

Chapter 1

An Introduction to Trauma and Health



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Introduction: The Case for Trauma-Informed Care

Exposure to traumatic events is ubiquitous worldwide and has a well-established deleterious impact on health. Trauma can take many forms, and its impact varies based on the unique life circumstances, environment and resilience of the impacted individual. This volume is designed to enable clinicians – notably primary care providers (PCPs), nurses, and their extended care teams – to understand the potential impact of trauma on their patient population and the elements of a trauma-informed care (TIC) response. We believe that TIC is akin to “universal precautions” – front-line clinicians and health systems do not always know who has experienced, or currently is experiencing, trauma but can respond in an effective, patient-centered manner. The goal of this book is to inform implementation and sustainment of TIC across the individual patient encounter to health systems and communities at large. To lay the groundwork for understanding and implementing TIC, this chapter will provide a broad overview of common forms of interpersonal trauma experienced by patients and the ways in which traumatic experiences impact population health in the US.

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Trauma Defined

Broadly defined, the medical definition of trauma refers to “an injury (such as a wound) to living tissue caused by an extrinsic agent, a disordered psychic or behavioral state resulting from severe mental or emotional stress or physical injury, an emotional upset” [1]. The word “trauma” is derived from the Greek word for “wound,” and accounts of interpersonal trauma date back to antiquity [2]. Judith Herman in her seminal work, “Trauma and Recovery,” provides historical context leading up to the publication of the 5th Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM V) [3, 4]. In the late nineteenth century, Pierre Janet and Sigmund Freud provided the first accounts characterizing traumatic events and their clinical implications. Freud’s work on the etiology of hysteria [3] in the twentieth century – notably experiences of psychological and sexual trauma – was met with such a degree of contention and censuring at that time, that contemporary trauma theories and definitions were largely derived from studies of male soldiers’ experiences of war [2, 3]. After World War I, studies of traumatic stress and interventions emerged and then waned to some degree until the advent of the Vietnam war [2]. A shift occurred when society’s attention was drawn to consequences of sexual and domestic violence as a result of the women’s movement of the 1970s [3]. It was then recognized that the most common posttraumatic disorders are not those of war but “of women in civilian life;” Herman describes the history of psychological trauma as “one of episodic amnesia” [3]. This examination of violence and trauma on both the war-related and domestic/interpersonal fronts led to the groundbreaking inclusion of posttraumatic stress disorder (PTSD) in the DSM III in 1980 [5]. Prior to that, the DSM had characterized reactions to stressful experiences as “transient situational disturbances” that would wane over time.

Subsequently, DSM IV and DSM IV-TR ushered in a more inclusive definition of trauma (including varied events such as car accidents, natural disasters, or learning about the death of a loved one) that resulted in a marked expansion in trauma-related diagnoses [2, 6]. Contemporary theory conceptualizes trauma and responses to it as occurring along a continuum [2, 6]. It is clear that not all persons exposed to even highly traumatic events will go on to develop PTSD [7]; nonetheless, the experience of that trauma can still have a lasting impact on that individual.

The Adverse Childhood Experiences (ACEs) Study

It was the landmark work of Felitti and Anda in the Adverse Childhood Experiences (ACEs) Study of the 1990s that ushered in a more mainstream understanding of the impact of childhood trauma on lifelong health [8]. Dr. Vincent Felitti, an internist and Director of Preventive Medicine at Kaiser Permanente, a health maintenance organization (HMO) in California, first made the connection between childhood abuse and adult health during an obesity research study he ran in the 1980s [9]. During a routine checkup, one of his patients mentioned that the year after she was

raped, she gained 105 pounds. Felitti recalled what happened next: “She looked down at the carpet and muttered to herself, ‘Overweight is overlooked. And, that’s the way I needed to be’” [10]. In the obesity clinic at Kaiser, 50% of patients dropped out of treatment. Felitti interviewed these patients and found that a history of child sexual abuse was common [9]. The ACEs Study formally began in 1995 with an initial questionnaire sent to patients who presented for standardized wellness exams at the Kaiser Health Appraisal Clinic.

The initial study published in 1998 presented findings for 9,508 participants (eventually over 17,000 were enrolled) – all were insured patients at Kaiser Permanente – and provided groundbreaking evidence linking ACEs to morbidity and mortality in adulthood [8]. The initial study [8] found that patients reporting greater numbers of ACEs had increased risk for smoking, severe obesity, physical inactivity, depressed mood, and suicide attempts. Similar findings occurred for substance use and sexually transmitted infections. The greatest odds, or risk, of disease occurred in those who reported four or more ACEs. The researchers also found a dose–response relationship between the number of ACEs and ischemic heart disease, cancer, chronic bronchitis/emphysema, liver disease, skeletal fractures, and poor overall self-rated health. The initial study population, all insured, was mostly White and middle class. The authors posited that the resulting development of adverse health behaviors, like smoking, led to disease and called for increased communication and coordination across healthcare specialties and enhanced training of providers [8]; this was truly an early call for what we now know as trauma-informed care delivery.

