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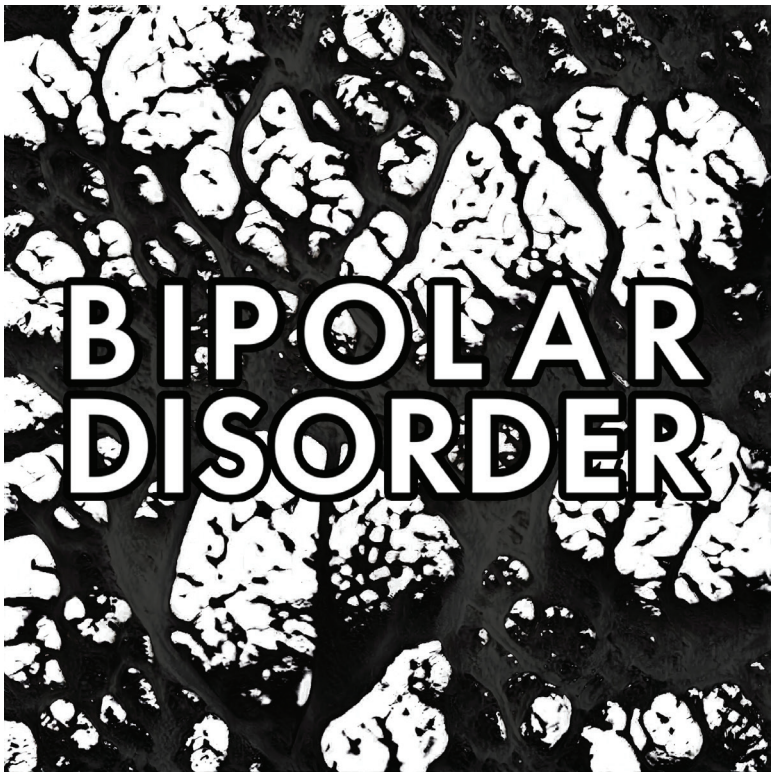

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BIPOLAR DISORDER

Chapter 1
What is the History of Bipolar Disorder?

Rahma Gulaid

Introduction

Bipolar disorder is one of the youngest forms of major mental illness in reference to an official diagnosis. Yet, it is simultaneously one of the oldest, in regards to recorded depictions of it. There are descriptions of mania and depression dating back to the 5th century found in Greco-Roman writings. Moreover, this condition did not simply disappear at the fall of these ancient civilizations, rather its impact has been pervasive throughout history spanning into present day. It is estimated to affect between 2–3% of the world's population, ranking as the sixth leading cause of disability worldwide. (Strakowski, 2020) Despite its extensive presence across land and time, bipolar disorder has difficult conditions to pin down. The aim of this chapter is to construct a timeline of the illness, exploring the historical contributions of many health practitioners, but first, we must answer the question: what is bipolar disorder?

Bipolar disorder, previously referred to as manic depression, is a chronic mental disorder that creates sporadic and unpredictable changes in mood, energy, and concentration. Moods can fluctuate between extreme highs, in which an individual may feel overly excitable and energized, to extreme lows, during which they may feel hopeless and indifferent. The "highs" are referred to as manic episodes, and in less severe cases they can be categorized as hypomanic episodes. Whereas, the "lows" are referred to as depressive episodes. (National Institute of Mental Health, 2020) There are three types of bipolar disorder defined by the pattern and length of a patient's emotional episodes. The first category is Bipolar I Disorder, this condition is characterized by its severe manic episodes that may result in hospitalization. Next is Bipolar II disorder, which is identified by its depressive and hypomanic episodes. Finally, Cyclothymic Disorder, which may also be referred to as cyclothymia, which is defined by its long-lasting depressive and manic

symptoms that do not fit the criteria of the aforementioned categories. The clinical definitions and scientific distinctions between these subcategories are further explored in chapter six, whereas the remainder of this chapter will examine the historical events that have led to the development of these understandings. (Strakowski, 2020)

Bipolar Disorder in Ancient Greek

Records suggest that scholars belonging to the Hippocratic school of medicine in Ancient Greece used terms such as melancholia and mania dating back to the 5th century BCE. It is possible the understanding of these concepts exists even earlier, granted that their definition likely differed greatly from their contemporary successors. Nonetheless, it is noteworthy that even ancient physicians with limited understanding of depression and mania recognized that these states differed from that of traditional illness. (Yildiz, Ruiz, & Nemeroff, 2016)

Many of these scholars attempted to understand mania and melancholia from a physiological perspective, and that mental illness must stem from a biological error. The most widely accepted theory in Ancient Greece was that the affiliation stemmed from a humoral imbalance. The essential humors are the bodily fluids vital for human life, they are blood, yellow and black bile, and phlegm. It speculated that these understandings predate Greek medicine, arising from earlier Middle Eastern cultures. The theory of humoral imbalance was popularized by the Greco-Roman physician Aelius Galenus of Pergamon. This theory was only disregarded during the 19th century, prior to that the four essential humors were thought to influence one's personality and temperament. Mania was often credited to a maldistribution of yellow or black bile, whereas melancholia or depression was regularly linked to an excess in black bile. It is crucial to recognize that the humoral theory is not based in modern medicine, the current and accepted scientific understandings of bipolar disorder will be explored later in this novel. (Yildiz, Ruiz, & Nemeroff, 2016)

The hippocratic physicians often viewed melancholia and mania as separate conditions until the second century, when an association between the two is suggested. Aretaeus of Cappadocia is considered the first to link mania with melancholia, and in doing so he lays the foundation for our modern understanding of bipolar disorder. He is the first known physician to observe and record symptoms of manic and melancholic episodes within the same patient. (Angst & Marneros, 2000) Moreover, he makes an effort to distinguish these symptoms from the hysteria associated with febrile illnesses, during

which individuals may also exhibit depressed or excited behavioural patterns. Moreover, Aretaeus takes care to differentiate mania from the deliria associated with a state of intoxication. His writings give the same reverence to melancholia, defining it as an autonomous disorder separate from the depression caused from stressful life events or the dementia that may occur in old age. These records are significant because they create legitimacy for the disorder. (Yildiz, Ruiz, & Nemeroff, 2016)

Aretaeus' findings were built upon in the 6th century by Alexander of Tralles who proposed that mania and melancholia may occur in cycles. He theorized that the disorder may result in an increased risk of suicide. However, Alexander along with most ancient scholars viewed mania as a differing expression of a melancholic disorder, as opposed to an opposing phase within a multifaceted illness. (Yildiz, Ruiz, & Nemeroff, 2016)

Contribution Made by the Islamic World Between the 9th to 11th Century

The contributions made by many Persian and Arab scholars to the field of psychiatry are notable because of their impact, not only did they influence the surrounding cultures but also their successors. They successfully integrated knowledge from ancient civilizations such as the Egyptians, Greeks and Romans, with their own empirical understandings and formed concepts that met the needs of their environment.

