Press, 69.

[35] Creighton, Robert E. 1933. Jargon of Fistiana. American Speech 8 (3), 34–39.

York. Medical journals cautioned by 1912 that the confusion between a drunk man and a head-injured man was real, and thus police-officers and family members had to be on the lookout for the signs of injury, especially compounded by, of course, drink itself.[36]

Punch-drunkenness, however, extended beyond this simple description in the ring. It was recognized that such a groggy state could become a permanent one, a popular diagnosis that left boxers in this condition often the butt of jokes. World Champion Gene Tunney provided the most famously cited example, in which he explained his own fear of becoming punch-drunk and the consequences to a boxer, who would instantly become unemployable and see their fame plummet.[37] For the typically working-class men who comprised the ranks of most amateur boxers, losing their livelihood and status as economic breadwinners could be devastating.[38] While boxers at the height of their prowess could be seen as overly aggressive, hyper-masculine brutes, a man felled by too heavy a blow could quickly become laughable, if not pitiable.

Popular culture engaged in painting this portrait of punch-drunkenness. Actor James Cagney recalled similar commonplace concerns among boxers and stunt guys in a 1974 interview – Cagney, whose compassion for the boxers should be noted, eventually painted an image of the punch-drunk boxer.[39] Cagney's approach was atypical. More common were jokes like that appearing in *Changing Times* in 1951: "Now they've got a gauge to measure the age and condition of your brain. After a bout with the daily paper, the answer for most of us these days would probably come out: Aging fast and punch drunk."[40] *The Nation's Business* in 1938 put matter this way: "Punch Drunk: Navy doctors have added a new term to nosological nomenclature. It is 'pugilistica dementia' to designate 'punch drunk' officer who have really been fighters, as contrasted with those who stagger about from other causes."[41] In fact, this joke noted a moment of some historical significance in medical history, the decision by the US Armed Forces to begin to recognize the condition medically as *dementia pugilistica*.[42]

This vernacular economy of punch-drunkenness was noted by the condition's first pathologist, Harrison Martland, who observed the condition's pathological and symptomatic features.[43] Thus Martland never appears to have sought priority for having discovered the condition, only for bringing it to medical attention in 1928. The invisibility of the condition for doctors prior to Martland's study was reciprocated in a culture that failed to grasp that the visible problems of boxers were really invisible injuries consequent of their repeated assaults. Subsequent medical authorities would also speak to the importance of an ethnographic approach to the condition that came be to called, after Martland's characterization, "traumatic encephalopathy." Edward Carroll, for example, described three cases in a classic article in 1936 that opened with the lines: "I determined to study "punch drunk" in its natural habitat, the boxing world. Accordingly, I frequented training quarters, helped examine fighters, and made friends with all sorts of "pugs."[44]

Medical authorities like Martland and those who came after appear to have been casting the condition of the boxer as an object lesson about the dangers of single or repeated concussions. From 1928 through to the mid-1950s numerous authors set out to characterize not only those lessons, but also the patho-physiological events that left residual injuries which could become the punch-drunk state, or as the medical came to call it in the 1950s, chronic traumatic encephalopathy.[45] Among the articles that appeared in the 1950s, of special note was one by neurologist Macdonald Critchley. All of the previous medical work as well as observations about the vernacular economy of the condition among the boxers featured in the background of his second study of chronic traumatic encephalopathy.[46]

What followed from Critchley's study in Britain was a storm of controversy directed against professional and amateur boxing in the 1960s, one that remained materially visible for the next three decades in Britain, Europe, and North America, and ultimately transformed the sport at both the amateur and professional levels. Boxing safety was, for example, debated in the British House of Lords.[47] Boxing apologists fought back hard, among them J. W. Graham, a physician working for the British Boxing Board, who had argued that the changes in safety in the sport had made the punch-drunk boxer a figure of the past. What is fascinating about Graham is that he never appears to have set out to craft a work of agnotology.[48] Instead of artful ignorance, he opted for acceptance of the condition. He wrote in a memoir later:

> Irreversible brain damage caused by regular excessive punching can cause a boxer to become punch drunk, a condition known euphemistically in medical terms as Traumatic Encephalopathy. The condition can be caused by other hazards of contact sports – taking too many falls whilst hunting or steeple chasing or the continual use of brute force rather than skill in the rugby field or heading a football incessantly over many years. Anything which entails intermittent trauma to the head can cause it.[49]

5. Psychiatric wounds and the battered wife

If anything causing intermittent violence to the head could result in chronic traumatic encephalopathy then it seems paradoxical that no investigator should have contemplated cruelty in the household as a viewpoint for the disease, since it had been observed and litigated from the colonial period in the United States and at least as long in Britain, even if, as feminist historians have pointed out, it remained culturally invisible.[50] On the face of it, boxing and domestic violence would have

[36] Smith, L. L. 1876. Drunk or Dying: Or, Death in the Police Cell. The Australian Journal April, 461; 1894. Outdoor cases of coma. Journal of the American Medical Association August 11, 243–244; 1885. Not Drunk But Dying: A Man Found with a Fractured Skull in the Bowery. The New York Times 13 April, 5; Duncanson, James Gray. 1903. The Knock-Out Blow On The Point Of The Jaw. British Medical Journal 1 (2205), 782.

[37] Quoted in Strauss, I. and Savitsky, N. 1934. Head Injury: Neurologic and Psychiatric Aspects. Archives of Neurology and Psychology 31(5), 947.

[38] Lundberg, George D. 1986. Boxing should be banned in civilized countries—round 3. JAMA 255 (18), 2483–2485 observes that this understanding informed a larger oft made argument that boxing allowed "poor and minority children" a "way to escape the ghetto in this and other countries", p. 2483.

[39] Smith, Red. 1974. Jim Cagney Takes Off the Gloves. New York Times. 11 September, 51.

[40] 1951. Notes of the Changing Times. Changing Times (pre-1986), April, 5(4), 45.

[41] 1938. Through the editor's specs: punch drunk. The Nation's Business. 26(2) Feb., p. 7.

[42] Millspaugh, J. A. 1937. Dementia pugilistica. United States Naval Medicine Bulletin 35 (297), 297-303.

[43] Martland, Harrison S. 1928. Punch drunk. Journal of the American Medical Association 91 (15), 1103-1107.

[44] Carroll, Edward. 1936. Punch-Drunk. American Journal of Medical Science 191 (5), 706.

[45] Casper, Stephen T. 2018. How the 1950s changed our understanding of traumatic encephalopathy and its sequelae. Canadian Medical Association Journal. 190 (5), E140-E142.

[46] Critchley, Macdonald. 1957. Medical Aspects of Boxing, Particularly from a Neurological Standpoint. British Medical Journal 1 (5015): 357–362.

[47] Carter, Neil. 2012. Medicine, Sport and the Body: A Historical Perspective. Bloomsbury Academic, pp. 185–189.

[48] Proctor, Robert, and Londa L. Schiebinger. 2008. Agnotology: The Making and Unmaking of Ignorance. Stanford, California: Stanford University Press.

[49] Graham, J. W. 1975. Eight, Nine, Out! Fifty Years as Boxer's Doctor. Manchester UK: Protel, p. 56.

[50] Pleck, Elizabeth. 1987. Domestic tyranny. New York: Oxford University Press.; Gowing, Laura. 2005. Domestic dangers: women, words, and sex in early modern London. Oxford: Clarendon Press; Gordon, Linda. 2002. Heroes of their own lives: the politics and history of family violence; Boston, 1880–1960.

been likely medical pairings, but medical inquiries into violence in the home were very few. Nonetheless, there were visible cultural convergences.

