Chapter 2
The Intersections of Social, Behavioral, and Physical Health

2.1 Overview of Health and Behavioral Health Intersections

Behavioral health disorders in general, and depression, anxiety, and substance use disorders (SUDs) specifically, are a leading cause of disease burden worldwide (Vos et al. 2015; Whiteford et al. 2013). These disorders commonly co-occur with other chronic medical conditions such as diabetes, arthritis, pain, cancer, cardiovascular disease, hypertension, cerebrovascular disease, lung disease, stomach problem, and asthma in a dose–response relationship (Scott et al. 2016). For instance, depression, anxiety, and substance use are associated with higher risk ratios for all of the above disorders and risk for these physical conditions increases as the number of behavioral health comorbidities rises (Scott et al. 2016). This indicates that behavioral health conditions such as depression and anxiety may be precursors to physical disease (Stein et al. 2014; Scott et al. 2016). Behavioral health disorders also make treatment and management of medical disorders complicated and more difficult (Scott et al. 2016; Walker and Druss 2016).

In order to address the comorbid nature of physical and behavioral health disorders, behavioral health treatment programs should seek to target comorbid physical conditions in all clients. Likewise, addressing behavioral health disorders in primary care settings that treat clients with chronic physical conditions is indicated. The above data make a strong case for integrated care that addresses both physical and behavioral health conditions simultaneously (Walker and Druss 2016). The combination of co-occurring disorders with high stress, early adverse childhood experiences (ACEs), and high-risk health behaviors such as smoking, drinking, substance use, sedentary life style, and obesity leads to high morbidity and increased risk for early mortality due to overdose, disease, accidents, and suicide. Integrating fragmented health care systems to provide integrated health and behavioral health care is an effective
means to increase access to care and mitigate the effects of comorbid conditions (Druss and Walker 2011). Doing so requires the use of theoretical models that consider the dynamic process that leads to comorbid conditions. Ecological models that conceptualize the complex interactions of various risk and protective factors at the individual, interpersonal, organizational, and community levels represent a comprehensive approach to understanding of the dynamic interplay of the various factors that influence health. In the next sections I will outline the epidemiology of common behavioral health conditions in the United States. I then review the various risk and protective factors that contribute to health and resilience through the lens of ecological systems theory.

2.2 Prevalence of Behavioral Health Conditions in the United States

2.2.1 Substance Use

Substance use in the United States is very common. In 2018, 165 million people (60% of the population) over the age of 12 reported using substances in the past month. Of that number, 47 million people reported tobacco use and 67 million reported binge drinking. In 2018, 43.5 million reported marijuana use, over 10 million people reported opioid misuse, and 5.5 million reported cocaine use (SAMHSA 2019). In 2018, almost 15 million people had an alcohol use disorder and over 8 million people had a nonalcohol related substance use disorder or about 8% of the general population over the age of 12 (1 in 13 people; SAMHSA 2019). Two million and 4.5 million people had an opioid use and cannabis use disorder, respectively (SAMHSA 2019). While over 21 million people 12 years of age and older needed treatment for either an alcohol or drug use disorder, only about 1 in 10 received care at a specialty facility (SAMHSA 2019).

The 12-month prevalence of substance use disorders (SUDs) in the US population is 3.7%. In any given year, White people are the most likely group to have a substance use disorder (4%). Black and Latinx persons have a 12-month prevalence rate of 3% and 3.6%, respectively. Approximately, 1% of Asian Americans have a SUD in any given year (Vilsaint et al. 2019). In another study using a large national sample, 12-month and lifetime prevalence for substance use disorders for the total population were about 4% and 10%, respectively (Grant et al. 2016). This study also found that in the United States, substance use disorders are most prevalent in men, White persons, and Indigenous populations, as well as younger persons and those never married. SUDs are commonly comorbid with a wide range of disorders including depressive and anxiety disorders, borderline and antisocial personality disorders, bipolar spectrum disorders, and PTSD. Unfortunately, treatment rates for persons with 12-month and lifetime SUDs were only 13.5% and 24.6%, respectively (Grant et al. 2016).
2.2.2 Mental Illness and Treatment

While mental illness is common and treatable, treatment rates are low indicating the need for increased service availability and access. In 2018, 48 million American had a mental illness and 11.4 million persons had a serious mental illness (SMI) (e.g., major depressive disorder [MDD], bipolar spectrum disorder, schizophrenia spectrum disorder). Furthermore, 14.4% of adolescents between the ages of 12 and 17, and 13.8% of young adults aged 18–25 had a major depressive episode (MDE) in 2018. About 10% of adolescents had an MDE with severe impairment. Less than half of adolescents (41.4%) and young adults (49.6%) received treatment (SAMHSA 2019). Of the nearly 47.6 million adults with a mental illness, less than half (43%) received mental health care in 2018 and a third of the over 11 million adults with a serious mental illness did not receive any mental health care (SAMHSA 2019). Nearly half of lesbian, gay, and bisexual (LGB) adults (44%) report any mental illness, and 38% of this number have a serious mental illness. Despite this, 30–40% of LGB adults with SMI did not receive treatment in 2018 (SAMHSA 2020).

2.2.3 Suicide

Suicide has become one of the leading causes of death in the United States. In 2017, approximately 47,000 people or 14.5 per 100,000 people completed suicide making it the tenth leading cause of death in the United States. Of that number, almost 24,000 suicides involved firearms (Kochanek et al. 2019). Suicide rates have increased in almost every state since 1999 with more than half of states experiencing at least a 30% increase during that time period. Perhaps most importantly, over half (54%) of people who completed suicide in 2016 did not have a diagnosed mental health condition (Stone et al. 2018). Furthermore, persons who complete suicide have often seen a behavioral health or primary care provider in the three months preceding their death, further indicating the need for integrated behavioral health care prevention, screening, and intervention services in health care settings (Luoma et al. 2002; Pearson et al. 2009; Pirkis and Burgess 1998).

In 2018, nearly 11 million adults over the age of 18 (4.3%) reported thinking seriously about suicide. Over three million made plans (1.3%) and nearly one and a half million made an attempt (0.6%; SAMHSA 2019). Rates of suicidal ideation and suicide attempts in lesbian, gay, and bisexual (LGB) young adults are more than twice that of the US population. Almost 27% of LGB young adults experienced suicidal ideation in the past year and 5.4% attempted suicide compared to 11% and 1.9% in the broader US population (SAMHSA 2020). Transgender and gender nonconforming (TGNC) persons have far higher rates of suicidal ideation and attempts than the general US population. In a large
representative national sample, 40% of transgender adults reported a lifetime suicide attempt compared to 4.5% of the US population, and 7% had attempted suicide in the past year, which was nearly 12 times the rate of the US population (James et al. 2016).

American Indian/Alaskan Natives, older Non-Hispanic Whites, and military veterans also have suicide rates significantly higher than the general population. Experiencing physical and sexual violence also increases the risk for suicidal ideation and completion of suicide. Women are more likely to attempt suicide, but men are far more likely to die by suicide due to more lethal means (Curtin et al. 2016). For instance, in 2017 men accounted for 86% of all firearm-related suicides (CDC 2020a). Experiencing poverty, violence, and discrimination also contributes to increased suicide rates.

Research has indicated a significant rise in suicides and suicide attempts among Black youth requiring far more national attention (Lindsey et al. 2019; Price and Khubchandani 2019). Rates of suicide attempts, while declining in White youth by 7.5% from 1991 to 2017, have risen in Black youth by 73% to record highs. Suicide is the second leading cause of death for Black youth (13–19) behind homicide (Price and Khubchandani 2019). While rates of suicide deaths have increased 33% over the last 20 years for all groups, they have risen higher in Black youth. For instance, from 2001 to 2017 the suicide rate for Black males increased 60%. For Black females, suicides increased a striking 182%. The methods used in the vast majority of suicides in both groups were the two most likely to result in death: hanging and firearms (Price and Khubchandani 2019). Indeed, suicide injuries and deaths for Black males have drastically increased suggesting they are using more lethal means (Lindsey et al. 2019). The rise in suicides in Black youth can be tied directly to their likelihood of experiencing higher rates of trauma, discrimination, poverty resulting from economic inequity, and a systematic lack of access to culturally fluent health and behavioral health care. These findings call for immediate action in the form of policies designed to: (1) increase access to high-quality, affordable, and culturally tailored health and mental health care; (2) eliminate economic inequities; (3) enhance public awareness of suicide risk and protective factors; and (4) improve other social determinants of health in Black communities such as increasing access to safe and affordable housing, increasing employment and education opportunities, increasing access to food, and reducing violence and environmental hazards (e.g., lead, water and air pollution, vacant buildings) (National Partnership for Action: HHS Action Plan to Reduce Racial and Ethnic Health Disparities, 2011).

Despite the fact that most people who complete suicide do not have a diagnosed behavioral health condition, one of the primary risk factors for suicide is the presence of any psychiatric disorder, particularly major depression and bipolar spectrum disorders. Other risk factors include hopelessness, male gender, previous suicide attempts, PTSD, anxiety, family history of suicide, and alcohol and substance misuse (APA 2013; Hawton et al. 2013). Another important risk factor is access to firearms. The risk disparities between gun owners and non-owners are striking. In a large study of gun ownership in California, male and
female gun owners had suicide rates three and seven times more than male and female nonowners, respectively. New gun owners were also 100 times more likely to die by suicide within the first 30 days of possessing a gun than nonowners (Studdert et al. 2020). An important aspect of this study is that gun owners and nongun owners completed suicides without a gun at roughly the same rate, suggesting that possession of a firearm led to more suicides and was therefore a likely driver of increased rates for gun-owners who may have otherwise not completed suicide.

This highlights the importance of reducing the prevalence of access to unsecured firearms as a key component of effective suicide prevention and the need for better tracking of gun sales and gun stocks (Studdert et al. 2020). In the early days of COVID-19, news reports documented a spike in gun and ammunition purchases with news images of long lines of people, almost exclusively men, standing outside gun stores. How many of those were new gun sales? While it is too early to tell at the time of this writing, yet another effect of COVID-19 may be an increase in suicide rates—especially given the stress, job losses, and economic burdens felt by tens of millions of Americans, compounded by rise in firearm ownership.

### 2.2.4 Depression

The lifetime and 12-month prevalence rates of major depressive disorder (MDD) in the United States are 17% and 6%, respectively (Karg et al. 2014; Kessler et al. 2005a). The lifetime prevalence of dysthymia is 2.5%, bipolar disorders (I and II) 3.9%, and of any mood disorder is 20.8% (Kessler et al. 2005a). Worldwide estimates place the lifetime prevalence of MDD at 12% (Kessler et al. 2011). In 2015, 4.4% of the world population (322 million) experienced major depressive disorder (WHO 2017). Major depressive disorder has one of the highest burdens of disease in the world and costs US economy approximately 200 billion dollars (Greenberg et al. 2015; Whiteford et al. 2013). MDD is the second leading cause of disability in the United States and worldwide (Ferrari et al. 2013; Murray et al. 2013).