The maristans, widely regarded as the first psychiatric hospitals were founded by Arab and Persian mental practitioners, in the 9th and 10th centuries. The institutions were largely built by sultans, maintained through donations and patient fees, and managed by physicians. Occasionally they were created as an extension to an existing academic medical centre. The concept quickly spread across the Muslim world, with facilities opening in Northern Africa and Moorish Spain in the 14th century.

Medieval Islamic scholars had more complicated framework than their contemporaries as opposed to limiting themselves to a two-fold model, they established four major mental illnesses. The first category was melancholia which conceded with the Greek definition. The next category was mania which was defined by its excitability, particularly its capacity for violence. There existed a specific subcategory of mania known as daol-kah, which was defined as unabashed excitement and/or aggression, with a subsequent period of calmness. The following division was ghotrah which a state of extreme paranoia. The final disorder was referred to as ishgh, and it was a

combination of anxiety and depression. It appears that the lines between these categories were viewed loosely, for example in 908 CE Ishaq Ibn Imran suggested that mania and melancholia could be linked and even theorized that the two states could exist on a spectrum through which an individual could pass through. It is unclear whether they saw these illnesses as distinct but related entities or if they viewed them as phases of the same disorder. Regardless, it is clear that the medieval Islamic clinicians had a more nuanced to their understanding of mental illness when compared to their European intellectual predecessors. (Yildiz, Ruiz, & Nemeroff, 2016)

There many Islamic physicians that could be considered the first psychologist or psychiatrists, as many of them recorded extensive clinical findings on various mental or behavioural conditions. Although many modern scholars credit the origins of contemporary psychiatry to the various European clinicians of the late modern period, the field would be nowhere without its Islamic predecessors. The foundational texts of Ishaq Ibn Imran, Esmail Jorjani, Razes, and many more are admired for their impact.

Contemporary Understandings of Bipolar Disorder

As established bipolar disorder has existed throughout history, the name it went by or the conceptual understanding of the disorder between time and regions, but its presence never wavered. However, it is at the close of the 18th century that we witness the birth of our modern understandings of illness.

Circular Insanity and Insanity of Double-Form

Medical professionals were unclear of the nature of mania and melancholia, vague in their definitions and understandings of illness. That is until 1851 when Jean-Pierre Falret, working at the La Salpêtriere hospital in Paris, France, published a 14-sentence-long statement. In his writings, he defined a distinct mental illness which he coined ‘folie circulaire’, translate to circular insanity. He described the disorder as having repeated cycles of depression, mania, and occasional free periods, all of which varied in length. The concept was further explored by Falret three years later when he published Leçons cliniques de médecine mentale faites à l’hospice de la Salpetrière in 1854. This same year, Jules Baillarger published his paper De la folie à double forme, which presented his concept of ‘folie à double forme’ or ‘’insanity of double form’ as a foil to Falret’s. Baillarger argued that the disease simply changed from a state mania to that of melancholia, paying no regard to the time intervals. Whereas, Falret highlighted the intervals between manic and melancholic phases, arguing that the illness behaved in a circular pattern.

Both concepts gained popularity across France, and soon all of Europe, however, it is Jean-Pierre Falret's concept of circular insanity that gained true notoriety. Although is widely accepted it opened to harsh criticism, for example in 1874, Ludwig Meyer referred to the theory as 'meaningless'. It took the support of international institutions such as the American Journal of Insanity in the 1880s, for the concepts to finally its due recognition. (Angst & Marneros, 2000)

Kahlbaum and Cyclothymia

Falret and Baillarger's thinkings laid the foundation for the work of Karl-Ludwig Kahlbaum, a physician who worked in a psychiatric hospital in Görlitz in eastern Germany. Kahlbaum introduced both the concept of 'circular insanity' and 'insanity of double form to the German medical community in 1863 when he discussed in his book titled The Grouping and Classification of Mental Disorders. His writings supported Falret and vehemently opposed Baillarger, describing a cyclical insanity in his book. However, Kahlbaum is best known for establishing the condition of cyclothymia. He defined the disorder as a lesser manifestation of circular insanity. Along with Falret, Kahlbaum also cites the work of German physician, Carl Friedrich Flemming, employing his theory of "changeable dysthymia." Fleming believed that an individual could shift from "dysthymia atra", a depressive state, to "dysthymia candida", a hypomanic state. Cyclothymia is a rotation of the two states described by Flemming. Hence, it is the severity of the manic state that distinguishes Kahlbaum's cyclothymia from Falret circular insanity. (Yildiz, Ruiz, & Nemeroff, 2016)

Emil Kraepelin

There was a struggle within the medical community in the 19th century, surrounding the question of whether they should separate clinical mental disorders into subdivisions or consolidate them into broader categories. This conflict is where the work of Emil Kraepelin is derived from, his unifying approach to the categorization of mental disorders is fundamental to the field of modern psychiatry. Wilhelm C. J. K. Weygandt worked alongside Emil Kraepelin and developed a monograph that allowed differentiation between mixed states that would later be cited in Kraepelin's groundbreaking approach. Weygandt recognized three states: manic stupor (a hazy manic state), agitated melancholia (an irritable depressive state), and unproductive mania (an elated manic state). (Angst & Sellaro, 2000)