Like punch-drunk in boxing gossip, the combination of wife beating, cruelty, drunkenness, and humor had been commonplace from the nineteenth century onwards. Punch and Judy shows brought together humor and domestic violence.[51] Punch Magazine (named after the lead character in puppet shows) in 1879 had made the savage beating of a wife a perhaps sarcastic commentary on activist judges in such matters. Here the drunkenness of the husband and his brutality was placed in contrast with the sin of judge for entering domestic privacy.[52]

The principle at stake, as Punch clarified, was established too: in Law "de minimus non curat lex," i.e. the principle that the law does not consider itself with trifles – of which women and their domestic complaints were perhaps obvious contenders.[53] These 19th century facts had later twentieth century counterparts. In his 1976 anthology of courtroom jokes, Samuel Howard included one that had graced the pages of trade magazines and other outlets in the preceding decades: A recidivist accused of repeatedly beating his wife appears in a court, and the judge asks rather sternly of the allegations are true, to which the Defendant responded, "Are you going to believe a punch-drunk woman?"[54]

Other connections were even more direct. Take, for example, British boxer and world heavy weight champion Bob Fitzsimmons, who had been in the courts in 1895 for the killing of Con Riordran in a sparring match-a moment when concussion in sports arenas was rather firmly in the public eyes.[55] Fitzsimmons would be exonerated, but as historian Daniel Strieble describes, he would come to the attention of the police again in 1901 after punching his third wife Rose in the head after a match. Strieble writes: "They reconciled, but he added jokes about his wife beating to the play," a jarring reminder of the fragility of domestic bliss.[56] Fitzsimmons, it should be noted, remains considered one of the hardest punchers ever in the history of boxing.

Such examples of violent altercations between boxers and other contact sports player and their wives occurred frequently across the course of the 20th century. In a eulogy published in *The New York Times* Red Smith said of boxer Maxie Rosenbloom that his "obituaries said his condition was the result of taking too many punches. Nonsense. Plenty of wives take more punches than Max ever did, and bury several husbands."[57] It is also possible to draw a clear line from Fitzsimmons' 1901 arrest to the first police reports filed in 1989 of football player O. J. Simpson beating his wife Nicole Brown Simpson and hypothesize that its cause had a physical basis in brain injury, which Richard Schneider and Elizabeth Crosby called in 1973 "dyscontrol syndrome" in the athlete.[58]

Underpinning these reports of violence was a dismissive cultural view that stipulated that anyone involved with animals like these collision athletes should have had little expectation.[59] When the sanctity of the home was violated, it was not uncommon culturally for victim-blaming to come to the fore. In contrast, the medical literature had already been describing violent tendencies and explosive anger as a result of head injury.[60] Not only then were women culturally invisible victims of assault, but the causes of those assaults, at least when the male perpetrators of violence were professional sports players, could be themselves invisible brain injuries.

In the 1970s, attention to the issue of domestic violence grew dramatically. Women's place was no longer simply in the home, as women's liberation activists and the rise in female work force participation made obvious. The home itself came to be viewed as a potentially dangerous space for women. In this decade, for example, the legal concept of marital rape came into being in the United States.[61] At the same time, a growing "battered women's movement" emerged, prioritizing the opening of new shelters to house women as they escaped abusive husbands. Within just a few years, by 1978 there were over 300 shelters and other resources for this population listed by the US Commission on Civil Rights.[62] As women moved outward from the traditional domestic sphere, that very domestic sphere and the things that happened within it became hotly contested. Private domesticity became public, with ramifications for masculine and feminine identity.

The growing feminist movement began taking notice of domestic violence. *Ms. Magazine* drew attention to the issue with their August 1976 cover image of a woman with a black eye, uncovered by makeup and symbolically rendering the often invisible suffering visible in a major way. In Britain social activist and community organizer Erin Pizzey published *Scream Quietly or the Neighbours will Hear*, a work of advocacy that described women seen at a Women's Shelter she founded in Chiswick in 1979.[63] A documentary about her work from the period is a particularly powerful source for gauging the significant injuries women were receiving.[64]

The harm of domestic violence was also becoming medicalized (and criminalized), but it would be described differently from sports injuries. In 1968 Hefler and Pollack published a pioneering study entitled "The Battered Child Syndrome" which had brought together psychiatric theory with social work in an effort to think about the psychosocial dimensions of child abuse.[65] In 1975, J.J. Gayford co-opted this clinical

(*footnote continued*)
Urbana: University of Illinois Press.