Prevalence of MDD in women is approximately twice the rate as in men in the United States and worldwide (17% vs 9%; Hasin et al. 2005; Seedat et al. 2009; WHO 2017), which may be due to a combination of biological, psychological, and environmental circumstances such as higher rates of poverty, trauma, and stress (Kuehner 2017; Malhi and Mann 2018). For adolescents aged 12–17, the 1-year and lifetime prevalence rates for major depressive episode are 8% and 11%, respectively (Avenevoli et al. 2015; Perou et al. 2013). A significant and growing percentage of pediatric depression cases are undertreated or untreated (Mojtabai et al. 2016). Lifetime prevalence of depression in older community dwelling adults is less than younger adults (Kessler et al. 2010a, b), and depression prevalence appears to decrease over time (Byers et al. 2010). However, older adults in primary care settings and those with chronic medical comorbidities can have much higher depression rates than the general older adult population (Lyness et al. 2006; Schulberg et al. 1998).
Lifetime prevalence of major depression was 18% for Whites, 13% for Caribbean Blacks, and 10% for African Americans (Williams et al. 2007). Approximately 15% of the US Latinx population will experience a depressive disorder in their lifetime (Alegria et al. 2008). The 12-month prevalence of mood disorders in the Latinx population is about 11% (Vilsaint et al. 2019). While variations in socioeconomic factors such as education level and nativity may play an important role in racial differences in behavioral health prevalence rates, national lifetime prevalence rates for behavioral health disorders in Latinx immigrant populations are typically lower than that of non-Latinx Whites (Alegria et al. 2008; Vilsaint et al. 2019).

Rates of depression in the LGBTQ community are high. Depression is twice as high in LGB adults as in the general US population. Over 30% of young LGB adults and almost 20% of adults between the age of 26 and 49 have experienced major depression in the past year (SAMHSA 2020). For transgender and gender nonconforming (TGNC) persons, 38% reported serious psychological distress in the past month compared to 5% of the general US population (James, et al. 2016). In a large, random sample of over 1200 TGNC college students across more than 70 campuses in the United States, almost 80% of respondents met criteria for one or more behavioral health problems compared to 45% of cisgender students. Almost 60% screened positive for depression, 50% screened positive for an anxiety disorder, and over half reported nonsuicidal self-injury (NSSI; Lipson et al. 2019).

### 2.2.5 Anxiety

Anxiety disorders include panic disorder, agoraphobia, generalized anxiety disorder, and social anxiety disorder (APA, 2013). Anxiety impacts 3.6% of the population worldwide and affects 28.8% of the US population (Kessler et al. 2005a; WHO 2017). It is also ranked sixth in terms of disease burden and affects 264 million people across the globe (WHO 2017). Twelve-month prevalence rates for anxiety disorders in the United States are 12.7% for the total population, 13.4% for Whites, 11.6% for African Americans, 8.1% for the Latinx population, and 7.7% for the Asian population (Vilsaint et al. 2019). Anxiety disorders cause significant distress and impairment in day-to-day functioning and are often comorbid with each other and major depressive disorder. The lifetime prevalence rates of panic disorder, social anxiety disorder, and generalized anxiety disorder are 4.7%, 12.1%, and 5.7%, respectively (Kessler et al. 2005a).

### 2.2.6 Post-Traumatic Stress Disorder (PTSD)

The 12-month and lifetime prevalence rates of PTSD in the United States are 4.7% and 6.1%, respectively. Women have twice the lifetime prevalence rate as men (8.0% vs 4.1%) (Goldstein et al. 2016). The 12-month and lifetime
prevalence rates of PTSD in the US Black population are 4.7% and 6.2%, respectively. Whites have similar PTSD rates at 4.8% for 12-month and 6.3% for lifetime prevalence. Asian and Pacific islanders in the United States have the lowest PTSD prevalence rates at 1.8% for 12-month and 2.3% for lifetime. Latinx persons have a 12-month prevalence rate of 4.2% and lifetime prevalence rate of 5.6%. Indigenous populations living on reservations have the highest PTSD rate of any racial, ethnic, or cultural group with lifetime prevalence rates ranging between 14% and 16% (Goldstein et al. 2016). Persons who experience sexual assault, other intentional interpersonal violence (vs accidents), poverty, mass conflict, war, and combat have higher rates of PTSD (Chivers-Wilson 2006; Steel et al. 2009; Resnick et al. 1993).

Lifetime prevalence rates for PTSD decrease as income increases with 9% of the population earning family income less than $20,000 experiencing PTSD compared to 3.9% of persons with family income over $70,000 experiencing PTSD (Goldstein et al. 2016). PTSD is associated with an increased risk of type 2 diabetes (Roberts et al. 2015) and hypertension (Sumner et al. 2016) in a dose–response relationship with more severe PTSD symptoms associated with a higher risk. Research also indicates that meaningful reductions in PTSD symptom severity scores can significantly reduce the risk for type 2 diabetes (Scherrer et al. 2019).

Latinx adults, particularly women, show high rates of experiencing violence and related psychopathology (Cuevas et al. 2012). A nationally representative sample of Latinx immigrants shows that 11% have experienced some form of political violence with 76% having also experienced other forms of trauma (Fortuna et al. 2008). These rates can differ in clinical samples where as much as 54% of Latinx clients have experienced political violence (Eisenman et al. 2003), and 60–75% have experienced some form of trauma (Holman et al. 2000; Kaltman et al. 2010). Clinical samples of Latinx women have shown high prevalence rates of trauma and related psychopathology (Labash and Swartz 2018; Mancini and Farina 2019). The cumulative burden of trauma can lead to higher rates of PTSD, depression, suicidality, anxiety, and alcohol and substance use (Bjornsson et al. 2015; Labash and Swartz 2018; Myers et al. 2015; Ulibarri et al. 2015).

### 2.2.7 Comorbid Mental Health and Substance Use

In 2018, 19 million adults had a substance use disorder. Of that number almost half (48%) had a co-occurring mental illness in the past year, and one in five persons with a mental illness had a co-occurring substance use disorder in the past year (SAMHSA 2019). Substance use disorders are commonly comorbid with a wide range of behavioral health disorders including depressive and anxiety disorders, borderline and antisocial personality disorders, bipolar disorder, and PTSD. Unfortunately, treatment rates for persons with 12-month substance use disorders is only 13.5% and 24.6% for lifetime SUD (Grant et al. 2016).
In 2018, 28% of persons with a serious mental illness (SMI) had a substance use disorder in the past year (SAMHSA 2019). Furthermore, for adults with any mental illness, 37% reported substance use and 31% reported binge drinking within the past year, while almost half (49.4%) of persons with SMI reported illicit drug use in the past year and a third (32%) reported binge drinking in the past year (SAMHSA 2019). Almost half of persons with co-occurring mental illness and substance use disorder did not receive any type of care in 2018 (SAMHSA 2019). For LGB adults with mental illness and SUD, 90% did not receive any treatment (SAMHSA 2020). Almost a third (31%) of persons with SMI and SUD did not receive any type of care in 2018 (SAMHSA 2019). For LGB adults with co-occurring SMI and SUD, 33% did not receive treatment (SAMHSA 2020).

2.2.8 Comorbid Health and Behavioral Health Conditions

Comorbidity or multimorbidity is the existence of two or more health conditions in the same person (Valderas et al. 2009). Comorbidity of medical and mental health conditions is common and often has a bi-directional relationship (Katon 2003; Scott et al. 2016). The 2001–2003 National Comorbidity Survey Replication (NCS-R) data indicated that about 25% of the adult population had a mental disorder, while almost 60% had a medical disorder. For adults with a mental health disorder, 68% had a comorbid medical condition, and for those with medical conditions, 29% had a comorbid mental health condition (Alegria et al. 2003). Major depressive disorder is commonly comorbid with a range of other psychiatric disorders (Zimmerman et al. 2008). The most common psychiatric disorders that are comorbid with depression are anxiety disorders such as panic disorder, agoraphobia, generalized anxiety disorder, and social anxiety disorder (Kessler et al. 2005b; Lamers et al. 2011). Lamers et al. (2011) found that for persons with depression, two-thirds had a comorbid anxiety disorder, and 75% had experienced an anxiety disorder at some point in their lifetime. Other psychiatric disorders that are commonly co-morbid with depression include post-traumatic stress disorder (PTSD), obsessive compulsive disorder (OCD), attention deficit hyperactivity disorder (ADHD), and substance use disorder (APA, 2013; Kessler et al. 2005b).

Research also indicates that the presence of a mental health disorder raises the risk of developing a range of chronic medical conditions including heart disease, diabetes, stroke, hypertension, arthritis, cancer, chronic pain, asthma, and lung disease (Favreau et al. 2014; Stein et al. 2014; Tully et al. 2015; Tully et al. 2013; Scott et al. 2016). Comorbidity between psychiatric diagnoses and these chronic diseases leads to greater morbidity, functional impairment, health care costs, and premature mortality (Colton and Manderscheid 2006; Dickerson et al. 2008; Druss et al. 2002; Eaton et al. 2008; Egede 2007; Katon 2003; Kessler et al. 2008; Kronick et al. 2009; Scott et al. 2016; Stein et al. 2006; Young et al. 2015).

For instance, persons with chronic illness may be at higher risk of depression and suicide (Gurhan et al. 2019). Compared to nondepressed patients in primary
care settings, patients with depression are more likely to present with a wide range of medical conditions that include asthma, diabetes, cancer, kidney disease, arthritis, heart disease, and hypertension (Smith et al. 2014; Wang et al. 2019). Depression was also associated with a higher metabolic risk for factors that can lead to heart disease and type 2 diabetes such as high blood pressure, high blood sugar, high cholesterol and triglycerides, and obesity (Vancampfort et al. 2014). The presence of depression can also lead to negative outcomes and prognosis of medical conditions due to the metabolic and physical effects of depression, decreased adherence to treatment, and a higher likelihood of engaging in unhealthy behaviors. The prevalence of these comorbidities indicates the importance of behavioral health specialists and primary care providers working together to increase the quality of care by addressing the impact of co-occurring mental illness, chronic disease conditions, and substance use disorders in an integrated fashion (Croft and Parish 2013; Druss and Mauer 2010; Mechanic 2012; Shim et al. 2012). In the next sections I will review ecological models of health and human behavior that can help frame and understand behavioral health disorders from a psychosocial perspective.

2.3 Models of Health and Human Behavior

The numbers above are daunting and clear. Physical health and behavioral health are inextricably linked. Physical illness and behavioral health disorders are routinely comorbid. Addressing physical and behavioral health equally and simultaneously is the solution. From a public health perspective, the next questions to ask are: What leads to these problems in the first place? What factors place people at higher risk? What factors are protective? What enables some people to flourish despite experiencing many risk factors? How can the damage caused by these problems be mitigated or, better yet, prevented from occurring in the first place? In the next section, I will explore the risk factors that contribute to the emergence of health and behavioral health issues and the protective factors that contribute to resiliency in the face of these risk factors. Doing so will require the application of frameworks that position human behavior as the result of complex interactions between the individual and their physical and social environment—their ecology.