In 1899 Kraepelin published his sixth textbook, in which he argued for the broad categorization of all major psychiatric disorders into two general divisions: manic-depressive insanity and dementia præcox. Manic-depressive insanity was an overarching term that unified all illnesses exhibiting symptoms of mania and depression under a single category, regardless of whether the symptoms are experienced in single episodes or recurrently. Whereas, dementia præcox was the division reserved for disorders that showcases any form of cognitive denigration. This dual system would later prove to be inadequate, as it erased the distinction between depressive and circular forms of illness, and lumped all affective disorders indiscriminately under the category of manic-depressive insanity. Moreover, concerns arose because psychiatric illnesses do not cleanly fall between the two categories, there exist patients who exhibited symptoms of both manic-depressive insanity and dementia præcox. (Yildiz, Ruiz, & Nemeroff, 2016)

Kraepelin experienced pushback even in the 19th century, many of his peers arguing that he presented far too narrow of a scope. Most notably, was the German practitioner Carl Wernicke who presented the subtle divisions within manic-depressive illness. For example, he identified five different states of melancholia; there was affective melancholia, depressive melancholia, melancholia agitata, melancholia attonita and melancholia hypochondriaca. This contradicted Kraepelin's understanding of melancholia as simply a part of a manic-depressive illness. Instead employing the definitions of Falret and Baillarger, asserting that single episodes or recurrent forms of depression and/or mania can exist without the states shifting into one another and that these illnesses must be categorized separately from manic depressive insanity. Regardless of his shortcoming Kraepelin's understanding, diagnosis and prognosis of manic-depressive illnesses were revolutionary, making his contributions invaluable and earning him the title of 'father of modern psychiatry'. (Angst & Marneros, 2000)

Conclusion

This chapter has briefly outlined the critical historical highlights in regards to the understanding of the bipolar disorder. Constructing a timeline that stretches from ancient Ancient Greece to 19th century Germany. The evolution of this disorder is complicated, its complexity largely coming from a deficit of documentation. There is a lack of records regarding mania and melancholia from the first millennium. Moreover, existing records are vague and blur the lines between major mental illnesses and nonspecific behavioural and/or emotional expressions of underlying medical conditions. Finally, when conducting historical investigations it is important to acknowl-

edge the contextual implication of such studies and be wary of historical observations that anticipate presently accepted understanding.

This chapter is not an exhaustive history of bipolar disorder, it is simply an account of the illness's past. As it has slowly crept into mainstream discourse over the last decade, with an increase in celebrities and public figures identifying with the disorder, it is easy to assume that illness is new. However, as demonstrated in this text bipolar disorder has been a topic within healthcare for the last 17 centuries, and with the establishment of limited recordings, it is possible that remances of the illness were present earlier. The disorder continues to be a major public health concern with mental health practitioners and other healthcare workers reporting that between 10-30% of their clinical patients suffer from bipolar disorder. (Strakowski, 2020) The continued impact of this disease will be further explored in other chapters.

Chapter 2
Who Has Bipolar Disorder?

John Christy Johnson

Introduction

Many successful people have openly discussed their struggles and experiences with bipolar disorder. There has also been an association between creativity and folks with bipolar disease that has been popularized in the media. Although the scientific basis for this is a subject of debate, it is still interesting to note that there are still scientifically valid speculations and studies associated with heritability of creative personality traits and bipolar disorder. While neuroscience and genetics are not discussed in this chapter, it will be discussed in further detail in Chapter 11.

It has been suggested that mild cases of mania, as experienced in bipolar syndrome, may be facilitative to creative thought in the arts and sciences. Mania instills positive affect, provides energy and a sense of grandiosity that can be productive features if your aim is to innovate or break new ground.

Here, we will be considering some prominent historical figures as well as current celebrities who have bipolar disorder. It should be noted that this selection of prominent figures are by no means fully representative of the whole, but merely a small sample of famous influencers that may be of interest. For the purposes of narrative flow, I have separated these figures by discipline for historical figures and talked exclusively about celebrities in popular culture for current figures.

Prominent Historical Figures

Composers: Wolfgang Amadeus Mozart and Robert Schumann

Wolfgang Amadeus Mozart and Robert Schumann are often considered some of the most prolific and influential musical composers of the Classical Period and Romantic Eras. Perroud and Huguelet (2005) further characterize Mozart's psychopathology within the "soft bipolar spectrum." (1) The reason for this stems from uncertainty as to whether Mozart's impulsivity and mood swings were a result of a dependent personality disorder instead of bipolar syndrome or alcoholism. Other behaviour that were consistent with manic episodes included his temper outbursts, excessive spending, drinking, and inappropriate comments.

Robert Schumann was another composer who had numerous, documented episodes of mania and depression. (2) His compositions were tied closely to the cycling of his moods. Schumann produced a disproportionately greater number of compositions during episodes of hypomania. Schumann's Mood was deduced by his medical records and correspondences with friends (2). It is easy to speculate that the hypomania experienced by these classical composers may have contributed to the sheer volume of musical pieces they contributed to society. Furthermore, Schumann committed suicide and died pretty young which is a common occurrence in people with bipolar disorder.

Academics: Isaac Newton

Academics with bipolar disorder also produce a higher quantity of publications, but not necessarily a higher quality (2). Bursts of productivity are tied to manic episodes. That being said, Sir Isaac Newton, since early childhood, showed signs and symptoms of bipolar disorder. Oftentimes, he would spend time alone, as a recluse, burying himself in his inventions and additionally, vented his rage on friends and family. Several incidents have been reported to be instigated by Newton including punching his sister, threatening to burn his parents, and quarreling with his peers. (3)

As a scientist and mathematician, Newton frequently experienced manic phases of overworking where he would skip meals and be extremely productive. His discoveries of gravity, calculus, and motion may have been a result of these bursts of energy produced by his disorder. That being said, this is not to glorify the illness but to ground it in history. During his depressive phases, historian Jane Jakeman who has extensively studied Newton's

personality reported that “Newton hallucinated and had conversations with absent people. He became obsessed with religion and immersed himself in alchemy, spending 25 years in the study of alchemy in secret, searching for mysterious elixirs and writing thousands of pages on the subject.” (3) There were also hints that suggested that Newton had a God complex, believing that he was on a mission to bring God’s truths into the world.