Trauma as a Process

A traumatic event or series of events results in physiologic changes, complex adaptations, and pathways that are linked to adverse health impacts. For example, the hypothalamic-pituitary-adrenal (HPA) axis serves as an important mediator after a stressor or under conditions of chronic stress [11]. The HPA axis is responsible for the release of stress hormones, notably glucocorticoids and cortisol. Under normal circumstances, the HPA axis is well-regulated and serves to enable a rapid response to stressful events with prompt return to a normal state. Chronic activation of this system is thought to damage the feedback loops that return stress hormones to their basal, or resting, levels [12, 13]. HPA axis function is determined by a number of factors including genetics, early-life environment [14], and current life stress [15]. The immune system is also involved, and chronic stress can lead to sustained levels of inflammation [13, 16]. An individual’s genetic make-up and environment further modify and contribute to either enhancing or inhibiting these processes. Thus, two people may experience and react entirely differently to the same event objectively characterized as traumatic.

We now know that trauma should be conceptualized as a *process* that is dynamic and involves interaction between an event, or series of events, and the individual (and community’s) level of vulnerability and resilience/protective factors [17]. Understanding resilience and protective factors is important in efforts to aid in prevention and recovery. Thus, trauma is less of an event, episode, or exposure and

more of an interaction that may offer points of intervention, particularly in the healthcare setting. A brief review of the current understanding of factors that mediate the “process” of trauma follows.

Allostatic Load

“Allostasis” refers to the highly integrated balance of the central nervous system (CNS), endocrine/metabolic, and immune systems which mediate the response to stress [11, 13, 18]. As discussed above, prolonged activation of these systems through chronic or repeated exposure to psychosocial stress and traumatic events has damaging consequences or “wear and tear on the body” [13]. The cumulative physiologic consequences of these result in “allostatic load” [11, 18]. Allostatic load is a contributor to cardiovascular disease [11], metabolic disorders [11], and accelerated cognitive decline [19] and has been consistently linked to lower socio-economic status (SES) [11, 12]. Allostatic load is measured in different ways [11]; some studies use biomarkers such as urinary or salivary cortisol and epinephrine, while others use clinical measurements like laboratory data, for example, lipid measurements and hemoglobin A1c. Some studies combine these with measurements of blood pressure, heart rate, body mass index (BMI), or skinfold measurements [11].

Chronic toxic stressors, or traumatic experiences, that occur during childhood, and beyond, can have an enduring influence on allostatic load because they coincide with developmental windows [13], notably those of the brain [20]. ACEs appear to impact allostasis [13], resulting in the observed higher prevalence of disease and premature mortality observed in adulthood [8]. Allostatic load causes ill-health through both the primary biologic impact of stress and damaging behaviors like tobacco and alcohol consumption which are often used as methods of coping with stress [11]. Allostatic load increases with age [11], resulting in longitudinal, worsening health impact.

Racial disparities in allostatic load were demonstrated in data from National Health and Nutrition Examination Survey (NHANES); after controlling for SES [11], Black patients were more likely than Whites to have greater allostatic load at all ages [21]. Black women across all age groups had the highest allostatic load and accrued higher allostatic load at younger ages than all other women [11]. Allostatic load is a useful construct for conceptualizing mechanisms that underlie many health disparities [11].

Environment and Epigenetics

Early life stress results in poor physical and mental health states. As discussed above, HPA axis and immune system changes play a major role in linking adversity early in life to poor health later on [13, 14]. Research has also focused on

cellular-level changes, notably chromosomal changes. Telomeres are regions of nucleotide repeats – or repetitive deoxyribonucleic acid (DNA) – at the ends of chromosomes that protect them from damage during replication [22]. Telomeres progressively shorten with every replication cycle and are thus often used as a marker for biological aging [23]. A number of studies have consistently demonstrated a relationship between childhood maltreatment and telomere length [24, 25]. There appears to be a dose-dependent association between early-life stressors and telomere shortening [22]. It also appears that protective factors, such as parental responsiveness, are linked to longer telomeres [22].