2.3.1 Ecological Systems Theory

Ecological systems theory frames human behavior as a relational intersection of the individual with their social environment across multiple levels including family and friends, neighborhoods, schools, faith groups, and other social organizations/systems (e.g., social services, health care, mental health, addictions, criminal justice),
community, and culture. The person-in-environment (PIE) approach is a common theoretical model guiding social work practice that is rooted in Bronfenbrenner’s ecological systems theory (Bronfenbrenner 1979) and the social ecology of resilience (Ungar 2011). PIE is also part of the Life Model of Social Work Practice put forth by Germain and Gitterman (2008). In ecological systems theory, understanding human behavior and development is a function of understanding how an individual, possessing genetic, biological, and psychological strengths and vulnerabilities, interacts with differing levels of their social and built environment. These interactions are bi-directional. Figure 2.1 displays the levels of this model.

Bronfenbrenner (1979) proposed five levels of interaction. (1) Microsystems represent the specific, close relationships a person has with others in their immediate environment. This includes close individuals such as family and friends as well as teachers, faith leaders, or neighbors. (2) Mesosystems connect individuals and their microsystems directly to other systems. For instance, a child’s relationship with their teacher exists within their microsystem. However, that relationship also connects the child’s family to the broader school system. The relationship between the child and to the broader school system through these networks represents the mesosystem. (3) Exosystems are the broader systems that have an impact on the person, but that the persons do not directly interact with, such as parent workplaces, peers, local neighborhood, or economic or political context. (4) Macrosystems are the outermost layer of influential systems. They are the larger socio-cultural contexts that impact the individual such as societal beliefs, the economy, policies,

![Ecological systems model](image-url)
attitudes, culture, and religion. These systems impact the services that a person may have access to, or resources that may exist in their environment. (5) The chronosystem is the influence of time on the individual’s developmental trajectory. This can include external events (e.g., parental divorce, natural disasters) or internal developmental trajectories (e.g., adolescence). These five systems make up an individual’s ecology. Human development and behavior is understood as the result of the dynamic interplay or interaction between the individual and these five systems across time (1979).

### 2.3.2 Stress–Vulnerability Models

The main tenet of the stress-diathesis model or the stress–vulnerability model is that genetic risk or vulnerability (e.g., diathesis) and environment (e.g., stress) interact to produce psychopathology (Genes X Environment; Monroe and Simons 1991). Figure 2.2 displays the elements of the stress–vulnerability model. For instance, a person may possess a genetic vulnerability or diathesis toward depression or schizophrenia. This model posits that when this person interacts with stressful

![Stress–vulnerability model](image)

**Fig. 2.2** Stress–vulnerability model
environments, they may develop the disorder if their stress level reaches a particular threshold. Psychopathology emerges when a person with a predisposition or vulnerability to a particular disorder encounters stress that activates the diathesis and leads to the emergence of symptoms (Colodro-Conde et al. 2018). Stress factors can include adverse life events such as divorce, relationship problems, exposure to interpersonal or community violence, chronic illnesses, injuries, and social determinants of health such as poverty, unstable housing, social isolation, and lack of safety. While many people in a population may be exposed to these factors, the experiences of these stressors can produce psychopathology in persons who hold a genetic vulnerability or risk.

The impact of these stressors can have multiplicative effects that go far beyond the sum of the experienced events (Colodro-Conde et al. 2018). An extension of the diathesis–stress model has emerged called the differential susceptibility theory. This model posits that individuals may be more susceptible or sensitive to positive and negative factors in their environment. This means that some individuals with a vulnerability to psychopathology may be less likely to develop problems if they are exposed to positive environments than others with the vulnerability (Belsky and Pluess 2009). In other words, some people are more prone to respond to positive environments than others. In the next section we will review the resiliency model and examine how risk and protective factors can influence human development and behavior.

2.3.3 Risk and Resilience from a Bio-Psycho-Social Framework

Resilience has been a concept under study for half a century. Resilience is the ability to flourish despite being immersed in risk factors such as toxic stress, trauma, violence, and poverty that can increase the risk for negative behavioral health outcomes (Agnafors et al. 2017; Luthar 2003; Luthar et al. 2000; Rutter 1987, 2006; Werner and Smith 1982, 2001; Cicchetti 2010). Resilience is the result of the presence of protective factors that buffer a person from the risk factors that can increase the likelihood of experiencing negative outcomes (Rutter, 1987; Cicchetti 2010; Werner and Smith 1982, 2001). Risk and protective factors can be biological, psychological, or social and they are often in opposition to each other. A person’s potential for resilience is the result of a dynamic interaction of these various factors. Early research examined the various correlates and processes that contributed to resilience in order to design resilience-promoting interventions that boosted protective factors and ameliorated the risk factors known to contribute to negative outcomes. More recent research seeks to understand the dynamic interplay between the biological, psychological, and social risk and protective factors and how these factors interact to produce resilience and well-being (Agnafors et al. 2017).
The ecological approach to resilience positions the ability of individuals to take advantage of the opportunities available in their environments as central to their health and well-being in the face of risks (Asakura 2016; Ungar 2011). This conceptualization of resilience moves the focus of research, policy, and practice away from the individual factors we know promote resilience and toward the study and implementation of programs and policies designed to develop and enhance contextual environments that promote resilience. A definition of ecological resilience offered by Ungar (2008) reads: “In the context of significant adversity, resilience is both the capacity of individuals to navigate their way to the psychological, social, cultural, and physical resources that sustain their well-being, and their capacity individually and collectively to negotiate for these resources to be provided and experienced in culturally meaningful ways” (p. 225). In other words, research on resilience should move away from analysis of predetermined outcomes, and focus instead on the pathways to resilience within a range of environmental contexts. Doing so will shed light on understanding the complexity and atypicality of resilience across cultural and socio-economic groups. For instance, a process, trait, or behavior (e.g., aggression, callousness, emotional receptivity, democratic parenting) that is functional in one environment may not be so in another environment (Ungar 2011).

Viewing resilience from an ecological perspective requires understanding the dynamic complexities between physical and social environments and how individuals interact at micro (interpersonal), meso (organizational and systems), and macro (cultural and institutional) levels (Asakura 2016; Ungar 2011). This includes understanding the contextual qualities that promote resilience at each of these levels. Individual protective factors include the ability to problem solve and possessing self-efficacy. The most powerful protective factors that can help youth develop these traits include close, nurturing attachments to adult caregivers and other positive adult role models. Other important protective factors include being immersed in positive peer groups and being a part of schools and community groups that are properly resourced, staffed with competent and supported personnel, and that hold students to high expectations of behavior. Finally, living in communities that are safe, connected, stable, and that have equitable access to adequate resources (e.g., food access, health care, parks and recreation, transportation) promotes health and resilience in youth. These factors are identified in Fig. 2.3. The next frontier in resilience research is understanding how these protective factors interact with each other to produce resilience and identifying which factors can magnify or lead to the emergence of other protective factors. Answering these questions can provide local, state, and national governments information on where to invest resources to best promote resilience across levels. In the next sections, I will review the most prominent risk and protective factors involved in the emergence and prevention of behavioral health disorders.
2.3.4 Common Risk and Protective Factors for Behavioral Health Disorders

Risk Factors There are numerous bio-psycho-social factors that increase the risk for behavioral health disorders. However, there are several targeted risk factors that drive comorbidity in health and behavioral health disorders that could be a prime focus of integrated behavioral health practice settings. These include factors related to poverty and other social determinants of health and adverse childhood events. These factors are often interrelated and place a person at heightened risk for health and behavioral health problems. Youth who are immersed in high-risk environments marked by communities that have a lack of opportunities, high violence, drug use, poor functioning schools, and families with high stress, mental illness, violence, or drug use are at a higher risk for a range of health, social, and behavioral health problems. These factors are outlined in Fig. 2.4.

Due to their vast and differential impact on health, these factors should be key areas of assessment and intervention for integrated behavioral health settings. The combination of stress and high-risk health behaviors associated with these environments can also lead to a variety of negative health outcomes including chronic bodily inflammation, depression, suicidality, chronic disease, and premature death (Black 2006; Felitti et al. 1998; Honkalampi et al. 2005; Katon 2003). Four modifiable health risk behaviors have been identified that have a differential impact on
health: sedentary life style, smoking, alcohol and substance use, and poor nutrition (CDC 2020b). These behaviors can lead to, or magnify, the effects of health and behavioral health conditions. For instance, poor diet and sedentary lifestyle can contribute to higher rates of obesity in persons with mental health conditions who already face premature mortality rates two to four times the rate of persons without mental health conditions (Chwastiak et al. 2009; Eaton et al. 2008; Goodwin 2003; Simon et al. 2000). Routine screening, assessment, and the use of brief interventions in primary care and behavioral health settings to help people smoke and drink less, move more, and eat healthier food could substantially reduce morbidity and mortality in person with diagnosed behavioral health conditions.

Social determinants of health such as poverty are also associated with adverse health behaviors (Kronick et al. 2009) and increased risk for comorbid mental health and medical disorders (Harper and Lynch 2007; Lantz et al. 1998; Lorant et al. 2003). Adverse events experienced in childhood (ACEs) can lead to a range of negative behavioral health outcomes (Anda et al. 2006; Whitfield et al. 2003). For example, children exposed to interpersonal violence are at an increased risk for substance use, depression, and continued violence exposure, both as a victim and perpetrator, in adulthood (Briggs-Gowan et al. 2010; Carter et al. 2010; Chapman et al. 2004; Edwards et al. 2003; Whitfield et al. 2003). The experience of socioeconomic disadvantages and the toxic stress of racism in childhood has also been linked to a range of negative behavioral health outcomes (Reiss 2013). Children exposed to
caregivers with behavioral health problems such as depression, substance use, or psychosis, or who lack adequate coping skills that interfere with healthy attachment are at risk for behavioral health outcomes in adulthood (Felitti et al. 1998; Goodman et al. 2011; Anda et al. 2006).

Experiencing early adverse events such as interpersonal violence, parental incarceration, parental death or divorce, close familial mental illness, or substance use can also lead to a range of chronic physical illnesses such as cancer (Brown et al. 2013), COPD; Anda et al. 2008), heart disease (Dong et al. 2004), and autoimmune diseases such as rheumatoid arthritis (Dube et al. 2009). Experiencing early childhood trauma can also lead to risk behaviors later in life such as smoking (Anda et al. 1999), alcohol and drug use (Dube et al. 2003; Strine et al. 2012), and obesity (Williamson et al. 2002). Rates of attempted suicide are substantially higher for persons who experience one or more ACEs compared to those who experience no ACEs and the risk increases as the experiences of ACEs increases in a dose–response relationship (e.g., more ACEs = more risk; Dube et al. 2001). It appears that experiencing adverse events in childhood can cause chronic over-activation of the stress response system that can lead to negative metabolic, cardiovascular, and other health-related outcomes (Felitti et al. 1998). Evaluation of these experiences should be a routine practice in primary and behavioral health care settings as they have implications for treatment. Figure 2.5 displays the ways in which toxic stress can impact health and behavioral health.