Visual Arts: Vincent Van Gogh

Although there is a sentiment that artists may use their creative endeavours to overcome their suffering, the case of Van Gogh illustrates why this may not necessarily be the case. Overcome with the pains of suffering, the painter took his own life in 1890 (4). The painter of the infamous “Starry Night” suffered from many psychiatric disorders, bipolar disorder being one of them. It is thought that from an early age, Van Gogh had developed bipolar in conjunction with borderline personality disorder. (5) This was exacerbated by the use of alcohol, malnutrition, and stress to the level where he engaged in self-harm, cutting off his own ear. Delirium as a result of alcohol withdrawal followed by worsening depressive episodes were likely the cause of his tragic end.

Authors: Edgar Allan Poe and Ernest Hemingway

Poe was a poet and writer that may have actively captured the depressive elements of his disorder through his poetry, theorized to have bipolar disorder. Many of his poems and short stories focused on dark themes of mortality, death, and feelings of depression. In his short story, “The Man in the Crowd,” Poe writes: “I had been ill in health… but found myself in one of those happy moods, which are so precisely the converse of ennui – moods of the keenest intellect, electrified… merely to breathe was enjoyment. And I derived positive pleasure even from many of the legitimate sources of pain.” Many believe his decision to turn to alcohol and drugs may have led to his eventual death at the age of 40. (6)

Hemingway has also been a subject of interest as it relates to bipolar disorder, although it has not been proven. He exhibited many warning signs and seemed to have a genetic predisposition to psychiatric illness. He also faced many fraught social relationships, his father’s suicide, and an alcohol addiction that grew worse. He had delusions of going broke despite facing enormous success, winning the Pulitzer prize for literature, and attempted suicide multiple times. Finally, his attempts succeeded when he was released from doctors attending to his care and he shot himself. (7)

Churchill's open referral to his depressive episodes as the "black dog" have seeped into popular culture as a term to encompass the disease of depression. (8) He was known for being resourceful, taking advantage of his bipolar disorder, diagnosed during World War II, to capitalize on episodes of sleeplessness where he would work from 8 am to 2 am. His task as the British leader in an especially daunting time in world history meant he was consistently delivering rally speeches, discussing plans with the Allied Forces, and working to plan the next moves in a global catastrophe. Churchill may have inadvertently benefited from his bipolar disorder, having published 43 books during his tenure, his feelings of paranoia, desolation, and hypervigilance may have opened his eyes to a unique point of view that others could not access. This view may very well have been the acumen and foresight of the former prime minister that saved millions of lives.

Musicians: Jimi Hendrix and Amy Winehouse

Hendrix, the rock guitar legend, popularized his struggles with bipolar disorder in a song entitled "Manic Depression." He was open about his depression, even stating in an interview: ""I can't write no happy songs...'Foxy Lady' is about the only happy song I've written. [I] don't feel very happy when I start writing." (9)

Singer-songwriter Winehouse died in 2011 after a downward spiral of substance abuse and addiction including but not limited to heroin, cocaine, crack, and ecstasy. Although she was on lithium therapy, her addictions rendered the therapy useless. She would often express her feelings of mania and depression through her soulful voice. The lyrics of her hit single Rehab are: "They tried to make me go to rehab, I said 'no, no, no'" capturing her mental state, her reluctances, and struggle. (10)

Actors and actresses: Vivien Leigh, Patty Duke, and Frank Sinatra

Leigh was an actress who ironically portrayed roles that encapsulated women who suffered from personality disorders that were oddly reminiscent of bipolar disorder. These included Scarlett O'Hara in Gone with the Wind and Blanche DuBois in the film rendition of A Streetcar Named Desire.

Duke was one of the first public figures of her time that spoke out publicly about mental illness. Ironically, in 1963, Duke starred in the Patty Duke

Show where the producer attempted to capture a role that expressed two sides after having spent time with Duke. Years later, she was diagnosed with bipolar. Bipolar disorder seemed to also play a role in her love life and relationships. Her relationships were fraught with affairs and divorces and many of them are thought to have led to suicide attempts, drug use, erratic behaviour, and alcoholism. (11)

Sinatra is often quoted as saying: "Being an 18-karat manic depressive, and having lived a life of violent emotional contradictions, I have an over-acute capacity for sadness as well as elation." He was known for his duality, for expressing this duality in roles such as The Man with the Golden Arm, The Manchurian Candidate and his Oscar-winning From Here to Eternity in which he plays the role of recovering drug addicts. He became jaded with acting as his mastery over his performance led to him feeling a lack of challenge, earning him his nickname "one-take Charlie." (12)

Current Celebrities

In this section, we will be considering celebrities that currently dominate pop culture who were diagnosed with bipolar disorder including Kanye West, Bebe Rexha, Selena Gomez, Mariah Carey, Britney Spears, Mel Gibson, Chris Brown, Frank Bruno, Russell Brand, Ted Turner, and Demi Lovato.

Rapper and entrepreneur Kanye West is known for his reclusive attitude, controversial statements, and erratic behaviour. Diagnosed in 2016, the celebrity initially responded with denial, telling people it was sleep deprivation instead. In 2020, West announced he was running for president of the United States, proposed modeling the White House organizational structure based on the fictitious country of Wakanda from box office hit Black Panther, and expressed skepticism of the COVID-19 vaccine as "the mark of the beast." West admitted his experiences with manic state and expressed it like this: "When you're in this state, you're hyper-paranoid about everything.... Everything's a conspiracy. You feel the government is putting chips in your head. You feel you're being recorded. You feel all these things." (13)

Popular musician Bebe Rexha has been open about her bipolar disorder, describing in an interview "It made me feel just weird feelings, weird emotions, weird thoughts all the time. Not normal thoughts...I'd be in the passenger seat of the car and I would want to open the door and jump out and just get fucking squashed—which is terrible." These thoughts were combined with feelings of paranoia and fear: "That was my worst fear all my life: going crazy...I felt like me opening up to my fans was me finally…