Socioeconomic Status and Cortisol: Biology and Injustice

Decreased SES has been consistently linked to poor health in the US [26] and worldwide [27]. The mechanisms that underlie this are multiple and complex. Persons of lower SES are exposed to more stressors and have a higher overall risk of lifetime trauma exposure and less access to mitigating or protective resources to buffer stressful events [11, 28]. As previously discussed, the HPA axis plays a key role in regulating the response to stressors. Cortisol is one of the most well-studied hormones produced by the HPA axis, in part because it exerts widespread effects on the CNS, metabolic, and immune systems [29], each of which contributes to allostasis [13]. Overexposure to cortisol has been hypothesized as one critical mechanism linking traumatic events to poor health outcomes. A review of these studies suggests that this association is inconsistent in part due to variability in measurement [12]. The body of research investigating the biologic mechanisms of trauma continues to grow and may soon provide opportunities to intervene at the molecular level to mitigate some of the health effects of these exposures.

Posttraumatic Stress Disorder (PTSD) and Metabolic Syndrome

While not all who experience trauma develop PTSD, the addition of PTSD to the DSM III in 1980 [5] ushered in a new era in terms of traumatic studies. In 2013, the DSM V redefined PTSD and included it as part of a category designated as “Trauma and Stressor-Related Disorders” [4]. A detailed discussion of PTSD is beyond the scope of this chapter, but briefly defined, PTSD may develop after exposure to a serious traumatic event known as a “Criterion A” event (the person was exposed to: death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence, through either direct exposure or witnessing the trauma) [4]. It consists of the following symptoms: re-experiencing the traumatic event, avoidance, arousal/reactivity, and changes in cognition and mood for at least 1 month after the event. Many effective, evidence-based PTSD treatments have been developed since 1980 when PTSD was first included in the DSM III [30].

PTSD has received attention as a critical mediator between trauma exposure and health [31] and is known to be linked to allostatic load [32]. While poor health is observed among trauma-exposed persons who *do not* develop PTSD, studies have consistently shown poorer health after a traumatic event for persons with PTSD compared to those without it [31]. As research has consistently shown linkages between trauma and chronic disease outcomes [8, 31, 32], attention has been focused on PTSD as a mediator between exposure to traumatic stress and poor health [31].

One of the most well-studied health outcomes associated with PTSD is metabolic syndrome, a group of medical risk factors that signal abnormal underlying pathophysiological processes that increase risk for morbidity (notably hypertension, type II diabetes, and cardiovascular disease) and, eventually, mortality [32]. Some of the markers of metabolic syndrome are also used to estimate allostatic load [11], and PTSD has been consistently linked to increased risk of metabolic syndrome [32]. PTSD manifests variably among individuals, in keeping with the concept of trauma as a “process.” One proposed causal mechanism is through alterations in neuropeptide Y (NPY), a stress-activated cardiovascular and metabolic regulating hormone that is variably expressed based on genetic makeup [32]. This is another pathway for which ongoing research may yield important points of potential therapeutic intervention after traumatic exposure.

In summary, traumatic events set off a myriad of biological responses that vary among individuals and are still being elucidated. The pathways between traumatic experiences and adverse health effects are complex but indisputable and hold promise for future treatment and care for survivors.

Prevalence of Common Traumatic Exposures

While it is beyond the scope of this volume to provide a detailed review of every form of interpersonal trauma, we will now provide an overview of the epidemiology of some of the traumatic exposures experienced by patients who seek US medical care. This summary will better equip both clinicians, administrators and systems of care with critical background knowledge to tailor patient care and develop/enhance trauma-informed practices. Most prevalence and background data on traumatic exposure come from either (1) population-based surveys, frequently conducted through random digit dialing in a limited number of languages (commonly English and Spanish at a minimum), (2) studies conducted in medical populations (which typically demonstrate higher rates of traumatic exposures than in general population-based surveys), and (3) surveillance data collected by government agencies and reporting systems such as law enforcement/justice department and child protective services referrals. Each of these forms of data has its own limitations. For example, often government agencies are mandated to collect certain data which depend, in part, on reporting. In cases involving child maltreatment; if a report is not made, the potential trauma to the child is not captured in that data source.

Many forms of traumatic exposures overlap in their definitions, and multiple exposures during the course of an individual’s lifetime are unfortunately too common. Often patients will not self-identify as survivors of trauma, so familiarity with different

forms of trauma is key to TIC and to delivery of high-quality medical care (and related, critical social services). Trauma exposure in subgroups of patients who may need adaptations in their care to meet unique sets of needs is covered in Part III of this book. In addition, many of those who commit abusive, violent acts against others have themselves experienced abuse and trauma (as “victims”) and also need understanding and care [33]. Table 1.1 summarizes key aspects of and, selected data sources for, each form of trauma reviewed below, it is intended to provide sample estimates and is not an exhaustive summary of all available data for each form of trauma.