[51] Crone, Rosalind. 2016. Violent Victorians: Popular entertainment in nineteenth-century London. Oxford: Manchester University Press.

[52] 1879. A Dangerous Judge. Punch, or the London Charivarl. 13 December, p. 265.

[53] A history of the term is here. Veech, Max L., and Charles R. Moon. 1947. De minimis non curat lex. Michigan Law Review 45 (5), 537–570; also see Funder, Anna. 1993. De Minimis Non Curat Lex: The Clitoris, Culture and the Law. Transnational Law & Contemporary Problems 3, 417–468.

[54] Howard, Samuel A. 1976. JurisIMprudence = Corpus juris ridiculorum. Durham, N.C.: Moore Pub. Co., p. 64.

[55] 1895. EFFECT OF AN UPPER CUT; On That Hinges the Result in the Fitzsimmons Case. MEDICAL EXPERTS ARE QUESTIONED They Say Riordan Could Not Have Boxed if the Fatal Injury Had Been Inflicted by a Fall on the Sidewalk. *New York Times* 2 July, p. 13.

[56] Streible, Daniel. 2008. Fight Pictures: A History of Boxing and Early Cinema Berkeley, Los Angeles and London: University of California Press, p. 89.

[57] Smith, Red. 1976. Slapsie Maxie: Exit Laughing. *New York Times*, 14 March, p.3.

[58] Schneider, Richard and Crosby, Elizbeth C. 1973. Physical Basis for Aggressive Assaultive Behavior in Football Players. In Schneider, Richard C. Head and Neck Injuries in Football: Mechanisms, Treatment, and Prevention. Baltimore: Williams and Wilkin's Co, p. 140.

[59] Such is the salacious treatment of criminality and intimate partner violence as presented in Benedict, Jeff; Yarger, Don. 1998. Pros and Cons: The Criminals Who Play In the NFL New York: Warner Books.

[60] 1892. Traumatic Factor in Mental Disease. In Hack Tuke, D. A Dictionary of Psychological Medicine: Giving the Definition, Etymology and Synonyms of the Terms Used in Medical Psychology with the Symptoms, Treatment, and Pathology of Insanity and the Law of Lunacy in Great Britain and Ireland. Volume 2. Philadelphia: P Blaksiton, Son & Co., pp. 1306-1311.

[61] Hasday, Jill Elaine. 2000. Contest and Consent: A Legal History of Marital Rape. California Law Review. 88 (5), 1373–1505.

[62] Jacquet, Catherine. 2015. Domestic Violence in the 1970s. Circulating Now (October 15, 2015): https://circulatingnow.nlm.nih.gov/2015/10/15/domestic-violence-in-the-1970s/. See also: Arnold, Gretchen and Ake, Jami. 2013. Reframing the Narrative of the Battered Women's Movement. Violence Against Women 19 (5), 557–578; Daniels, Cynthia R. ed. 1997. Feminists Negotiate the State. New York: University Press of America.

[63] Pizzey, Erin. 1979. *Scream Quietly or the Neighbours Will Hear*. Harmondsworth: Penguin.

[64] Chiswick Women's Aid Documentary. https://www.youtube.com/watch?v=FBtb1oamB4k&t=34s Accessed January 9, 2019.