I'm not going to be imprisoned by this.' She describes a sense of estrangement with her identity placed by pressures in society and embarking on a journey to find herself. Her family and friends have been supportive of her and helped direct her toward professional help. (14)

Selena Gomez was diagnosed with bipolar disorder more recently on April 4, 2020. Compounded with other mental illnesses like anxiety, depression, and panic attacks, the singer-songwriter shared a sense of validation from her diagnosis saying "I never had full awareness or answers about this condition. When I have more information, it actually helps me, it doesn't scare me once I know it." (15)

Maria Carey misinterpreted her symptoms as a severe sleep disorder "but it wasn't normal insomnia and I wasn't lying awake counting sheep. I was working and working and working … I was irritable and in constant fear of letting people down. It turns out that I was experiencing a form of mania. Eventually I would just hit a wall. I guess my depressive episodes were characterized by having very low energy. I would feel so lonely and sad — even guilty that I wasn't doing what I needed to be doing for my career." She also describes imposter syndrome which may have been a further complication of her depressive episodes.Diagnosed with type II bipolar disorder in 2001, Carey expressed feelings of denial: "Until recently I lived in denial and isolation and in constant fear someone would expose me," she added, "It was too heavy a burden to carry and I simply couldn't do that anymore. I sought and received treatment, I put positive people around me and I got back to doing what I love — writing songs and making music." (16)

Britney Spears provided a unique insight into bipolar disorder that came with her fame. In 2007, she had a public breakdown explaining her feelings and longings for validation in the form of popularity: ""There was a time in my life when I couldn't ever leave the house without 20 cars following me. I felt very alienated from the public. But as time passed, they lightened up and they kind of went away after I wouldn't come out of the house for like two years." She claimed, "it was a very difficult time for me…I felt really alienated… this is all I've known all my life — cameras, being followed, being part of the industry… I have always been kind of shy, since I was a little girl. It's who I am to be modest, so I really can't help it. I turn into this different person...seriously, bipolar disorder." (17)

Actor Mel Gibson revealed his bipolar diagnosis in 2008 which the public speculates revealed erratic behaviours including drunk driving, threats, and heated police encounters. (18) Similarly, Chris Brown is another celebrity

that's been in the news for his aggressive behaviours and who has been concurrently diagnosed with bipolar disorder. The link with aggression has also been suggested by boxing champion Frank Bruno who expressed his mania by going to the gym excessively, more aggressive training, and agressive behaviour. (19)

Another aspect of manic episodes that appear to be especially common in males (although not exclusive) is the lack of behavioural inhibition and increased risk-taking. (19) Russell Brand has led a multi-hyphenate career as a comedian, actor, radio host, writer, and activist. Alongside bipolar disorder, he was also diagnosed with attention deficit hyperactivity disorder and suffered from eating disorders, pornography addiction, and self-harming behaviour. Brand is well-known for his flamboyance in fashion, speech, and mannerisms. Entrepreneur Ted Turner was able to leverage this to his advantage, having the audacity and boldness necessary to create CNN and realize his revolutionary idea to start the multinational news corporation. (20)

Singer-songwriter Demi Lovato has been quite upfront about their bipolar disorder and other struggles with mental health. They use their music as a channel for mental health advocacy and awareness. (21) Lovato has launched a public campaign called "Be Vocal: Speak Up for Mental Health" to partner with mental health organizations and spread awareness about mental health disorders in the population.

Closing Thoughts

Popular culture has made links between productive and creative folks with bipolar disorder. As such, the shadow of bipolar disorder is cast over major events in world history, literature, and entertainment. It remains difficult to ascertain whether there is some scientific basis for this association, but regardless, these prominent figures of the past and present introduce interesting and unique experiences with the disease that may be useful to study individuals in the public eye as a segway into the grander theme of the everyday individual's quality of life.

Chapter 3
How Does Bipolar Disorder Impact a Person's Quality of Life?

Avery Kennedy

Bipolar disorder is a severe, complicated, and often misunderstood disorder that can have serious impacts on a person's quality of life, sense of self worth, and overall health. People with bipolar disorder often have trouble finding employment and holding relationships. A Swedish study found that 30.5% of people with bipolar disorder were employed in comparison to 59.7% of the general population of Swedish adults and found "they were more likely than the rest of the population… to be unmarried."[1] These difficulties coupled with misrepresentation in the media and over glorification of the genius of people with bipolar disorder are just some of the things that make this such a debilitating illness. In this chapter, we will address the possible genetic implications of loss of functioning, the potential impacts on a person's concept of the self and the massive potential for comorbidities that can dramatically reduce the well-being and lifespan of people with bipolar disorder.

Loss of Functioning

Loss of function mutations are mutations in which the allele becomes inactive. There are some hypotheses that such mutations contribute to bipolar disorder. Bipolar disorder is a hereditary disease in the sense that additive and non-additive genetic factors play a role. Many studies have found a "significant contribution of genetic factors to the etiology of BD."[6] However, despite many studies, we have been unable to identify the causative genes. Some scientists are turning to the possibility that "rare variants" could explain the missing link and play a "significant role in the genetic architecture of BD."[6] Some studies are also suggesting that another contributing factor could be de novo mutations. These mutations are not directly hereditary but pass from one parent to offspring as a mutation in a germ cell. This is a relatively recent theory and while there do seem to be some links,

there are no studies to date that definitively demonstrate their contribution to bipolar disorder. The study by Kataoka et al. found a strong "association of de novo mutations in CNVs with early-onset BD" [6] Similar results have also been found for several other mental health disorders including autism spectrum disorder and schizophrenia. This could also help explain why there is an association between older men fathering children and bipolar disorder because the amount of de novo mutations "reportedly increase with advanced paternal age."[6] The study acknowledges that while these results are a start, they are far from conclusive and need more study and evidence to back them up.

Impact on the Concept of the Self

The complicated concepts of the self, self-worth and identity are fiercely debated and widely discussed in many fields from psychology, to neuroscience, to philosophy. A literature review exploring bipolar disorder's impact on the self done by Ironside et al. uses the following definition, which will be used as reference in this chapter, "the self consists partly of the person's goals and aspirations, and the striving that the person engages in toward those goals."[4] This definition is by no means all encompassing and may even oppose some well-established definitions of the self, but for our purposes, it is useful as a frame of reference. With this definition in mind, the incredibly destabilizing and obstructing nature of bipolar disorder to the image of the self becomes a bit more apparent.