**Fig. 2.5** How toxic stress impacts behavioral health
2.3.4.1 Protective Factors

There are several biological, psychological, social, and environmental factors that have been studied that have repeatedly led to robust effects at the micro, meso, and macro levels. Figure 2.6 outlines some of the most important protective factors at each of these levels. At the individual level, possessing good intellectual functioning (e.g., problem solving, cognitive flexibility, high IQ), competence in practicing pro-social behaviors (e.g., emotional regulation, social skills, emotional competence), a sense of self-efficacy, an internal locus of control, and an easy-going temperament have been associated with resilience in children exposed to high levels of risk (Agnafors et al. 2017; Garmezy 1983; Kim et al. 2013; SAMHSA 2007). There is also evidence of genetic factors, particularly involving the 5-HTT gene, that can protect against the development of depression in the face of increased risk (Agnafors et al. 2017; Clarke et al. 2010; Caspi et al. 2003). Familial factors that promote resilience include most notably caregivers who possess ability to adequately bond and develop health attachments with their children. This includes caregivers with good mental health and coping skills (Al-Yagon 2008; Huhtala et al. 2014; SAMHSA 2007) as well as positive caregiver support, clear expectations of behavior, and a positive home environment in which children are able to have routine positive interactions with loving caregivers (e.g., playing, reading; Donnon and Hammond 2007; Klebanov and Brooks-Gunn 2006; Sroufe et al. 2005; SAMHSA 2007).

Resilience is the human capacity to face, overcome, and be transformed by adversity.
In addition to individual and familial characteristics that promote resilience, several other environmental factors at the school and community level are important. From an ecological standpoint, increasing a child’s access to positive ecological contexts that include healthy relationships with caregivers who are supportive, competent, and have high expectations of behavior, access to positive peer networks, and being a member of communities and schools that are cohesive, culturally sensitive, and that have high expectations of behavior and achievement are vital to child development and have been shown to enhance resilience (see Fig. 2.3; Donnon and Hammond 2007; Masten 2001; Masten and Coatsworth 1998; Robertson et al. 2003; SAMHSA 2007). These contexts are the most likely to nurture youth who are confident, good problem solvers, emotionally and socially competent, and have good self-control (Donnon and Hammond 2007; SAMHSA 2007). Furthermore, several other ecological contexts can promote resilience and offset risk factors such as low birth weight, the mental illness of one parent or caregiver, low IQ or difficult temperament in children. What promotes these protective factors is no secret—they are resources that have been inequitably distributed to middle- and upper-class caregivers and communities for generations, but denied to Black, Indigenous, and people of color (BIPOC) communities and/or communities that are poor through racist structures and policies. These resiliency promotive contexts include: (1) equitable access to resources for caregivers such as good prenatal care, child care, and pre-school; (2) adequate income for caregivers to meet their basic needs including nutrition, utilities, leisure, and transportation; and (3) stable housing in neighborhoods that are safe, healthy, and have playgrounds and green spaces (SAMHSA 2007). In short, the best way to reduce health and behavioral health disorders is the elimination of poverty and improvement of social determinants of health.

2.4 Social Determinants of Health and Health Equity

Poor neighborhood conditions including lack of transportation, poor quality housing, low-quality schools, high unemployment, and lack of safety have also been found to increase the risk of health and mental health conditions (Bitsko et al. 2016; Cutrona et al. 2005; Cutrona et al. 2006; Pickett and Pearl 2001). The health of a population is dependent on a variety of social determinants that include adequate income, safety, stable housing, health care, nutrition, education, and employment (Marmot et al. 2008; Schoeni et al. 2008; Woolf and Braveman 2011). The health of a population is dependent on a variety of social determinants that include adequate income, safety, stable housing, health care, nutrition, education, and employment (Marmot et al. 2008; Schoeni et al. 2008; Woolf and Braveman 2011). Figure 2.7 categorizes social determinants of health into four broad domains focused on housing, income/financial resources, relationships, and safe and healthy environments. These social determinants of health (SDOH) are the economic, social, and physical conditions in the various places and spaces in which people exist that impact their physical and emotional health. Health-related social needs (HRSN) located in the various social and built environments or “places” in which people live (e.g., home, school, work, and neighborhood) over time have an enormous impact on health and well-being (Nuruzzaman et al. 2015).
The World Health Organization’s Commission on Social Determinants of Health (CSDH) offers this widely adopted definition of social determinants of health: “The social determinants of health are the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels. The social determinants of health are mostly responsible for health inequities - the unfair and avoidable differences in health status seen within and between countries” (CSDH 2008).

Addressing social determinants through the robust provision of social services can improve health and reduce overall health care costs (Bradley et al. 2017; Bradley et al. 2016). In the United States, states with higher rates of social service spending relative to health care have better health outcomes related to obesity, diabetes, cancer, cardiovascular disease, behavioral health, and asthma (Bradley et al. 2016). Similar findings were shown when comparing member nations in the Organization for Economic Co-operation and Development (OECD) as well those countries that have higher spending rates on social services relative to health care costs. The nations that spend more on social services have better health outcomes while spending less on health care (Bradley et al. 2017). As an example, the United States spends more than any other OECD country on health care, but does not do so on social services and experiences lower health overall and high health inequity compared to other OECD countries (Bradley et al. 2017; Marmot and Bell 2009). This demonstrates that spending on social services, particularly on education, income support, transportation, environmental health, public safety, and housing can improve health and lower health care costs (Bradley et al. 2016). For instance, investing in nutritional assistance, prenatal care, and early childhood education can lead to reduction in infant mortality and reduced blood pressure (Arno et al. 2009;
Campbell et al. 2014; Foster et al. 2010; Khanani et al. 2010). Programs designed to provide stable housing, access to healthy food, and utility assistance have led to reduction in obesity, diabetes, and health risks to children (Frank et al. 2006; Ludwig et al. 2011; Viola et al. 2013). Investing in improving environmental health standards such as enhancing green spaces and tree canopies (i.e. shade), implementation of lead and pest abatement and improving water and air quality can reduce the prevalence of asthma, heat-related problems, and lead exposure.

Health inequities in the United States are largely driven by these social determinants of health and the results are differences in infant mortality, life expectancy, and disability burden between those who have access to resources and those who do not. Enhancing SDOH by improving the social conditions in which people live; addressing the inequitable distribution of income, power, and resources; and evaluating the effectiveness of policies through ongoing transdisciplinary research are important ways to promote health equity (CSDH 2008; Phelan et al. 2004; Marmot et al. 2008; Marmot and Bell 2009). Income inequality and poverty are associated with inadequate access to clean water, healthy food, health care, stable housing, cohesive communities, employment, education, and safety, and therefore play an important role in physical and behavioral health (Kondo 2012; Marmot 2005; Nuruzzaman et al. 2015). Lack of access to these resources and the associated experience of higher psychosocial stress, risky behaviors (e.g., drug and alcohol use, unsafe sex), and health and behavioral health issues can lead to a pathway to higher rates of morbidity and mortality (Kondo 2012).

Addressing these issues involves implementation and/or expansion of several policies that include ensuring that people have adequate access to clean water and air, sanitation, transportation, and stable, affordable, and safe housing. This also means the implementation and robust expansion of early childhood education, income support, employment, and nutritional assistance programs and the implementation of policies that ensure universal access to health care are vital components to reducing health inequities and enhancing the social determinants of health (Bradley et al. 2016, 2017; Phelan et al. 2004; Marmot et al. 2008).

2.4.1 Integrated Behavioral Health Practice and Social Determinants of Health

How health care is provided in the United States must change. The COVID-19 pandemic has laid bare the disastrous inequities that exist in the United States, particularly in the area of health. Black and Latinx Americans are far more likely to die from the coronavirus in large part due to preexisting health conditions that result from the above inequities. These inequities are not accidental. They are the direct result of a long history of racist policies designed to segregate Black and Brown communities and reduce their access to quality housing, education, employment, social services, and healthy environments. Access to universal health care is but one policy change that could have an important impact on
reducing health inequities. But how health care and social care are delivered in the United States must also change. System fragmentation both within health care systems and across health care and social service systems must be addressed to ensure coordinated, efficient, and equitable delivery and distribution of services and resources. The provision of social care as part of health care represents one way to improve health care delivery and outcomes. The integration of social workers and other behavioral health care providers into health care teams as a means to assess and address social determinants of health has been identified as an important public health strategy to improve health care delivery (NASEM 2019). The inclusion of social workers in collaborative health care teams who are designated to specifically address social and behavioral health needs is vital to better incorporating and integrating person-centered care. Person-centered care is defined as patient care that prioritizes patient values, preferences, and goals to guide health care clinical decision-making that is both respectful and responsive to patient needs (IOM 2001).

As identified in Chap. 1, collaborative care teams that feature primary care providers and social workers that work together to address medical, behavioral, and social health needs represent an important opportunity to address the social determinants of health, reduce health inequities, and improve the health of patients. Collaborative care approaches that utilize interprofessional treatment teams of multidisciplinary professions to screen, assess, treat, and monitor patients for mental and medical conditions work best and are cost-effective (Bitsko et al. 2016; Butler et al. 2009; Bower et al. 2006; Katon et al. 2005; Schoenbaum et al. 2001; Thielke et al. 2007; Wagner et al. 1996, 2001). Two particular elements that are important are: stepped care and the use of case managers (Bower et al. 2006). In stepped care, clients receive successive interventions designed to address health and behavioral health problems and achieve positive outcomes. For instance, a client with depression may receive cognitive behavioral therapy to address symptoms. If symptoms persist, they may then receive additional interventions such as antidepressant medication to resolve remaining symptoms. Case managers provide wraparound services to clients to address factors associated with social determinants of health such as housing, employment, safety, benefits, food, and other social needs. These programs ensure clients receive multidimensional care with good follow-up to address health and behavioral health comorbidities (Druss and Walker 2011).

2.5 Summary and Conclusions

The connection between physical health and behavioral health is strong and bidirectional. One’s health or morbidity in one domain has direct implications for their health and morbidity in the other. The current fragmentation of physical health and behavioral health services does not reflect this reality and leads to inefficient and ineffective care. Integration of these service systems can lead to lower costs and improved outcomes. But integration of physical and behavioral health practices is
not enough. Several factors exist at the individual, interpersonal, and environmental levels that promote health. Likewise, several factors at each of these levels are known to increase risk for physical and behavioral health problems.

The single greatest influence on physical and behavioral health is one’s access to power, resources, and social determinants of health. Increasing access to these resources and eliminating the inequities that plague the US health care system represent the most efficient, effective, and socially just way to promote health and well-being. This will require a fundamental redistribution of power and the creation and implementation of policies designed to eliminate economic and health inequities, experienced disproportionately by BIPOC communities, by expanding universal access to health, education, housing, income, and employment resources. This, coupled with the integration of health, behavioral health, and social care services, can more effectively address the social determinants of health required to achieve true health equity in all communities.