[65] Helfer, Ray E., and Pollock, Carl B. 1968. The battered child syndrome. Advances in Pediatrics 15, 9–27.

language to describe case studies of his newly described "battered woman syndrome."[66]

Gayford's evidence for repeated injuries to the head even in that original article is quite thorough. He found, for example, that the mean time battered in this population was 6.8 years. In the one description Gayford provided as a typical illustration of the types of violence in the home, the victim stated that most of the bruises "have been to the scalp where they do not show." Gayford quoted one woman:

> He hit me with his fists, feet, and bottles, smashing me to the floor; then he started to kick, sometimes with repeated, blows to the face and other parts of the body. He has kicked me in the ribs and broken them, he has tried to strangle me and taken me by the shoulders and banged my head against the floor. During my marriage of nearly four years I have received constant bruises all over my body, this has been more so during pregnancy. I have received black eyes, cut lips, and swollen nose.[67]

Despite these "severe and dramatic" encounters, and the increasingly widespread awareness of violence towards women, the traumatic but invisible injury in these cases would be largely perceived as emotional and psychological rather than physical and neurological. Sociological and psychological studies published on this topic set a pattern that would become more common in the 1980s and 1990s.[68] In other words, the medicalization of victims of domestic violence took on a different form than that of boxers – although the form that it took is not at all surprising when examined in light of scholarship by sociologists and historians of medicine on gender and such diseases as hysteria, anorexia nervosa, fibromyalgia, and chronic fatigue syndrome.[69]

Whether their twentieth-century clinicians recognized it or not, this psychologizing of women's domestic violence experiences was taking place amidst the backdrop of a long tradition of psychology treating women patients unfairly. Feminist scholars such as Elaine Showalter have foregrounded this differentiated and sometimes abusive treatment received by women at the hands of neurological, psychiatric, and psychological medicine.[70] It was in these medical areas especially where control of thought and body often converged into confinements and therapies that skirted the sadistic. The quiet desperation of Charlotte Perkins Gilman, Kate Chopin, and Sylvia Plath's literary endeavors speak to an extensive array of primary sources by women or about women in the hands of their psychologists, psychiatrists and neurologists.[71] Generally, these sources reflect tendencies in clinical practices historically to render judgment on the veracity of the woman as an interlocutor of her own of medical experiences. In ways that are doubtlessly true for men as well, cultural assumptions about feminine roles often played a heavy-handed role in the way doctors treated women's reports of their own neurological illnesses.[72]

While late twentieth century researchers did not diminish their patients by saying that they were pathological or that their ailments were "all in their head," the association between women's symptoms and a psychological origin remained strong. Such stereotypes were tied to the peculiar construction of domestic concerns. Patients were believed, not dismissed as hysterical, but ironically the psychosocial model offered to explain their prognosis centered largely on their feelings about their male partners. In their review of scholarship on domestic violence in the 1990s, "a time of tremendous growth in the literature," sociologists Michael P. Johnson and Kathleen J. Ferraro found that the most common themes explored by researchers included the social context of the violence and the nature of control within relationships where such violence occurred.[73]

Human scientists increasingly conceptualized intimate partner violence as a social pathology, one in which some authors noted critically, there were too many truisms.[74] This research created many sociological and psychological questions about family domesticity: (1) Why did women stay in violent relationships? (2) Could violent families be healed to protect children and keep them in their families? (3) What role could group psychotherapy play in restoring domestic relations? (4) Was mental instability in women a cause of or a reasonable response to abuse in the home, and (5) Why did battered women sometimes commit partner homicide? Increasingly the medical model that emerged in these sociological and psychological studies was a psychosocial model of the impact of domestic violence. Women in these relationships were conceived of as suffering from a psychiatric disorder and psychiatric symptoms. These could include mental instability, depression, psychopathology, interpersonal and cognitive disturbances, self-blame, subjective complaints, anxiety, physical (that is, embodied) complaints, and psychological numbness and grief.

Gelles and Harrop in 1989 found that battered women often went through severe and repetitious cycles of violence and were thus susceptible to cumulative effects of trauma, which in this work meant psychological distress. The first question they asked, however, was about the presence of headache, a symptom that had been associated with repeated concussions since the 1870s. Indeed, a cursory examination of Gelles and Harrop's checklist might as easily have paved the way for a diagnosis of brain damage as it did provide an indicator of psychological distress.[75] The psychology of the woman in Gelles and Harrop's work referred to an invisible consequence of a past trauma, or perhaps to an ongoing trauma, one still seeking widespread epistemological and ontological visibility. That brain damage could be invisible as a matter of empirical reality and that it could have visible future consequences appears to have not even been conceived as an afterthought in social or medical research.