Table 1.1 Interpersonal trauma: Definitions and Data Examples

| Trauma type | Definition | Estimated prevalence | Selected data sources |
|--------------------------------|---|---|---|
| Child neglect & physical abuse | When a parent or caregiver acts, or fails to act, in a way that results in physical injury to a child or adolescent even if unintentional [45] | Any maltreatment 30.1 per 1000 children (22% of maltreated children are referred to foster care) | Government Reporting Data: NCANDS, Child Maltreatment 2016 [94] https://www.acf.hhs.gov/cb/research-data-technology/reporting-systems/ncands |
| | | Any maltreatment: 25.6% | Population-based data: National Survey of Children’s Exposure to Violence (NatSCEV/ NatSCEV II) [35] |
| Child sexual abuse | An interaction between a child and an adult or child in which the child is used by the perpetrator for sexual stimulation (Includes touching and non-touching behavior) [34] | 8.5% sexual abuse | NCANDS [94] |
| | | Sexual assault 4.2% (2.5% for males and 5.9% for females) | NatSCEVII [35] |
| Intimate partner violence | Physical violence, sexual violence, stalking, and psychological aggression (including coercive tactics) by a current or former intimate partner (i.e., spouse, boyfriend/ girlfriend, dating partner, or ongoing sexual partner) [95] | 1 in 3 women (35.6%) 1 in 4 men (28.5%) Sexual IPV: 16.9% of women 8.0% of men | National Intimate Partner and Sexual Violence Survey (NISVS) [96] |
| Sexual assault | Sexual violence refers to any sexual activity in which consent is not obtained or freely given [95] | Rape: 19.3% of women 1.7% of men All forms of sexual violence: 43.9% of women 23.4% of men | NISVS [96] |

(continued)

Table 1.1 (continued)

| Trauma type | Definition | Estimated prevalence | Selected data sources |
|--------------------|--|---|---|
| Community violence | Exposure to intentional acts of interpersonal violence committed in public areas. Common types include individual and group conflicts (e.g., bullying, fights among gangs and other groups, shootings in schools and communities) [48] | Varies by neighborhood/state Violent crime: 21.1 victimizations per 1000 persons (1.3%) 8.8% of households experienced at least one property victimization. Ages 12–34 had higher rates of violent victimization than persons age 35 or older (BJS) [97] Victimization rates vary by income bracket (highest for persons in households earning less than \$10,000 each year) (BJS) [97] | National Survey of Children’s Exposure to Violence [35] National Crime Victimization Survey https://www.icpsr.umich.edu/icpsrweb/NACJD/NCVS/ Youth Risk Behavior Surveillance System (YRBSS) [60] National Neighborhood Crime Study (NNCS) [58] Survey of Exposure to Community Violence (SECV) [56] |
| Human trafficking | The action or practice of illegally transporting people from one country or area to another, typically for the purposes of forced labor or commercial sexual exploitation [61] | 40.3 million worldwide as reported by the Polaris Project Statistics are limited; research is scarce and challenging to conduct | Trafficking in Persons Report; US Department of State [67] Counter-Trafficking Data Collaborative (CTDC), The Polaris Project [98, 99] |
| Historical trauma | Cumulative emotional and psychological injury, as a result of group traumatic experiences transmitted across generations within a community [80] | Population-based prevalence rates are unavailable at this time | National Child Traumatic Stress Network [100] |

Child Abuse and Maltreatment

Systems of care are not only treating acutely injured and abused children, but adult survivors of childhood maltreatment and the medical sequelae that develop as a result of these adverse experiences. Much of what we know about the prevalence of child abuse and maltreatment in the USA comes from reports made to social service and law enforcement. It is likely that these data are underestimates of the true prevalence of abuse in childhood. Widening the definition of childhood maltreatment to include household dysfunction, as Felitti did [8], yielded estimates similar to those published at the same time in the first national prevalence study of child sexual abuse [34].

In 1999, the Office of Juvenile Justice and Delinquency Prevention (OJJDP) created the Safe Start Initiative to prevent and reduce the impact of children’s exposure

to violence. As a part of this initiative, and with a growing need to document the full extent of children's exposure to violence, OJJDP launched the National Survey of Children's Exposure to Violence (NatSCEV) with the Centers for Disease Control and Prevention (CDC) [35]. The NatSCEV is a population-based survey that captures a wide range of violent exposures that range from peer and sibling victimization (emotional bullying or relational aggression), Internet/cell phone victimization, witnessing violence ("indirect victimization"), to sexual victimization and child maltreatment [35]. For the NatSCEV II, conducted in 2011 [35], telephone interviews were conducted with a nation-wide sample of 4503 children and youth ages 1 month to 17 years (or their caregivers for children younger than age 10). Estimates from that survey indicate a lifetime rate of any child mistreatment of 25.6% and sexual assault in childhood of 4.2% (2.5% for males and 5.9% for females).