A major factor in the destabilizing nature of this disorder is its prolonged symptoms. While bipolar disorder mostly manifests as episodic symptoms, some can linger in times when the person is not experiencing manic episodes or severe depressive episodes. This can make it very difficult to create a frame of reference for the self in absence of the disorder because symptoms may remain during those periods.[4] One factor that is a bit of a double-edged sword are the tendencies for people with bipolar disorder to seek reward and set very ambitious goals. These have both been shown in multiple studies and it may help explain why there is a pattern of success among some people with bipolar disorder. Ironside et al. state that people with these tendencies have a "greater likelihood of becoming gainfully employed as an artist"[4] and point out that high ambitions tend to lead to greater success in school and work contexts. There are still question marks around what in the brain chemistry contributes to these tendencies, specifically in people with the disorder, but there have been some studies that suggest increased midbrain dopamine availability as a possible factor. More research needs to be done to reach any conclusive results.[4]

The authors point out that tendencies like this can lead to a method of determining self-worth based on performance and achievement in certain sectors of their life. This has some obvious drawbacks such as thoughts like "if I fail at my work, then I am a failure as a person."[4] This way of thinking is called contingent self worth. People with bipolar disorder have often scored high marks on the Dysfunctional Attitudes Scale which seem related to "self-critical and perfectionist tendencies regarding accomplishments."[4] They have also been tied to symptoms of depression and anxiety in patients with bipolar disorder and other high-risk groups.

Another aspect of bipolar disorder's effect on the self is destabilizing self-esteem. This does not mean that people with the disorder have unusually high or low self-esteem, but rather, it can fluctuate much more rapidly and widely than average.[4] This tendency also seems to be present in at risk samples. What Ironside et al. call mood lability is "closely [tied] to the self-esteem instability apparently characteristic of bipolar disorder"[4] and they present the possibility that variable self-esteem is connected to contingent self-worth.

Comorbidities

A study done by the Stanley Foundation Bipolar Treatment Outcome Network 65% of patients with bipolar disorder were found to have at least one axis I comorbid lifetime disorder. An axis I disorder refers to disorders concerning mental health and substance abuse while axis II are personality disorders. (2) The risks associated with comorbidities are serious and can have life-long damaging effects. They "include poorer overall outcome, high rates of suicidality, depression onset, and less favourable response to lithium,"[2] a medication used to treat bipolar disorder. Other possible comorbidities include an "increased risk of diagnosis with influenza or pneumonia, COPD, diabetes, cardiovascular disease, and specifically stroke."[1] Patients with bipolar were also found to have over twice the amount of hospital admissions each year than the rest of the population.[1] They also have a higher mortality rate than the rest of the population from both natural causes and from suicide. As a result of many factors, including comorbidities, "on average, women with bipolar disorder died 9.0 years earlier than other women, and men with bipolar disorder died 8.5 years earlier than other men."1 Women with bipolar disorder were found to have an increased mortality from stroke and cancer, especially colon cancer.1

Findings on the increased mortality rate of people with bipolar disorder and cancer have seen mixed results but the Crump et al. study's findings were consistent with another Swedish study done before it. Some studies have

found a small increase in mortality among men but not women. Sample size, location and period of study are all possible factors that could lead to these differing results.1 It is important to note that most studies have been consistent in the finding that women diagnosed with the disorder have a higher mortality rate. This could be caused by many factors but at the present time there are no conclusive results and the authors recommend more studies be done on the subject.

Multiple studies have made it clear that alcohol and substance abuse disorders are related to bipolar disorder but it is unclear which way the association goes. A study done in the United States found that of the population studied, 56.1% of adults aged 18 or older with bipolar disorder also demonstrated substance abuse.[2] A review found that "bipolar men were twice as likely as bipolar women to have a comorbid substance use disorder. However, women with bipolar disorder had four times the rate of alcohol use disorders than women from the community-derived samples."[2] Substance abuse disorders also come with many complications including "higher rates of mixed and rapid cycling mania, prolonged recovery time, higher prevalence of medical disorders including liver disease, more suicide attempts, and suicide."[2] Despite these high risk factors, the Crump et al. study notes that substance use disorders only contributed to a modest amount of the high mortality rate of people with bipolar disorder.1

Anxiety disorders are another common example of comorbidities. Their diagnosable symptoms overlap quite a bit in the Diagnostic and Statistical Manual of Mental Disorders and they frequently appear together.[2] 92% of people surveyed in the National Comorbidity Survey who met criteria for bipolar disorder also met the criteria for anxiety disorder. This rate was slightly higher than that which was found in other studies but despite this, we can understand that the rate of comorbidity is very high. It is also very easy for the symptoms of anxiety to go undiagnosed in children and adolescents, which is due to many factors including a failure to recognize symptoms and the sheer amount of similar symptoms. Additionally, sometimes comorbidities with bipolar disorder show up together. This is frequent in the case of anxiety disorders and substance abuse disorders, which can present another diagnostic and treatment challenge.[2]

Other axis I comorbidities that are commonly diagnosed in patients with bipolar disorder include panic disorder, obsessive-compulsive disorder, social phobia, eating disorders and attention deficit hyperactivity disorder. People with bipolar disorder are also at a higher risk for suicide and the Crump et at. study found "the risk of death from suicide was 10-fold among

women and 8-fold among men with bipolar disorder compared with other women or men." (1) However, axis I disorders are not the only ones that can appear in patients with bipolar disorder. Axis II personality disorders are also diagnosed in patients with bipolar disorder. Two separate studies found that of the bipolar populations they studied, 38% of people met the criteria of diagnoses for an axis II disorder.[2] Borderline personality disorder is an especially common diagnosis. Such a high rate of axis II diagnoses should have an impact on the way patients are treated.[2]

There are also many medical comorbidities that are common among bipolar people. Many of these conditions such as, "strokes, tumors, head trauma, CNS infection, and degenerative disorders"[2] can cause what is called "secondary mania." Some of the most common comorbid conditions are migraine headaches, velocardiofacial syndrome, multiple sclerosis, Cushing's syndrome, vascular bipolar disorder, brain tumor, head trauma, Darier's disease and asthma. There are also many conditions that can develop or worsen as a result of some treatments.