Returning to the bigger picture on brain injury in the 1970s it is possible to see that the psychological effects of concussions were being characterized in the same period as the battered woman. New Zealanders Philip Wrightson, a neurosurgeon, and Dorothy Gronwall, a

[66] Gayford, John J. 1975. Wife battering: a preliminary survey of 100 cases. *British Medical Journal* 1 (5951), 194–197.

[67] Gayford, John J. 1975. Wife battering: a preliminary survey of 100 cases. *British Medical Journal* 1 (5951), 195.

[68] Gelles, Richard J. 1974. The violent home: a study of physical aggression between husbands and wives. Beverly Hills, Calif: Sage Publications.

[69] Richman, J. A., & Jason, L. A. 2001. Gender biases underlying the social construction of illness states: The case of chronic fatigue syndrome. Current Sociology, 49 (3), 15–29; Katz, J. D., Mamyrova, G., Guzhva, O., & Furmark, L. 2010. Gender bias in diagnosing fibromyalgia. Gender medicine, 7 (1), 19–27; Oppenheim, J. 1991. Shattered nerves": Doctors, patients, and depression in Victorian England. Oxford: Oxford University Press; Aronowitz, Robert A. From myalgic encephalitis to yuppie flu: A history of chronic fatigue syndromes, 155–181. In Rosenberg, Charles E. and Golden, Janet eds. 1992. Framing Disease: Studies in Cultural History. New Brunswick, NJ: Rutgers University Press.

[70] Showalter, Elaine. 1987. The female malady: Women, madness, and English culture, 1830–1980. London: Virago. We recognize that Showalter's study is controversial, but we find its gender perspective generally convincing.

[71] Musselman, Elizabeth Green. 2012. Nervous conditions: science and the body politic in early industrial Britain. Albany: SUNY Press; Beizer, Janet L. 1994. Ventriloquized bodies: Narratives of hysteria in nineteenth-century France. Ithica: Cornell University Press; Geller, Jeffrey L., Harris, Maxine and Phyllis Chesler. 1995. Women of the asylum: voices from behind the walls, 1840–1945. New York: Anchor Books.

[72] Hirshbein, Laura D. 2014. American melancholy: constructions of depression in the twentieth century. New Brunswick, N.J.: Rutgers University Press, pp. 127-133.

[73] Johnson, Michael P. and Kathleen J. Ferraro. 2000. Research on Domestic Violence in the 1990s: Making Distinctions. Journal of Marriage and Family. 62 (4), 948–963.

[74] Kantor, Glenda Kaufman, and Murray A. Straus. 1987. The "drunken bum" theory of wife beating. Social Problems 34 (3), 213–230.

[75] Gelles, Richard J., and John W. Harrop. 1989. Violence, battering, and psychological distress among women. Journal of Interpersonal Violence 4 (4), p. 408.

neuropsychiatrist, published their classical studies in the same year that Gayford characterized the battered woman. Gayford's study was published in the *British Medical Journal*. Gronwall and Wrightson's was published in *The Lancet*. Both organs reached a very wide medical readership.[76] It appears that no one connected the dots.

6. Conclusion

It was not until 1990 that anyone thought to look for brain pathology in a battered woman. The 76-year-old "punch-drunk wife" from the pages of *The Lancet*, described above, suffered classic brain injury pathology at the hands of her husband. Countless others also surely met this same fate. However, while a slow trickle of research on the relationship between repeated mild traumatic brain injury and domestic violence victims has appeared, the topic is certainly marginal in the broader literature on the causes and consequences of brain injury. At the same time, the topic of chronic traumatic encephalopathy itself suffers, especially in media accounts, from the weight of epistemic uncertainty as it strives for ontological visibility.[77]