Government reporting data is collected through the National Child Abuse and Neglect Data System (NCANDS). NCANDS was established in 1988 as a national data collection and analysis program to make available state child abuse and neglect information. Data has been collected every year since 1991, and NCANDS now annually collects maltreatment data from child protective services agencies in the 50 states, the District of Columbia, and Puerto Rico [36]. In 2015, there were an estimated four million referrals alleging maltreatment to child protective services (CPS). Over half of those "screened in," i.e., became reports. 3.4 million children received an investigation or response and of those 676,000 (30.1 per 1000 children) were found to have been victimized. 1670 children died. Nearly 75% experienced neglect (18.2% physical abuse and 8.5% sexual abuse). Twenty-two percent of children found to have experienced maltreatment wound up in foster care services. Children often witness violence between their caregivers, guardians, and parents as well. In 2018, the forced separation of children from parents seeking asylum in the US prompted a global outcry and also raised concerns for longterm health effects from this form of child maltreatment [37].

Intimate Partner Violence and Sexual Assault

The CDC has defined intimate partner violence (IPV) (also known as domestic violence) as including physical violence, sexual violence, stalking, and psychological aggression (including coercive tactics) by a current or former intimate partner (i.e., spouse, boyfriend/girlfriend, dating partner, or ongoing sexual partner) [38]. IPV is common in the US population, and over the last 20 years, programs to detect and respond to IPV in healthcare settings have proliferated. As with all forms of interpersonal trauma, IPV can have lasting health consequences.

The CDC conducts a national population-based telephone survey, the National Intimate Partner and Sexual Violence Survey (NISVS) [39]. Data from the NISVS show that more than one in three women (35.6%) and one in four men (28.5%) in the US have experienced rape, physical violence, and/or stalking by an intimate partner in their lifetime [39]. Nearly half of all women and men have experienced psychological aggression by an intimate partner in their lifetime (48.4% and 48.8%, respectively).

IPV risk is highest at younger ages; most female and male victims of rape, physical violence, and/or stalking by an intimate partner (69% of female victims; 53% of

male victims) experienced some form of IPV for the first time before the age of 25 [39]. Nearly one in ten women in the US (9.4%) has been raped by an intimate partner in her lifetime, and an estimated 16.9% of women and 8.0% of men have experienced sexual violence other than rape by an intimate partner at some point in their lifetime. Some groups are at heightened risk of violence, for example approximately 4 out of every 10 women of non-Hispanic Black or American Indian or Alaska Native race/ethnicity (43.7% and 46.0%, respectively), and 1 in 2 multiracial non-Hispanic women (53.8%) have experienced rape, physical violence, and/or stalking by an intimate partner in their lifetime [39]. This further underscores that trauma impacts health disparities and equity. IPV and sexual violence commonly co-occur as sexual violence can be a form of IPV when committed by an intimate partner. Rates of IPV are elevated among sexual and gender minority individuals, almost one-third of sexual minority males and one-half of sexual minority women in the US report experiencing physical or psychological abuse in an intimate relationship [40]. The US Preventive Services Task Force (USPSTF) [41] and many major medical organizations recommend routine screening for IPV in medical settings [42–44].

Sexual Assault

Sexual violence refers to any sexual activity in which consent is not obtained or freely given [45]. While the majority of those who experience sexual violence are female, anyone can experience or perpetrate sexual violence [39]. In the US, an estimated 19.3% of women and 1.7% of men have been raped during their lifetimes; 43.9% of women and 23.4% of men experienced other forms of sexual violence during their lifetimes [46]. Among female victims of completed rape, an estimated 78.7% experienced their first assault before age 25 (40.4% before age 18). Among male victims who were made to penetrate a perpetrator, an estimated 71.0% were assaulted before 25 (21.3% before age 18) [46]. Some racial and ethnic groups experience higher rates of sexual assault; in the NISVS, rates of lifetime reported rape were 32.3% for multiracial women and 27.5% for American Indian/Alaskan Native women [46]. The American College of Obstetricians and Gynecologists (ACOG) recommends that healthcare providers routinely screen all women for a history of sexual assault, paying particular attention to those who report pelvic pain, dysmenorrhea (painful menses), or sexual dysfunction [47].

Community Violence

Violence outside the home or confines of a familial or intimate relationship is often referred to as community violence, which has been broadly defined as “exposure to intentional, interpersonal violent acts experienced directly (through victimization)

or indirectly (witnessing others be victimized) in a public setting” [48]. Community-level risk factors for violence include unemployment, poverty, decreased levels of economic opportunity and community participation, lack of access to services, poor housing, and gang activity [49].