Some factors that could contribute to the increased mortality rate from natural causes include the fact that "persons with bipolar disorder may be less likely than the general population to receive primary, preventative medical care. They also have a higher prevalence of unhealthy lifestyle factors, including smoking, other substance misuse, and obesity."[1]

They are also potentially at higher risk for conditions including "proinflammatory cytokines, oxidative stress, hypothalamic-pituitary-adrenal axis dysfunction, or common genetic factors,"[1] all of which can increase the risk of cardiovascular disease and diabetes.

Medication may also play a part. Some antipsychotic medications can increase the risk of cardiovascular disease or diabetes. Medications found to be contributing to this were "carbamazepine, risperidone, or valproic acid."1 However, the Crump et al. study found that people using no medication had an even more elevated mortality rate which confirmed already established findings that medication can help reduce mortality rate, especially from suicide.[1]

One possible way to bring down the staggering mortality rate could be primary preventative care. Chronic diseases in conjunction with bipolar disorder were found to be less fatal to patients who had been diagnosed early with these conditions. This suggests that early diagnosis and treatment could help reduce mortality closer to the normal population level.[1] Therefore, primary preventative care is recommended for older patients with

bipolar disorder in order to reduce the rate of early mortality.[1] Another area of treatment that needs addressing is the high suicide risk of people with bipolar disorder. This elevated risk means more effective assessments and interventions are needed in patient care. Physicians should also take the possibility of comorbid conditions into account when treating patients and avoid prescribing treatments and medication that could worsen or exaggerate some conditions.[2]

In summary, it is easy to see just how severe of an impact bipolar disorder can have on people's lives. A destabilized, ever shifting sense of self and a major risk for comorbidities, coupled with a dramatically reduced life span are all excellent evidence of just how serious this disorder can be. Because of this fact, it is very important that there continues to be research and scientific studies done on the causes, effects, and possible treatments to improve the quality of life and lifespan of people with bipolar disorder so that they may have every opportunity to live full, successful lives.

Chapter 4
Why is Continued Research Into Bipolar Disorder Important?

Simran Bakshi

Introduction

This chapter will discuss the importance of focusing research towards bipolar disorder (BD). It will discuss the societal impact of BD, world-wide prevalence, BD causes (both genetic and environmental), and risks associated with several BD treatments. Bipolar disorder is prevalent across the world, hence, increasing research efforts must be imposed to aid in the management of the mental illness globally. It is also crucial to enhance our research efforts in order to analyze and produce more effective treatments and mitigate risks associated with current medication for patients with bipolar in the future.

Societal Impact of Bipolar Disorder

Employment

Negative consequences such as workplace absenteeism, difficulty reentering the industry, and loss of employment are unfortunately experienced by a vast number of BD patients. The National Depressive and Manic-depressive Association (DMDA) found that 37% of bipolar patients were unemployed (1). Another study conducted by Dickerson et al., found that the employment status of BD patients was significantly related to cognitive performance, particular verbal memory, symptom severity, history of psychiatric hospitalization, and maternal education (2). Hence, it is important to continue to implement research towards the development of vocational programs for individuals with bipolar disorder in order to increase inclusivity and reduce unemployment rates.

Relationships

Bipolar disorder imposes a burden on not only the patients themselves but also their respective caregivers and family members. A study conducted by Dore and Romans found that caregivers reported major distresses in their relationships with BD patients, particularly negative impacts on their personal employment, financial status and legal relations (3). The study found that 76% of caregivers working outside of their home had to reduce their work hours during a patient's episode of illness (3). In addition, a survey conducted by the DMDA found that 57% to 73% of individuals with bipolar disorder were divorcees or experienced marital burdens (1).

Suicide Rates

Individuals with bipolar disorder are at an increased risk of commiting suicide compared to patients of other medical disorders (4). According to Baldessarini et al., suicide rates of patients with BD average approximaltely 1% annually, which is 60 times greater than the international population annual rate of 0.015% (5). In addition, suicide attempts are significantly more prominent at the onset of illness during the primary depressive episode rather than later on (6). Since patients with BD spend 50% of their lives symptomatically, the risk of suicide increases as they endure depressive episodes (6). Hence, it is important to continue long-term research efforts on psychosocial therapies and mood-altering treatments in order to test their effectiveness in reducing suicidial risk in BD patients.

Quality of Life

The quality of life of individuals with bipolar disorder is often impacted. Noteworthily, a study by Koster et al., found a negative relationship between BD characteristics and life satisfaction of adolescents (7). Another study conducted by Hakkaart-van Roigen et al., found that the quality-of-life scores of participants with BD were lower compared to participants of the general public (8). Before 1999, only a mere ten studies were conducted that examined that quality of life in patients with bipolar disorder (9). Thus, it is becoming increasingly important to implement quality of life research during various phases of the disorder, for example, comparing quality of life scores in euthymic, manic or depressed patients with BD (10). In addition, future research comparing quality of life scores of bipolar individuals to patients of other disorders would be beneficial to determine the severity of the overall association.

Worldwide Prevalence of Bipolar Disorder

Bipolar disorder (BD) is one of the leading causes of disability worldwide and equally affects genders, races and classes (11). According to the World Health Organization (WHO), BD affected approximately 45 million people in 2019, globally (12). The worldwide estimated lifetime prevalence of type I bipolar disorder and type II bipolar disorder is 1.06% and 1.57%, respectively (13). Hence, with an approximate world population of 7.9 billion, millions of patients may suffer from bipolar disorder globally. Noteworthily, it is the sixth most common cause of disability in the United States (14). In addition, a meta-analysis conducted recently found that the prevalence rate of BD in primary care was 1.9% (15). Data collected from the 2012 Canadian Community Health Survey: Mental Health and Well-being found that the approximate lifetime prevalence of BD I and II among the Canadian population in 2012 was 0.87% and 0.57%, respectively (16).