This is not to say that there has been a lack of interest in the consequences of intimate partner violence.[78] Indeed, as the many sociological studies cited above suggest, researchers and advocates have raised significant awareness of this public health issue. It was, coincidentally, in the wake of the 1990 *Lancet* article's publication that domestic violence became an undeniably public concern. For example, the 1994 Violence Against Women Act, passed by the U.S. Congress after significant pressure from women's interest groups working at the grassroots level, enshrined concern for domestic violence into law and provided significant funds and resources for victim assistance services, education, and legal aid.[79] Martin and Mosher in 1995 in the Canadian context gave evidence in that period that the aggressive criminalization process of domestic violence occurring in the Anglophone world was doing more harm than good for the victims of violence.[80] Yet in hindsight it is also possible to see that the criminalization process paralleled a medicalization process as well, one that offered the possibility for the acute injuries and the long-term consequences of such violence to acquire, as Alexandra Rutherford has put it in the parallel case of campus rape, an ontological politics that was generative of an epistemological discourse hitherto absent.[81]

As domestic violence became a more public—and therefore a more condemnable, even punishable—act, cultural support for its victims increased. There were even more specific campaigns to raise awareness of domestic violence among medical professionals. In 1994, the National Council on Women's Health, through its Committee on Medical Response to Domestic Violence, released a report geared towards helping medical professionals to recognize the signs of abuse.[82] Yet this progress did not entail reciprocal application of clinical practices and exchange of knowledge across domains and contexts of clinical experience. Most of the earliest works on intimate partner violence appeared in the late 1990s as unpublished dissertations.[83] Published studies with pilot data began appearing in the early 2000s, with reviews from 2011 onward beginning to call attention to the absence of data on brain injury in populations with histories of intimate partner violence.[84] Katherine Price Snedaker, Director of PINKconcussions.com, was among the first researchers to start pushing publicly for a stronger research focus on concussions, domestic violence, and brain disease, and in 2013 featured domestic violence as a central focus of her first PINK website.[85] Yet very little governmental funding appears forthcoming globally and, in fact, we know of only one major research grant in the United States, which was awarded in 2019.[86] Contrast this observation with the resources that have been allocated for the study of traumatic brain injury and chronic brain disease in male dominated collision sports.

We are not arguing here that male privilege allowed one patient population to receive the scientific and medical scrutiny it deserved, while women were simply ignored. Rather, this study in historical sociology has used this comparative case study to untangle some of the gendered assumptions at work behind clinical medicine. In the matter of traumatic head injury, as this study suggests, women were expected to experience assault as an acute episode followed by chronic emotional disturbance. Boxers, usually men and in contrast, were denied chronic emotional disturbance and permitted brain injury as a consequence. But we would go further and argue that with the focus on their family relationships and other symptoms (as well as bruises and broken bones), women were viewed in holistic terms in a way that boxers were not. The diagnostic and research frameworks resulting in these categorizations were limiting, in turn and in different ways, to sufferers of traumatic injuries in both populations. Matters in 2019 were beginning to change in these differentiated conceptualizations of brain injury, gender and exposure, but as the Pink Concussions Partner-Inflicted Brain Injury Task Force, which took shape in early 2019, seeks to highlight, there remains much distance to go for convincing the public, policymakers, and clinicians that women and men require parity in the brain injury landscape, a field that remains dominated by sports concussion research on male athletes and traditionally male sports, even as

[76] Gronwall, D; Wrightson, P. 1975. Cumulative Effect of Concussion. The Lancet. 306 (7943), 995-97.

[77] Ventresca, M. 2019. The curious case of CTE: Mediating materialities of traumatic brain injury. Communication & Sport, 7(2), 135–156.

[78] In describing Bennet Omalu's autopsy of NFL player Mike Webster, Mark Fainaru-Wada and Steve Fainaru note this enticing convergence: "Omalu recently had conducted an autopsy on a woman in her mid-forties. She had died after being beaten into a vegetative state by her husband. Omalu ran tests on the woman's brain and was struck when they revealed an unusual Alzheimer's-like pathology." 2014. League of Denial: The NFL, Concussions, and the Battle for Truth. New York: Three Rivers Press, 151.