**Case Study 2.1: Maria**

Maria is a 20-year-old cisgendered female Latinx college student attending a local University as a freshman. She is unmarried and not dating. She commutes to campus and currently lives with her mother and two younger sisters. She works evenings and weekends as a server in a busy restaurant. She and her family arrived in the United States about 8 years ago from Honduras and were granted asylum. She speaks two languages fluently. She is majoring in biology and plans on becoming a doctor.

She is speaking to you, a behavioral health specialist, because her doctor referred her to you because Maria complains of having trouble with sleep, anxiety, and mood fluctuations. The doctor thinks Maria needs some counseling and has prescribed her a sleep aid and an antidepressant, which Maria has not taken. She complains that she often experiences periods of being sad for no reason. At other times, she experiences bouts of intense anxiety bordering on panic. She states that she is terrified that she will be sent back to her home country. She and her family are currently trying to gain permanent citizenship, but she states, “who knows what’s going to happen now. I can’t sleep, I don’t eat and then I eat junk until I’m full. I just don’t feel well and I’m worried that all of this is just going to be for nothing.” Maria is approximately 30 pounds overweight for her height. She exercises sporadically. She has used dieting to lose weight, but always struggles to keep the weight off. Her blood pressure is 132/82, her resting heart rate is 99, and her “bad” low-density lipoprotein (LDL) cholesterol is over the recommended limits by 25%.

Maria reports that she fled Honduras due to community violence. A local organized crime syndicate targeted her father who owned a restaurant for protection money; when he refused, they killed him and burned the restaurant down. The family had some savings and used it to go into hiding for a couple of months.

---

1 All names and other identifiers of this case have been changed to protect privacy and confidentiality.
They then applied for asylum in the United States and went to live with Maria’s aunt and two cousins. The family was later able to get an apartment and start rebuilding their lives.

Maria’s mother lived with a man for a period of time when Maria was 17. Unfortunately, he became psychologically abusive to the whole family, yelling at Maria about her weight and appearance. He had several affairs with other women. He began physically assaulting Maria when he came home drunk. Maria’s mother ended the relationship. Maria states: “he was real nice at first and treated me with respect but then he changed over time. It dawned on me one day that this isn’t normal. I realized that he treated me just like my dad treated my mom and me. My dad would come home half drunk from the restaurant and he would berate us all and tell us what garbage we were and what a burden we were on him. He would slap my mom when she would intervene, he would slap us when we cried, and then he’d go and pass out on the couch. He would have affairs all around town and not even hide it. He would get into these bad states of mind. Sometimes, for months, he would be great. Sweet and kind. And then he would get real moody and start doing his ‘crazy dad thing.’ My mom says that he had a problem with his brain from his own dad who used to beat him up all the time. As bad as he was sometimes, losing him was the worst thing to ever happen to me. But I have my future career and my school and my mom and sisters and that’s all I need now. It’s just that I still have these nightmares sometimes and then I get all amped up for no reason. It’s like I have to remind myself that I’m safe now—but sometimes I don’t believe what I tell myself. I get moody and down. I don’t like myself so much and I feel ashamed and I don’t know why. Taking my nieces out to get clothes or something to eat makes me feel good. When I’m busy I’m OK. But when I’m alone I just freak out. I don’t dare drink or do drugs—I’m too terrified what that might do to me. And those meds? I don’t know—I’m afraid of that stuff too. I just wish I could calm down. What I want is to feel normal. I want to feel healthy. Instead I feel heavy, sluggish and sad except when I’m freaking out. I’m tired. I just don’t feel good! How can I be a doctor when I don’t feel good myself? What am I going to tell my patients? How are they going to listen to me and take me seriously when it’s obvious that I don’t even have my own stuff together?”

Analysis

• What is your preliminary conceptualization of Maria?
• What protective factors does she possess?
• What risk factors are present in her environment?
• How many ACES does she have?
• What are the potential consequences for her health and well-being?
• Based on the above, what are some potential areas of intervention to maximize Maria’s health and well-being?
References

Agnafors, S., Goran-Svedin, C., Oreland, L., Bladh, M., Comasco, E., & Sydsjo, G. (2017). A biopsychosocial approach to risk and resilience on behavior in children followed from birth to age 12. *Child Psychiatry and Human Development, 48*, 584–596.

Alegria, M., Jackson, J. S., Kessler, R. C., & Takeuchi, D. (2003). *National Comorbidity Survey Replication (NCS-R). 2001–2003*. Ann Arbor: Inter-University Consortium for Political and Social Research.

Al-Yagon, M. (2008). Maternal personal resources and children’s socioemotional and behavioral adjustment. *Child Psychiatry and Human Development, 39*(3), 283–298.

Alegria, M., Canino, G., Shrout, P. E., Woo, M., Duan, N., Vila, D., Torres, M., Chen, C. N., & Meng, X. L. (2008). Prevalence of mental illness in immigrant and non-immigrant U.S. Latino groups. *The American journal of psychiatry, 165*(3), 359–369. https://doi.org/10.1176/appi.ajp.2007.07040704

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5).* Arlington: American Psychiatric Association.

Anda, R. F., Croft, J. B., Felitti, V. J., Nordenberg, D., Giles, W. H., Williamson, D. F., & Giovino, G. A. (1999). Adverse childhood experiences and smoking during adolescence and adulthood. *JAMA, 282*, 1652–1658.

Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C., Perry, B. D., et al. (2006). The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology. *European Archives of Psychiatry and Clinical Neuroscience, 256*(3), 174–186. https://doi.org/10.1007/s00406-005-0624-4.

Anda, R. F., Brown, D. W., Dube, S. R., Bremner, J. D., Felitti, V. J., & Giles, W. H. (2008). Adverse childhood experiences and chronic obstructive pulmonary disease in adults. *American Journal of Preventative Medicine, 34*(5), 396–403.

Arno, P. S., Sohler, N., Viola, D., & Schechter, C. (2009). Bringing health and social policy together: The case of the earned income tax credit. *Journal of Public Health Policy, 30*(2), 198–207.

Asakura, K. (2016). It takes a village: Applying a social ecological framework of resilient in in working with LGBTQ Youth. *Families in Society, 97*(1), 15–22.

Avenevoli, S., Swendsen, J., He, J. P., et al. (2015). Major depression in the national comorbidity survey-adolescent supplement: Prevalence, correlates, and treatment. *Journal of the American Academy of Child and Adolescent Psychiatry, 54*, 37.

Belsky, J., & Pluess, M. (2009). Beyond diathesis stress: Differential susceptibility to environmental influences. *Psychological Bulletin, 135*(6), 885–908. https://doi.org/10.1037/a0017376.

Bitsko, R. H., Holbrook, J. R., Robinson, L. R., Kaminski, J. W., Ghandour, R., Smith, C., & Peacock, G. (2016). Health care, family, and community factors associated with mental, behavioral, and developmental disorders in early childhood – United States, 2011–2012. *MMWR Morbidity and Mortality Weekly Report, 65*(9), 221–226.

Bjornsson, A. S., Sibrava, N. J., Beard, C., Moitra, E., Weisberg, R. B. P., Benítez, C. I. P., & Keller, M. B. (2015). Two-year course of generalized anxiety disorder, social anxiety disorder, and panic disorder with agoraphobia in a sample of Latino adults. *Journal of Consulting and Clinical Psychology, 82*(60), 1186–1192.

Black, P. H. (2006). The inflammatory consequences of psychologic stress: Relationship to insulin resistance, obesity, atherosclerosis and diabetes mellitus, type II. *Medical Hypotheses, 67*(4), 879–891.

Bower, P., Gilbody, S., Richards, D., Fletcher, J., & Sutton, A. (2006). Collaborative care for depression in primary care—Making sense of a complex intervention: Systematic review and meta-regression. *British Journal of Psychiatry, 189*, 484–493.

Bradley, E. H., Canavan, M., Rogan, E., Talbert-Slagle, K., & Ndumele, C. (2016). Variation in health outcomes: The role of spending on social services, public health and health care, 2000-09. *Health Affairs, 35*(5), 760–768C. https://doi.org/10.1377/hlthaff.2015.0814.
References

Bradley, E. H., Sipsma, H., & Taylor, L. A. (2017). American healthcare paradox-high spending on health care and poor health. *QJM, 110*(2), 61–65. https://doi.org/10.1093/qjmed/hcw187.

Briggs-Gowan, M. J., Carter, A. S., Clark, R., Augustyn, M., McCarthy, K. J., & Ford, J. D. (2010). Exposure to potentially traumatic events in early childhood: Differential links to emergent psychopathology. *Journal of Child Psychology and Psychiatry, 51*(10), 1132–1140.

Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Cambridge, MA: Harvard University Press. (ISBN 0-674-22457-4).

Brown, M. J., Thacker, L. R., & Cohen, S. A. (2013). Association between adverse childhood experiences and diagnosis of cancer. *PLoS ONE, 8*(6), e65524. https://doi.org/10.1371/journal.pone.0065524.

Butler, M., Kane, R., McAlpine, D., Kathol, R. G., Fu, S. S., Hagedorn, H., & Wilt, T. J. (2009). *Integration of mental health/substance abuse and primary care*. Minneapolis: Minnesota Evidence-Based Practice Center.

Byers, A. L., Yaffe, K., Covinsky, K. E., Friedman, M. B., & Bruce, M. L. (2010). High occurrence of mood and anxiety disorders among older adults: The National Comorbidity Survey Replication. *Archives of general psychiatry, 67*(5), 489–496. https://doi.org/10.1001/archgenpsychiatry.2010.35

Campbell, F., Conti, G., Heckman, J. J., Moon, S. H., Pinto, R., Pungello, E., et al. (2014). Early childhood investments substantially boost adult health. *Science, 343*(6178), 1478–1485.

Carter, A. S., Wagmiller, R. J., Gray, S. A., McCarthy, K. J., Horwitz, S. M., & Briggs-Gowan, M. J. (2010). Prevalence of DSM-IV disorder in a representative, healthy birth cohort at school entry: Sociodemographic risks and social adaptation. *Journal of the American Academy of Child and Adolescent Psychiatry, 49*(7), 686–698.

Caspi, A., Sugden, K., Moffitt, T. E., Taylor, A., Craig, I. W., Harrington, H., et al. (2003). Influence of life stress on depression: Moderation by a polymorphism in the 5-HTT gene. *Science, 301*(5631), 386–389.

Centers for Disease Control and Prevention. National Center for Injury Prevention and Control (2020a). Web-based Injury Statistics Query and Reporting System (WISQARS). (2012–2016). Accessed July, 2020.

Centers for Disease Control and Prevention (2020b) Chronic Diseases and Health Promotion. (2020b). www.cdc.gov/chronic disease/overview/. Accessed 28 Feb 2020.

Chapman, D. P., Whitfeld, C. L., Felitti, V. J., Dube, S. R., Edwards, V. J., & Anda, R. F. (2004). Adverse childhood experiences and the risk of depressive disorders in adulthood. *Journal of Affective Disorders, 82*(2), 217–225.