Accurately estimating the full scope of community violence exposure is challenging, and there is no single data source that accurately captures its full impact in the US. Among the many challenges of describing the scope and impact of community violence is the fact that studies have been hampered by limited consensus concerning its definition [50], use of unvalidated measures [50, 51], and lack of comparator populations [51]. Adult exposure to community violence is commonly measured using tools developed for children and adolescents [50]. These issues aside, it is clear that exposure to community violence adversely impacts health similarly to other forms of trauma; it is associated with adverse mental [52] and physical health in both children [51] and adults [50]. It is also associated with violence perpetration, substance use, and sexual risk-taking behavior among emerging adults [53].

A number of data sources report community violence. As reviewed above, the NatSCEV [35] provides important data on violence exposure in children and youth and some of the types of violence reported in it fall under the definition of community violence. Crime and justice system data are limited by the need for law enforcement to be involved, and even when they are, the community impact from the violence cannot be fully captured in the resulting estimates. The population-based National Crime Victimization Survey (NCVS) provides crime statistics annually; data are obtained from a nationally-representative sample of about 135,000 households (nearly 225,000 persons), on the frequency, characteristics, and consequences of criminal victimization in the US including whether the crime was reported to authorities [54]. According to the NCVS, fewer than half (42%) of all violent victimizations committed in 2016 were reported to the police, but this varied by type of crime: rape or sexual assault (23%) and simple assault (38%) were less likely to be reported to the police than robbery (54%) and aggravated assault (58%) [55]. The Survey of Exposure to Community Violence (SECV) is another commonly referenced survey measure of community violence exposure [51, 56] that demonstrates highest exposures in poor urban communities [57].

Community violence commonly occurs in lower SES neighborhoods, but the empirical basis for this is not well-understood. Peterson and Krivo conducted the landmark National Neighborhood Crime Study (NNCS) to overcome the common bias of single-city research [58]. The NNCS compiled crime and other data for 9,593 neighborhoods in 91 large cities and found that violence is five times as high for the average African American neighborhood as for the typical White urban community. Furthermore, only about one-fifth of African American areas have violence levels that are as low as those for 90% of White areas. The authors emphasize that racial composition of neighborhoods is not a causal factor in accounting for crime patterns. Instead, it appears to be a correlate of the concentration of unequal resources in separate contexts that also produces varied responses from outside agencies and actors [58]. Healthcare systems function as actors and provide such resources to communities, underscoring the need for responsive systems of care that

are trauma-informed and seek to understand and respond to community needs and culture. More work is needed to identify the correlates of community violence exposure, as well as the mitigating (protective) factors that foster resilience and healing such as family, community, and religious organizations.

Community violence disproportionately impacts younger persons (homicide is the leading cause of death for Black boys and men ages 15–34 and the second leading cause for ages 10–14) [59]. This is especially concerning because trauma impacts the developing brain. For this reason, the CDC funds Youth Violence Prevention Centers (YVPCs) to design, implement, and evaluate community-based youth violence prevention programs and to monitor surveillance data from many sources including the Youth Risk Behavior Surveillance System (YRBSS), a biennial survey the agency conducts [60]. Clinicians and healthcare systems that serve areas with high rates of community violence should remain aware of these programs and data sources; trauma-informed care for youth is discussed in detail in Chapter 9 of this book.

Healthcare is provided not only to individuals but to social networks, neighborhoods, and communities. It is critical that frontline clinical teams, and health system administrators understand their locality and the burden of community violence experienced by patients and families in order to provide outstanding, culturally appropriate, responsive TIC which includes listening to patients, advocates, community voices and stakeholders.

Human Trafficking

Human trafficking (HT) is an under-recognized form of interpersonal trauma, and there is great potential for healthcare professionals to make a significant impact through screening and intervention. It is defined as “the recruitment, transportation, transfer, harboring, or receipt of persons,” by means of threat, force, coercion, abduction, fraud, deception, the abuse of power, or payments, “for the purpose of exploitation” [61]. Victims are most commonly trafficked for sexual exploitation [62] and for domestic servitude and forced labor [63]. Labor exploitation (also known as “labor trafficking”) occurs in agricultural and fishing industry work, repetitive labor, domestic servitude, debt bondage, and other forms of slavery [64]. HT has been described as “modern slavery” [65]; its prevalence is vastly underestimated and its victims are hard to recognize [66]. Approximately 40 million people are trafficked worldwide [62] and the US Department of State reports a steady increase in cases investigated and prosecuted in the US and worldwide [67]. Victims, including men, women, children, refugees, migrants, and members of the lesbian/gay/bisexual/transgender (LGBT) community, may be trafficked locally or moved across borders [64]. Rates of trafficking appear to be higher within communities of color, further driving health disparities [68]. HT encompasses and employs many of the forms of violence reviewed above, notably child maltreatment and sexual assault.