[79] For a history of the passage of this legislation, see Brooks, Rachelle. Feminists Negotiate The Legislative Branch: The Violence Against Women Act. In Daniels, Cynthia R. ed. 1997. Feminists Negotiate the State. New York: University Press of America, 65–82.

[80] Martin, D. L., & Mosher, J. E. 1995. Unkept promises: Experiences of immigrant women with the neo-criminalization of wife abuse. Canadian Journal of Women & Law 8, 3–44.

[81] Rutherford, A. 2017. Surveying rape: Feminist social science and the ontological politics of sexual assault. History of the Human Sciences, 30(4), 100–123.

[82] In May 1994, feminist activist Barbara Seaman delivered a presentation to the New York County Medical Society on this issue. Notes on this report and her presentation, "Treating Spousal Abuse Victims: Practical Steps for Health Professions," are in her personal papers. See Box 44, Folder 2, Barbara Seaman Additional Papers, MC 695. Schlesinger Library, Radcliffe Institute, Harvard University, Cambridge, Mass.

[83] Another example is: Valera, Eve Marie. 1999. Brain Injury in Battered Women: Prevalence and Relationship to Cognitive Functioning and Psychopathology. PhD Thesis. University of Illinois. For context, also see Valera, Eve M. Increasing Our Understanding of an Overlooked Public Health Epidemic: Traumatic Brain Injuries in Women Subjected to Intimate Partner Violence. Journal of Women's Health. 27 (6), 735-736.

[84] Valera, Eve M. and Berenbaum, Howard. 2003. Brain Injury in Battered Women. Journal of Consulting and Clinical Psychology. 71 (4), 797-804; Kawako, Laura E; Glass, Nancy; Campbell, Jacquelyn; Melvin, Kristal C; Barr, Taura; and Gill, Jessica M. Traumatic Brain Injury in Intimate Partner Violence: A Critical Review of Outcomes and Mechanisms. Trauma, Violence & Abuse. 12(3), 115-126.

[85] Katherine Price Snedaker, email exchange with Stephen Casper, November 15, 2019.

[86] See: Valera, Eve M. Impact of Intimate Partner Violence-Related Mild Traumatic Brain Injuries on Neural, Cognitive, and Psychological Health of Women. NIH Grant: 1R01NS112694-01. National Institutes of Health. https://projectreporter.nih.gov/project_info_description.cfm?aid=9802804&icde=47562030&ddparam=&ddvalue=&ddsub=&cr=1&csb=default&cs=ASC&pball= Accessed November 22, 2019.

there is growing recognition that women serve in combat roles, participate in collision sports, and are the predominant population that suffer from intimate partner assault.[87]

We have sought to show in this essay the way that gender shapes social problems and either permits or stands against the medicalization of those problems. The gender politics of biomedicine, which underpins our analysis of different populations with similar exposures, we have argued here, has far-reaching consequences for how the problem of brain injury is conceptualized in clinical practice, policy, law, and criminal justice. We would also note that there are other populations in whom an emphasis about the psychosocial context may be realized in practical terms as a form of stigma, not least wounded veterans, prisoners, and individuals injured in the workplace. It should be obvious that this analysis possesses equally profound intersections with classed and racialized concerns in the social sciences as well, and we encourage future scholarship in social medicine to focus on this area. The case of intimate partner violence possesses a rather special urgency, however, for it has long been considered an enigmatic feature of dementia that women have heightened rates. While the putative mechanism of this observation has long been assumed a consequence of differentiated mortality rates, it may also be the case that another answer has been hiding in plain sight.

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[87] See Issues 6 and 7 of the *Journal of Aggression, Maltreatment & Trauma* 28 (2019) for a two part series entitled "Special Issue: Traumatic Brain Injury and Domestic Violence Victimization."