Chivers-Wilson, K. A. (2006). Sexual assault and posttraumatic stress disorder: A review of the biological, psychological and sociological factors and treatments. *McGill Journal of Medicine, 9*(2), 111–118.

Chwastiak, L. A., Rosenheck, R. A., McEvoy, J. P., Stroup, T. S., Swartz, M. S., Davis, S. M., & Lieberman, J. A. (2009). The impact of obesity on health care costs among persons with schizophrenia. *General Hospital Psychiatry, 31*(1), 1.

Cicchetti, D. (2010). Resilience under conditions of extreme stress: A multilevel perspective. *World Psychiatry, 9*(3), 145–154.

Clarke, H., Flint, J., Attwood, A. S., & Munafò, M. R. (2010). Association of the 5-HTTLPR genotype and unipolar depression: a meta-analysis. *Psychological medicine, 40*(11), 1767–1778. https://doi.org/10.1017/S0033291710000516

Colodro-Conde, L., Courvey-Duchesne, B., Zhu, G., Coventry, W. L., Byrne, E. M., Gordon, S., et al. (2018). A direct test of the diathesis-stress model for depression. *Molecular Psychiatry, 23*(7), 1590–1596.

Colton, C. W., & Manderscheid, R. W. (2006). Congruencies in increased mortality rates, years of potential life lost and causes of death among public mental health clients in eight states. *Preventing Chronic Disease, 3*, 2.

Croft, B., & Parish, S. L. (2013). Care integration in the patient protection and affordable care act: Implications for behavioral health. *Administration and Policy in Mental Health, 40*(4). https://doi.org/10.1007/s10488-012-0405-0.
Commission on Social Determinants of Health (CSDH) (2008). Closing the gap in a generation: Health equity through action on the social determinants of health. In Final report of the commission on social determinants of health. Geneva: World Health Organization.

Cuevas, C. A., Sabina, C., & Bell, K. A. (2012). The effect of acculturation and immigration on the victimization and psychological distress link in a national sample of Latino women. *Journal of Interpersonal Violence, 27*(8), 1428–1456.

Curtin, S. C., Warner, M., & Hedegaard, H. (2016). Increase in suicide in the United States, 1999–2014. *NCHS Data Brief, 241*, 1–8.

Cutrona, C. E., Russell, D. W., Brown, P. A., Clark, L. A., Hessling, R. M., & Gardner, K. A. (2005). Neighborhood context, personality, and stressful life events as predictors of depression among African American Women. *Journal of Abnormal Psychology, 114*(1), 3–15.

Cutrona, C. E., Wallace, G., & Wesner, K. A. (2006). Neighborhood characteristics and depression—An examination of stress processes. *Current Directions in Psychological Science, 15*(4), 188–192.

Dickerson, F., Brown, C. H., Fang, L., Goldberg, R. W., Kreyenbuhl, J., Wohlheiter, K., & Dixon, L. (2008). Quality of life in individuals with serious mental illness and type 2 diabetes. *Psychosomatics, 49*(2), 109–114.

Dong, M., Giles, W. H., Felitti, V. J., Dube, S. R., Williams, J. E., Chapman, D. P., & Anda, R. F. (2004). Insights into causal pathways for ischemic heart disease: Adverse childhood experiences study. *Circulation, 110*, 1761–1766.

Donnon, T., & Hammond, W. (2007). Understanding the relationships between resiliency and bullying in adolescence: An assessment of youth resiliency from five urban junior high schools. *Child and Adolescent Psychiatry Clinics of North America, 16*, 449–472.

Druss, B. G., & Mauer, B. J. (2011). Health care reform and care at the behavioral health—primary care interface. *Psychiatric Services Washington DC., 61*(11), 1087–1092. [https://doi.org/10.1176/ps.2010.61.11.1087](https://doi.org/10.1176/ps.2010.61.11.1087).

Druss, B. G., & Walker, E. R. (2011). *Mental disorders and medical comorbidity*. Robert Wood Johnson Foundation. The Synthesis Project. Synthesis Report # 21.

Druss, B. G., Marcus, S. C., Olfson, M., & Pincus, H. A. (2002). The most expensive medical conditions in America. *Health Affairs (Millwood), 21*(4), 2002.

Dube, S. R., Anda, R. F., Felitti, V. J., Chapman, D. P., Williamson, D. F., & Giles, W. H. (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: Findings from the Adverse Childhood Experiences Study. *JAMA, 286*(24), 3089–3096. [https://doi.org/10.1001/jama.286.24.3089](https://doi.org/10.1001/jama.286.24.3089).

Dube, S. R., Felitti, V. J., Dong, M., Chapman, D. P., Giles, W. H., & Anda, R. F. (2003). Childhood abuse, neglect and household dysfunction and the risk of illicit drug use: The Adverse Childhood Experience Study. *Pediatrics, 111*(3), 564–572.

Dube, S. R., Fairweather, D., Pearson, W. S., Felitti, V. J., Anda, R. F., & Croft, J. B. (2009). Cumulative childhood stress and autoimmune disease. *Psychosomatic Medicine, 71*, 243–250.

Eaton, W. W., Martins, S. S., Nestadt, G., Bienvenu, O. J., Clarke, D., & Alexandre, P. (2008). The burden of mental disorders. *Epidemiologic Reviews, 30*(1), 1–14.

Edwards, V. J., Holden, G. W., Felitti, V. J., & Anda, R. F. (2003). Relationship between multiple forms of childhood maltreatment and adult mental health in community respondents: Results from the adverse childhood experiences study. *American Journal of Psychiatry, 160*(8), 1453–1460.

Egede, L. E. (2007). Major depression in individuals with chronic medical disorders: Prevalence, correlates and association with health resource utilization, lost productivity and functional disability. *General Hospital Psychiatry, 29*(5), 409–416.

Eisenman, D. P., Gelberg, L., Liu, H., & Shapiro, M. F. (2003). Mental health and health-related quality of life among adult Latino primary care patients living in the United States with previous exposure to political violence. *Journal of the American Medical Association, 290*(5), 627–634.
References

Favreau, H., Bacon, S. L., Labrecque, M., & Lavoie, K. L. (2014). Prospective impact of panic disorder and panic anxiety on asthma control, health service use, and quality of life in adult patients with asthma over a 4-year follow-up. *Psychosomatic Medicine*, 76, 147.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) study. *American Journal of Preventive Medicine*, 14(4), 245–258. https://doi.org/10.1016/S0749-3797(98)00017-8. PMID 9635069.

Ferrari, A. J., Charlson, F. J., Norman, R. E., et al. (2013). Burden of depressive disorders by country, sex, age, and year: Findings from the global burden of disease study 2010. *PLoS Medicine*, 10, e1001547.

Fortuna, L., Porche, M., & Alegria, M. (2008). Political violence, psychosocial trauma, and the context of mental health services among immigrant Latinos in the United States. *Ethnicity & Health*, 13, 435–463.

Foster, E. M., Jiang, M., & Gibson-Davis, C. M. (2010). The effect of the WIC program on the health of newborns. *Health Services and Research*, 45(4), 1083–1104.

Frank, D. A., Neault, N. B., Skalicky, A., Cook, J. T., Wilson, J. D., Levenson, S., et al. (2006). Heat or eat: The low income home energy assistance program and nutritional and health risks among children less than 3 years of age. *Pediatrics*, 118(5), e1293–e1302.

Garmezy, N. (1983). Stressors of childhood. In N. Garmezy & M. Rutter (Eds.), *Stress, coping, and development in children* (pp. 43–84). New York: McGraw-Hill.

Germain, C. B., & Gitterman, A. (2008). *The life model of social work practice* (3rd ed.). New York: Columbia University Press.

Goldstein, R. B., Smith, S. M., Chou, S. P., et al. (2016). The epidemiology of DSM-5 posttraumatic stress disorder in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions-III. *Social Psychiatry and Psychiatric Epidemiology*, 51, 1137.

Goodman, S. H., Rouse, M. H., Connell, A. M., Robbins Broth, M., Hall, C. M., & Heyward, D. (2011). Maternal depression and child psychopathology: A meta-analytic review. *Clinical Child and Family Psychology Review*, 14(1), 1–27.

Goodwin, R. D. (2003). Association between physical activity and mental disorders among adults in the United States. *Preventive Medicine*, 36(6), 698–703.

Grant, B. F., Saha, T. D., Ruan, W. J., Goldstein, R. B., Chou, S. P., et al. (2016). Epidemiology of DSM-5 drug use disorder: Results from the national Epidemiologic Survey on Alcohol and Related Conditions-III. *JAMA Psychiatry*, 73(1), 39–47. https://doi.org/10.1001/jamapsychiatry.2015.2132.

Greenberg, P. E., Fournier, A. A., Sisitsky, T., et al. (2015). The economic burden of adults with major depressive disorder in the United States (2005 and 2010). *Journal of Clinical Psychiatry*, 76, 155.

Gürhan, N., Beşer, N. G., Polat, Ü., et al. (2019). Suicide risk and depression in individuals with chronic illness. *Community Mental Health Journal*, 55, 840–848. https://doi.org/10.1007/s10597-019-00388-7.

Harper, S., & Lynch, J. (2007). Trends in socioeconomic inequalities in adult health behaviors among U.S. States, 1990–2004. *Public Health Reports*, 122(2), 177–189.

Hasin, D. S., Goodwin, R. D., Stinson, F. S., & Grant, B. F. (2005). Epidemiology of major depressive disorder: Results from the National Epidemiologic Survey on Alcoholism and Related Conditions. *Archives of General Psychiatry*, 62, 1097.

Hawton, K., Casanias Comabella, C., Haw, C., & Saunders, K. (2013). Risk factors for suicide in individuals with depression: A systematic review. *Journal of Affective Disorders*, 147(1), 17–28.

Holman, E. A., Silver, R. C., & Waitzkin, H. (2000). Traumatic life events in primary care patients: A study in an ethnically diverse sample. *Archives of Family Medicine*, 9(9), 802.

Honkalampi, K., Hintikka, J., Haatainen, K., Koivumaa-Honkanen, H., Tanskanen, A., & Vinamaki, H. (2005). Adverse childhood experiences, stressful life events or demographic factors: Which are important in women’s depression? A 2-year follow-up population study. *Australian and New Zealand Journal of Psychiatry*, 39(7), 627–632.
Huhtala, M., Korja, R., Lehtonen, L., Haataja, L., Lapinleimu, H., & Rautava, P. (2014). Associations between parental psychological wellbeing and socio-emotional development in 5-year-old preterm children. *Early Human Development, 90*(3), 119–124.

Institute of Medicine (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press.

James, S. E., Herman, J. L., Rankin, S., Keisling, M., Mottet, L., & Anafi, M. (2016). The report of the 2015 U.S. Transgender Survey. Washington, DC: National Center for Transgender Equality.

Kaltman, S., Green, B. L., Mete, M., Shara, N., & Miranda, J. (2010). Trauma, depression, and co-morbid PTSD/depression in a community sample of Latina immigrants. *Psychological Trauma: Theory, Research, Practice, and Policy, 2*, 29–31.