The overall prevalence of HT victims in the general US population is likely very low, but survivors commonly describe medical encounters that, in retrospect,

should have aroused suspicion among the treating clinicians [69]. The majority of those trafficked in the US are women and girls [62], close to half are minors. The Polaris Project, a non-profit organization that runs a hotline and services for trafficked persons, estimates a 13% increase in US cases between 2016 and 2017 and has received over 40,000 calls in the last decade [62]. Unlike other forms of interpersonal trauma, HT is commonly committed by women against other women; in some European countries women comprise the majority of offenders [70].

Trafficked individuals may commonly present in medical settings [66]; one study found that 50% of female trafficking survivors interviewed reported visiting a physician while trafficked [69]; these visits present a window of opportunity to aid these patients. A number of authors have described characteristics of patients that should raise concern for HT [66, 69], and an increasing body of evidence describes best practices for working with survivors [71–73]. Presentations and signs that should raise suspicion for trafficking when patients access healthcare or social services are listed in Table 1.2 [69, 74].

As trafficked patients are typically not allowed access to routine, ongoing preventive care, emergency departments are a common point of entry into healthcare, and tools for identification have been created for these settings [75]. As for survivors of other forms of trauma, engagement in healthcare services is often a challenge [76], further underscoring the importance of a TIC environment for these patients. When trafficked persons do access healthcare, they present with an increased risk of human immunodeficiency virus (HIV), sexually transmitted infections, as well as somatic symptoms such as headaches, back pain, and abdominal pain, resembling those seen among survivors of other forms of interpersonal trauma [63].

Research on HT is scarce, challenging, and potentially dangerous to undertake [63, 66]. Research with survivors has demonstrated that HT utilizes psychological methods to coerce victims into bondage, including isolation, monopolization of perception, induced debility, occasional indulgences, threats, and degradation [77]. Participants are typically people recruited from post-trafficking support services whose experiences may not generalize to those in captivity [63]. Ravi et al. interviewed a cohort of previously trafficked incarcerated women with substance use histories to determine their preferences for healthcare [78], most (71%) identified as a member of a racial/ethnic minority and more than half had not completed high school. The trafficking survivors' suggestions for ideal care included having rapport with the front desk and support staff. They also suggested that providers be aware of their reactions to a disclosure and expression of empathy. In essence, these survivors of HT described a preference for TIC.

Clinicians and care systems can develop routine processes that are trauma-informed and can aid in detecting trafficked persons [69] including:

- Training of healthcare personnel and staff (including physicians, nurses, dentists, medical assistants, technicians, and receptionists) to increase awareness of trafficking and coercion.
- Provision of professional interpreters.

Table 1.2 Potential signs of HT [69, 74]

| |
|--|
| In the medical setting |
| <i>Poor mental health or abnormal behavior</i> |
| Is fearful, anxious, depressed, submissive, tense, or nervous/paranoid |
| Exhibits unusually fearful or anxious behavior after topic of law enforcement is brought up |
| Avoids eye contact |
| <i>Poor physical health</i> |
| Lacks healthcare |
| Appears malnourished |
| Shows signs of physical and/or sexual abuse, physical restraint, confinement, or torture |
| <i>Lack of control</i> |
| The person accompanying the patient will not leave them alone |
| Is not in control of his/her own identification documents (ID or passport) |
| Is not allowed or able to speak for themselves (a third party may insist on being present and/or translating) |
| Has few or no personal possessions |
| Is not in control of his/her own money, no financial records, or bank account |
| <i>Other</i> |
| Claims of just visiting and inability to clarify where he/she is staying/address |
| Lack of knowledge of whereabouts and/or do not know what city they are in is in |
| Loss of sense of time |
| Has numerous inconsistencies in story |
| Other social histories |
| <i>Common work and living conditions: The individual(s) in question</i> |
| Is not free to leave or come and go as s/he, they wish |
| Is under 18 and is providing commercial sex acts |
| Is in the commercial sex industry and has a pimp/manager |
| Is unpaid, paid very little, or paid only through tips |
| Works excessively long and/or unusual hours |
| Is not allowed breaks or suffers under unusual restrictions at work |
| Owes a large debt and is unable to pay it off |
| Was recruited through false promises concerning the nature and conditions of work |
| High security measures exist in the work and/or living locations (e.g. opaque windows, boarded-up windows, bars on windows, barbed wire, security cameras, etc.) |
| Owes employer money |

- Interviewing/ examining all patients privately at some point during their medical visit (away from whomever may have accompanied them).
- Incorporating social, work, home history, and intimate partner violence screening questions into routine intake.
- Carefully observing body language and the communication style of patients and those who accompany them.

In summary, the practice of HT is widespread and challenging to detect. HT deploys forms of violence reviewed previously but has its own unique power

and control dynamics that can render victims invisible and impossible to locate. Healthcare settings, as frequent points of contact, offer hope; training does improve provider knowledge and report of recognition of victims of trafficking [66, 79]. Any trauma-informed system of care must remain aware of and respond to trafficked persons.

Historical Trauma

Like HT, historical trauma has been less commonly appreciated in medical settings. The term refers to a complex and collective trauma that is experienced over time and across generations by a group of people who share an identity, affiliation or circumstance [80]. Informed by theories of social epidemiology, historical trauma is linked to health through psychosocial stressors that create susceptibility to disease as well as act as direct pathogenic mechanisms. Political, economic, and structural determinants of health and disease such as unjust power dynamics and social inequality [81] play a critical role in creating, and perpetuating, poor health for populations.

Initially, historical trauma was conceptualized in reference to the children of Holocaust survivors [82] and this cohort remains the most studied to date. Mohatt et al. note that over the last 2 decades, the range of groups to whom the term has been applied include indigenous peoples [83], African Americans [84], Armenian and other refugees [85], Japanese American survivors of internment camps [86], Mexican Americans [87], and many other cultural groups that share a history of massive group trauma exposure and oppression [80]. As discussed earlier in this chapter, trauma is a psychological *process* that is distinct from the traumatic event itself. As such, a number of authors refer to trauma as a “representation” of a traumatic event [80, 88]. Scholarly work around both validated measurement and intervention is emerging on the topic of historical trauma [83].

Historical trauma has been linked to health effects, and an emerging literature reflects this. The mechanisms for this are complex, and a variety of pathways have been proposed. Sotero [81] describes four distinct assumptions that link historical trauma and adverse health: (1) mass trauma is deliberately and systematically inflicted upon a population by a dominant group, (2) trauma is not limited to a single catastrophic event but continues over an extended period of time, (3) traumatic events resonate for the entire population creating a universal experience of trauma, and (4) the enormity of the trauma experience deranges the population’s natural, projected historical course, resulting in physical, psychological, social, and economic disparities that span generations. Some examples of this follow below.

Estrada [87] set forth a conceptual model for the Mexican American population that is likely applicable to other minority groups in the US; he suggests that historical and social events have created institutions and perceptions that are racist and discriminatory toward Mexicans and Mexican Americans. This, in turn, negatively influenced their eligibility for health insurance coverage and access and availability

to healthcare through cultural or institutional barriers that prevent them from obtaining care when needed. Over time, with limited or no access to healthcare, generations of Mexicans and Mexican Americans have begun to show increased rates of substance abuse, hypertension, metabolic syndrome, anti-social personality disorders, and type 2 diabetes mellitus. In turn, these diseases are influenced by the psychosocial stressors (e.g., anti-Mexican sentiment, discrimination, and racism) that generations of Mexicans and Mexican Americans have experienced from the dominant culture [87].

Other examples suggest that historical trauma impacts health and well-being by disrupting or jeopardizing culture-based resilience and protective factors, like social support and parenting knowledge, resulting in mass unresolved grief [80, 89]. To illustrate this concept, research among indigenous peoples in North America (“Native Americans”) has shown that historical trauma, in part mediated by the mid-nineteenth-century practice of forcing children into boarding schools, may be in part responsible for substance use and health disparities [89, 90].

Some have found evidence to support epigenetic changes [80, 91] similar to the findings discussed above that linked early life stress to telomere shortening [22, 25]. For example, children of Holocaust survivors have been shown to be more vulnerable to PTSD [82] and to have overall lower basal cortisol levels [92]. Thus, understanding the potential for historical trauma in populations is essential not only for clinicians but for systems of care which must tailor services that are mindful of the collective experiences of the community members they serve. Systems of care will be discussed in detail in the next part of this book.

Conclusion

In sum, while trauma is a part of the human experience, we can see from the breadth and depth of data presented above that we are in the midst of a public health crisis. Healthcare clinicians, administrators and leaders have a critical role to play in responding through identification and prevention of poor health outcomes for their patients. As with any other highly contagious disease, we recommend that foundational knowledge and understanding of trauma be part of healthcare education at all levels and disciplines. This must be coupled with universal trauma precautions [93] to prevent retraumatization in medical settings and to mitigate transmission and spread between individuals, within families, among communities, and in the healthcare workforce.

To do this requires a commitment on the part of our healthcare institutions and systems of care to regular training on trauma including, its current definitions and concepts, prevalence, the mechanisms through which it manifests in the body and drives disparities. This knowledge must be continuously reinforced and applied to enhance and sustain trauma-informed practices.

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