Karg, R. S., Bose, J., Batts, K. R., et al. (2014). *Past year mental disorders among adults in the United States: Results from the 2008–2012 Mental Health Surveillance Study*. Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality Data Review. http://www.samhsa.gov/data/sites/default/files/NSDUH-DR-N2MentalDis-2014-1/Web/NSDUH-DR-N2MentalDis-2014.pdf. Accessed 3 Mar 2020.

Katon, W. J. (2003). Clinical and health services relationships between major depression, depressive-symptoms, and general medical illness. *Biological Psychiatry, 54*(3), 216–226.

Katon, W. J., Schoenbaum, M., Fan, M. Y., Callahan, C. M., Williams, J., Hunkeler, E., Harpole, L., Zhou, X. H., Langston, C., & Unutzer, J. (2005). Cost-effectiveness of improving primary care treatment of late-life depression. *Archives of General Psychiatry, 62*(12), 1313.

Kessler, R. C., Berglund, P., Demler, O., et al. (2005a). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*, 593.

Kessler, R. C., Chiu, W. T., Demler, O., et al. (2005b). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*, 617.

Kessler, R. C., Heeringa, S., Lakoma, M. D., Petukhova, M., Rupp, A. E., Schoenbaum, M., Wang, P. S., & Zaslavsky, A. M. (2008). Individual and societal effects of mental disorders on earnings in the United States: Results from the National Comorbidity Survey Replication. *American Journal of Psychiatry, 165*(6), 703–711.

Kessler, R. C., Birnbaum, H., Bromet, E., et al. (2010a). Age differences in major depression: Results from the National Comorbidity Survey Replication (NCS-R). *Psychological Medicine, 40*, 225.

Kessler, R. C., McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., et al. (2010b). Childhood adversities and adult psychopathology in the WHO world mental health surveys. *British Journal of Psychiatry, 197*(5), 378–385.

Kessler, R. C., Ormel, J., Petukhova, M., et al. (2011). Development of lifetime comorbidity in the World Health Organization world mental health surveys. *Archives of General Psychiatry, 68*, 90.

Khanani, I., Elam, J., Hearn, R., Jones, C., & Maseru, N. (2010). The impact of prenatal WIC participation on infant mortality and racial disparities. *American Journal of Public Health, 100*(Suppl 1), S204–S209.

Kim, J. W., Hye-Kyung, L., & Kounseok, L. (2013). Influence of temperament and character on resilience. *Comprehensive Psychiatry, 54*(7), 1105–1110.

Klebanov, P., & Brooks-Gunn, J. (2006). Cumulative, human capital, and psychological risk in the context of early intervention: Links with IQ at ages 3, 5, and 8. In B. M. Lester, A. S. Masten, & B. McEwen (Eds.), *Resilience in children* (pp. 63–82). Boston: Blackwell.

Kochanek, K. D., Murphy, S. L., Xu, J. Q., & Arias, E. (2019). *Death: Final data for 2017. National Vital Statistics Reports; vol 68 no 9*. Hyattsville: National Center for Health Statistics.

Kondo, N. (2012). Socioeconomic disparities and health: Impacts and pathways. *Journal of Epidemiology, 22*(1), 2–6. Epub 2011 Dec 10. https://doi.org/10.2188/jea.JE20110116.

Kronick, R. G., Bella, M., & Gilmer, T. P. (2009). *The faces of Medicaid III: Refining the protract of people with multiple chronic conditions*. Center for Health Care Strategies, Inc., Kuehner, C. (2017). Why is depression more common among women than among men? *Lancet Psychiatry, 4*, 146–158.
Labash, A. K., & Swartz, J. A. (2018). Demographic and clinical characteristics associated with trauma exposure among Latinas in primary medical care. *Journal of Ethnic & Cultural Diversity in Social Work*. https://doi.org/10.1080/15313204.2018.1449691.

Lamers, F., van Oppen, P., Comijs, H. C., et al. (2011). Comorbidity patterns of anxiety and depressive disorders in a large cohort study: The Netherlands Study of Depression and Anxiety (NESDA). *Journal of Clinical Psychiatry, 72*, 341.

Lantz, P. M., House, J. S., Lepkowski, J. M., Williams, D. R., Mero, R. P., & Chen, J. M. (1998). Socioeconomic factors, health behaviors, and mortality—Results from a Nationally Representative Prospective Study of US Adults. *Journal of the American Medical Association, 279*(21), 1703.

Lindsey, M. A., Sheftall, A. H., Xiao, Y., & Joe, S. (2019). Trends of suicidal behaviors among high school students in the United States: 1991-2017. *Pediatrics, 144*(5), e20191187. https://doi.org/10.1542/peds.2019-1187.

Lipson, S. K., Raifman, J., Abelson, S., & Reisner, S. L. (2019). Gender minority mental health in the U.S.: Results of a national survey on college campuses. *American Journal of Preventive Medicine, 57*(3), 293–301. https://doi.org/10.1016/j.amepre.2019.04.025.

Lorant, V., Deliege, D., Eaton, W., Robert, A., Philippot, P., & Ansseau, M. (2003). Socioeconomic inequalities in depression: A meta-analysis. *American Journal of Epidemiology, 157*, 2.

Ludwig, J., Sanbonmatsu, L., Gennetian, L., Adam, E., Duncan, G. J., Katz, L. F., et al. (2011). Neighborhoods, obesity, and diabetes—A randomized social experiment. *New England Journal of Medicine, 365*(16), 1509–1519.

Luthar, S. (Ed.). (2003). *Resilience and vulnerability: Adaptation in the context of childhood adversities*. Cambridge: Cambridge University Press.

Luoma, J. B., Martin, C. E., & Pearson, J. L. (2002). Contact with mental health and primary care providers before suicide: a review of the evidence. *The American journal of psychiatry, 159*(6), 909–916. https://doi.org/10.1176/appi.ajp.159.6.909

Marmot, M. (2005). Social determinants of health inequalities. *Lancet, 365*, 1099–1104. https://doi.org/10.1016/S0140-6736(05)74234-3.

Marmot, M. G., & Bell, R. (2009). Action on health disparities in the United States: Commission on Social Determinants of Health. *JAMA, 301*(11), 1169–1171.

Marmot, M., Friel, S., Bell, R., Houwelling, T. A., Taylor, S., & Commission on Social Determinants of Health. (2008). Closing the gap in a generation: Health equity through action on social determinants of health. *Lancet, 372*(9650), 1661–1669. https://doi.org/10.1016/S0140-6736(08)61690-6.

Masten, A. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56*, 227–238.

Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist, 53*(2), 205–220.

Mechanic, D. (2012). Seizing opportunities under the Affordable Care Act for transforming the mental and behavioral health system. *Health Affairs (Project Hope), 31*(2), 376–382. https://doi.org/10.1377/hlthaff.2011.0623.

Mojtabai, R., Olsson, M., & Han, B. (2016). National trends in the prevalence and treatment of depression in adolescents and young adults. *Pediatrics, 138*, 9.
Monroe, S. M., & Simons, A. D. (1991). Diathesis-stress theories in the context of life stress research: Implications for the depressive disorders. *Psychological Bulletin, 110*, 406–425.

Murray, C. J., Atkinson, C., Bhalla, K., et al. (2013). The state of US health, 1990-2010: Burden of diseases, injuries, and risk factors. *JAMA, 310*, 591.

Myers, H. F., Ullman, J. B., Wyatt, G. E., Loeb, T. B., Chin, D., Prause, N., Zhang, M., Williams, J. K., Slavich, G. M., & Liu, H. (2015). Cumulative burden of lifetime adversities: Trauma and mental health in low-SES African Americans and Latino/as. *Psychological Trauma: Theory, Research, Practice, and Policy, 7*(3), 243–251.

National Academies of Sciences, Engineering, and Medicine. (2019). *Integrating social care into the delivery of health care: Moving upstream to improve the nation’s health*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25467.

National Partnership for Action: HHS Action Plan to Reduce Racial and Ethnic Health Disparities, 2011; and The National Stakeholder Strategy for Achieving Health Equity, 2011. Available from: http://minorityhealth.hhs.gov/npa

Nuruzzaman, N., Broadwin, M., Kourouma, K., & Olson, D. P. (2015). Making the social determinants of health a routine part of medical care. *Journal of Health Care for the Poor and Underserved, 26*(2), 321–327.

Pearson, A., Saini, P., Da Cruz, D., Miles, C., While, D., Swinson, N., Williams, A., Shaw, J., Appleby, L., & Kapur, N. (2009). Primary care contact prior to suicide in individuals with mental illness. *The British journal of general practice : the journal of the Royal College of General Practitioners, 59*(568), 825–832. https://doi.org/10.3399/bjgp09X472881

Perou, R., Bitsko, R. H., Blumberg, S. J., et al. (2013). Mental health surveillance among children—United States, 2005-2011. *MMWR Suppl., 62*, 1.

Phelan, J. C., Link, B. G., Diez-Roux, A., Kawachi, L., & Levin, B. (2004). Fundamental causes’ of social inequalities in mortality: A test of the theory. *Journal of Health and Social Behavior, 45*(3), 265–285.

Pickett, K. E., & Pearl, M. (2001). Multilevel analyses of neighbourhood socioeconomic context and health outcomes: A critical review. *Journal of Epidemiology and Community Health, 55*, 2.

Pirkis, J., & Burgess, P. (1998). Suicide and recency of health care contacts. A systematic review. *Br J Psychiatry, 173*, 462–474. https://doi.org/10.1192/bjp.173.6.462.

Price, J. H., & Khubchandani, J. (2019). The changing characteristics of African-American adolescent suicides, 2001–2017. *Journal of Community Health, 44*(4), 756–763. https://doi.org/10.1007/s10900-019-00678-x.

Reiss, F. (2013). Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review. *Social Science Medicine, 90*, 24–31.

Resnick, M. D., Harris, L. J., & Blum, R. W. (1993). The impact of caring and connectedness on adolescent health and well-being. *Journal of Paediatrics and Child Health, 29*(Suppl 1), S3–S9. https://doi.org/10.1111/j.1440-1754.1993.tb02257.x.

Roberts, A. L., Agnew-Blais, J. S., Spiegelman, D., Kubzansky, L. D., Mason, S. M., et al. (2015). Postrauamtic stress disorder and incidence of type 2 diabetes mellitus in a sample of women: A 22 year longitudinal study. *JAMA Psychiatry, 72*(3), 203–210.

Robertson, E. B., David, S. L., & Rao, S. A. (2003). *Preventing drug use among children and adolescents: A research-based guide for parents, educators and community leaders* (2nd ed.). Washington, DC: National Institute on Drug Abuse.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 57*, 316–331.

Rutter, M. (2006). Implications of resilience concepts for scientific understanding. *Annals of the New York Academy of Sciences, 1094*, 1–12.

Scherrer, J. F., Salas, J., Norman, S. B., Schnurr, P. P., Chard, K. M., …, Lustman, P. J. (2019). Association between clinically meaningful post traumatic stress disorder improvement and risk of type 2 diabetes. *JAMA Psychiatry*. https://doi.org/10.1001/jamapsychiatry.2019.2096. [Epub ahead of print].
Schoenbaum, M., Unutzer, J., Sherbourne, C., Duan, N., Rubenstein, L. V., Miranda, J., Meredith, L. S., Carney, M. F., & Wells, K. (2001). Cost-effectiveness of practice-initiated quality improvement for depression: Results of a randomized controlled trial. *Journal of the American Medical Association, 286*(11), 1325.

Schoeni, R. F., House, J. S., Kaplan, G. A., & Pollack, H. (2008). *Making Americans healthier: Social and economic policy as health policy*. New York: Russell Sage Foundation.

Schulberg, H. C., Mulsant, B., Schulz, R., et al. (1998). Characteristics and course of major depression in older primary care patients. *International Journal Psychiatry in Medicine, 28*, 421.

Scott, K. M., Lim, C., Al-Hamzawi, A., Alonso, J., Bruffaerts, R., Caldas-de-Almeida, J. M., Florescu, S., et al. (2016). Association of mental disorders with subsequent chronic physical conditions: World mental health surveys from 17 countries. *JAMA Psychiatry, 73*(2), 150–158. https://doi.org/10.1001/jamapsychiatry.2015.2688.

Seedat, S., Scott, K. M., Angermeyer, M. C., et al. (2009). Cross-national associations between gender and mental disorders in the World Health Organization World Mental Health Surveys. *Archives of General Psychiatry, 66*, 785.

Shim, R. S., Koplan, C., Langheim, F. J. P., et al. (2012). Health care reform and integrated care: A golden opportunity for preventive psychiatry. *Psychiatric Services, 63*(12), 1231–1233. https://doi.org/10.1176/appi.ps.201200072.

Simon, G. E., Von Korff, M., Rutter, C., & Wagner, E. (2000). Randomised trial of monitoring, feedback, and management of care by telephone to improve treatment of depression in primary care. *British Medical Journal, 320*, 7234.

Smith, D. J., Court, H., McLean, G., et al. (2014). Depression and multimorbidity: A cross-sectional study of 1,751,841 patients in primary care. *Journal of Clinical Psychiatry, 75*, 1202.

Sroufe, L. A., Egeland, B., Carlson, E. A., & Collins, W. A. (2005). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York: Guilford.

Stone, D. M., Simon, T. R., Fowler, K. A., Kegler, S. R., Yuan, K., Holland, K. M., Ivey-Stephenson, A. Z., & Crosby, A. E. (2018). Vital Signs: Trends in State Suicide Rates - United States, 1999–2016 and Circumstances Contributing to Suicide - 27 States, 2015. MMWR. *Morbidity and mortality weekly report, 67*(22), 617–624. https://doi.org/10.15585/mmwr.mm6722a1

Steel, Z., Chey, T., Silove, D., Marnane, C., Bryant, R. A., & van Ommeren, M. (2009). Association of torture and other potentially traumatic events with mental health outcomes among populations exposed to mass conflict and displacement: A systematic review and meta-analysis. *JAMA, 302*(5), 537–549. https://doi.org/10.1001/jama.2009.1132.

Stein, M. B., Cox, B. J., Afifi, T. O., Belik, S. L., & Sareen, J. (2006). Does co-morbid depressive illness magnify the impact of chronic physical illness? A population-based perspective. *Psychological Medicine, 36*(5), 587.

Stein, D. J., Aguilar-Gaxiola, S., Alonso, J., et al. (2014). Associations between mental disorders and subsequent onset of hypertension. *General Hospital Psychiatry, 36*, 142.

Strine, T. W., Dube, S. R., Edwards, V. J., Prehn, A. W., Rasmussen, S., Wagenfeld, M., Dhindra, S., & Croft, J. B. (2012). Associations between adverse childhood experiences, psychological distress, and adult alcohol problems. *American Journal of Health Behaviors, 36*(3), 408–423.

Studdert, D. M., Zhang, Y., Swanson, S. A., Prince, L., Rodden, J. A., Holsinger, E. E., & Miller, M. (2020). Handgun ownership and suicide in California. *New England Journal of Medicine, 382*, 2220–2229.

Substance Abuse and Mental Health Services Administration. (2019). *Key substance use and mental health indicators in the United States: Results from the 2018 National Survey on Drug Use and Health* (HHS Publication No. PEP19-5068, NSDUH Series H-54). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from https://www.samhsa.gov/data/

Substance Abuse and Mental Health Services Administration. (2020). *The 2018 National Survey on drug use and health: Lesbian, Gay, & Bisexual (LGB) Adults* (HHS Publication No. PEP19-5068, NSDUH Series H-54). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from https://www.samhsa.gov/data/
Substance Abuse and Mental Health Services Administration, Center for Mental Health Services. (2007). Promotion and prevention in mental health: Strengthening parenting and enhancing child resilience. DHHS Publication No. CMHS-SVP-0175. Rockville, MD.

Sumner, J. C., Kubzansky, L. D., Roberts, A. L., Gilsanz, P., Chen, Q., et al. (2016). Post-traumatic stress disorder symptoms and risk of hypertension over 22 years in a large cohort of younger and middle aged women. Psychological Medicine, 46(15), 3105–3116.

Thielke, S., Vannoy, S., & Unutzer, J. (2007). Integrating mental health and primary care. Primary Care, 34(3), 571–592.

Tully, P. J., Cosh, S. M., & Baune, B. T. (2013). A review of the affects of worry and generalized anxiety disorder upon cardiovascular health and coronary heart disease. Psychological Health & Medicine, 18, 627.

Tully, P. J., Turnbull, D. A., Beltrame, J., et al. (2015). Panic disorder and incident coronary heart disease: A systematic review and meta-regression in 1131612 persons and 58111 cardiac events. Psychological Medicine, 45, 2909.

Ulibarri, M. D., Ulloa, E. C., & Salazar, M. (2015). Associations between mental health, substance use, and sexual abuse experiences among Latinas. Journal of Child Sexual Abuse, 24(1), 35–54.

Ungar, M. (2008). Resilience across cultures. British Journal of Social Work, 38, 218–235.

Ungar, M. (2011). The social ecology of resilience: Addressing contextual and cultural ambiguity of a nascent construct. American Journal of Orthopsychiatry, 81(1), 1–17.

Valderas, J. M., Starfield, B., Sibbald, B., Salisbury, C., & Roland, M. (2009). Defining comorbidity: Implications for understanding health and health services. Annals of Family Medicine, 7(4), 357–363.

Vancampfort, D., Correll, C. U., Wampers, M., et al. (2014). Metabolic syndrome and metabolic abnormalities in patients with major depressive disorder: A meta-analysis of prevalence and moderating variables. Psychological Medicine, 44, 2017.

Vilsaint, C. L., NeMoyer, A., Fillbrunn, M., Sadikova, E., Kessler, R. C., et al. (2019). Racial ethnic difference in 23 month prevalence and persistence of mood, anxiety, and substance use disorders: Variation by nativity and socioeconomic status. Comprehensive Psychiatry, 89, 52–60.

Viola, D., Arno, P. S., Maroko, A. R., Schechter, C. B., Sohler, N., Rundle, A., et al. (2013). Overweight and obesity: Can we reconcile evidence about supermarkets and fast food retailers for public health policy? Journal of Public Health Policy, 34(3), 424–438.

Vos, T., Barber, R. M., Bell, B., Bertozzi-Villa, A., Biryukov, S., Bolliger, I., et al. (2015). Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990–2013: A systematic analysis for the Global Burden of Disease Study 2013. Lancet, 386(9995), 743–800. https://doi.org/10.1016/S0140-6736(15)60606.

Wagner, E. H., Austin, B. T., & VonKorff, M. (1996). Organizing care for patients with chronic illness. Milbank Quarterly, 74(4), 511–544.

Wagner, E. H., Austin, B. T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A. (2001). Improving chronic illness care: Translating evidence into action. Health Affairs, 20(6), 64.

Walker, E. R., & Druss, B. G. (2016). A public health perspective on mental and medical comorbidity. JAMA, 316(10), 1104–1105. https://doi.org/10.1001/jama.2016.10486.

Wang, F., Wang, S., Zong, Q. Q., Zhang, Q., Ng, C. H., Ungvari, G. S., & Xiang, Y. T. (2019). Prevalence of comorbid major depressive disorder in Type 2 Diabetes: A meta-analysis of comparative and epidemiological studies. Diabetic Medicine, 36(8), 961–969. https://doi.org/10.1111/dme.14042.

Werner, E. E., & Smith, R. S. (1982). Vulnerable but invincible: A longitudinal study of resilient children and youth. New York: McGraw-Hill.

Werner, E. E., & Smith, R. S. (2001). Journeys from childhood to midlife: Risk, resilience, and recovery. Ithaca: Cornell University Press.

Whiteford, H. A., Degenhardt, L., Rehm, J., Baxter, A. J., Ferrari, A. J., et al. (2013). Global burden of disease attributable to mental and substance use disorders. Findings from the
References

global burden of disease study 2010. *Lancet*, 382(9904), 1575–1586. https://doi.org/10.1016/S0140-6736(13)61611-6.

Whitfield, C. L., Anda, R. F., Dube, S. R., & Felitti, V. J. (2003). Violent childhood experiences and the risk of intimate partner violence in adults: Assessment in a large health maintenance organization. *Journal of Interpersonal Violence, 18*(2), 166–185.

Williams, D. R., González, H. M., Neighbors, H., et al. (2007). Prevalence and distribution of major depressive disorder in African Americans, Caribbean blacks, and non-Hispanic whites: Results from the National Survey of American Life. *Archives General Psychiatry, 64*, 305.

Williamson, D. F., Thompson, T. J., Anda, R. F., Dietz, W. H., & Felitti, V. J. (2002). Body weight, obesity, and self-reported abuse in childhood. *International Journal of Obesity, 26*, 1075–1082.

Woolf, S. H., & Braveman, P. (2011). Where health disparities begin: The role of social and economic determinants—and why current policies may make matters worse. *Health Affairs (Millwood), 30*(10), 1852–1859.

World Health Organization (2017). Depression and Other Common Mental Disorders: Global Health Estimates. Geneva: License: CC BY-NC-SA 3.0 IGO.

Young, J. Q., Kline-Simon, A. H., Mordecai, D. J., & Weisner, C. (2015). Prevalence of behavioral health disorders and associated chronic disease burden in a commercially insured health system: Findings of a case-control study. *General Hospital Psychiatry, 37*(2), 101–108. https://doi.org/10.1016/j.genhosppsych.2014.12.005.113.

Zimmerman, M., McGlinchey, J. B., Chelminski, I., & Young, D. (2008). Diagnostic co-morbidity in 2300 psychiatric out-patients presenting for treatment evaluated with a semi-structured diagnostic interview. *Psychological Medicine, 38*, 199.