Causes of Bipolar Disorder

Currently, scientists and researchers have arrived at the realization that there is no root cause of bipolar disorder and rather that there are multiple factors that contribute to the onset of the mental illness. Further research is required to understand the specific genes that play a role in BD and dissect how the brain's physiology responds to bipolar disorder. In addition,

Genetics

Over the past years, a combination of family, twin, and adoption studies have confirmed that the risk of acquiring BD is accelerated by genetic factors. Various family studies have demonstrated that the prevalence of BD is higher among relatives of BD probands compared to the relatives of individuals with an absence of psychiatric illnesses (17). The estimated lifetime risks of BD in relatives of a bipolar proband are: unrelated members, 0.5-1.5%, first degree relatives, 5-10%, and monozygotic co-twin, 40–70% (18). Similar to other mental illnesses, bipolar disorder is not caused by single gene Mendelian transmission but rather via oligogenic quasi-Mendelian modes of inheritance in combination with environmental factors. (19). In addition, research also implies that genomic imprinting and mitochondrial inheritance may also play a role in the inheritance pattern of BD (20). According to a study conducted by Smoller and Fin, the heritability of BD ranges from approximately 60% to 80% based on concordance rate findings from twin studies (21).

Currently, a plethora of biochemical and neuropathological studies coupled with advanced and novel neuroimaging techniques are being conducted to determine the cause of bipolar disorder. For example, recent studies used neuroimaging to find periventricular magnetic resonance tomography T2-signal white-matter hyperintensities and an enlargement of the lateral and third ventricle among individuals with BD (22, 23).

Environmental Risk Factors

Although bipolar disorder is a highly heritable disorder, environmental risk factors have also shown evidence of influencing the development of the mental illness. For example, a study conducted by Etain et al., found that childhood trauma can impact the clinical expression of the disease related to suicidal behaviour and age of onset (24). Another study conducted by Marangoni et al., found that prenatal exposure to infections is associated with a higher risk of BD in addition to other neuropsychiatric disorders (e.g., schizophrenia, autism) (25). In addition, prenatal stress-exposure also increased the risk of BD (25). Substance abuse, particularly cannabis use, is also another environmental factor that increased the rate of BD conversion within patients with significant depressive episodes (25). Hence, in addition to genetic risk factors, the risk of BD development is increased by environmental factors as well.

Risks Associated with Bipolar Disorder Medication

According to clinical guidelines, bipolar disorder is treated using medications known as, “mood stabilizers”, which help regulate the mental illness. Many bipolar disorder patients continue their treatments for long durations of time (e.g., several years). Additionally, other medications can potentially be added for a shorter time period if needed. Currently, there is a lack of clinical tools available for assessing which drug is the most appropriate for a patient with BD. Hence, it is important to expand our focus to precision medicine within the medical field in order to ensure individuals acquire the most appropriate treatment based on genetic, environmental and lifestyle factors (26).

Lithium

The mood stabilizer, lithium, was first introduced in 1949 and is often a first-line treatment for bipolar disorder. It is proven to regulate maniac episodes and prevent the recurrence of both mania and depressive episodes. However many patients suffer side effects and no benefit from the prescribed treat-

ment (26). Currently, there are no clinical protocols available in the medical field that are able to regulate lithium response or detect the occurrence of side effects among patients. According to a large double-blind, placebo-controlled study by Young et al., lithium did not significantly differ from placebo for the treatment of episodes of bipolar disorder associated with acute depression (27). In addition, the prescription of lithium is associated with several side effects which include: fine hand tremor (28), downbeat nystagmus (28), nausea, and headaches (30). Hand tremors are observed to generally be present during the entire duration of the lithium treatment. Correspondingly, a study conducted by Gelenberg and Jefferson discovered that the side effect of hand tremor was observed by 25% of patients treated with lithium (30). Downbeat nystagmus is a result of lithium toxicity when serum lithium levels surpass the normal therapeutic range (32). It refers to biphasic and involuntary eye oscillations which may affect both eyes (bilateral) or one eye (unilateral) (33). It may be permanent or require a long period of time before improvement is observed post-lithium treatment (34). Minor side-effects such as nausea or headaches can be treated through extra fluid intake. For older patients with BD, it is suggested that therapeutic lithium levels are lower than younger individuals. Clinicians must be cautious when prescribing lithium to older individuals as it may cause dehydration and/or lithium intoxication (35). Lithium intoxication entails confusion, gross tremor, vomiting, diarrhea and ataxia. Thus, the elderly population must be clinically monitored to prevent and treat such side effects. Another risk of lithium treatment is weight gain. A study conducted by Bowden et al., found that an individual undergoing lithium treatment for a year had an average weight increase of 6 kg (36). Also, an additional risk associated with lithium treatment is hypothyroidism. A study conducted by McKnight et al., found an increase in the prevalence of clinical hypothyroidism among individuals receiving lithium treatment compared to individuals given a placebo (37). In addition, they found an average increase in the thyroid stimulating hormone of 4·00 iU/mL (37). Overall, the study found an association between lithium treatment and increased risk of urinating concentrating ability, hyperparathyroidism, weight gain and hypothyroidism (36). Another study conducted by Mehta and Vannozzi reported an association between lithium treatment and cardiac side effects (38). These side effects involved variation in an individual's benign electrocardiographic (ECG) and near fatal arrhythmias (38). The systematic study found that T wave inversion was the most reported finding, however other findings involved sinus node dysfunction, sinoatrial blocks and PR prolongation (38).

Lithium treatment also has a significant impact on the renal functioning of patients. For example, a study conducted by van Melick et al., found that 73% of patients undergoing lithium treatment had a moderate to severe

concentrating defect (39). Hence, there was an inverse relationship between lithium treatment duration and concentration ability of the kidneys. Another study conducted by McKnight et al., found that patients treated with lithium endured an excess decline of 15% in the kidney's urine concentrating ability (38). In addition, long term lithium treatment can result in chronic tubulo-interstitial nephritis which is associated with a decline in the glomerular filtration rate (GFR) and may potentially result in chronic kidney disease (40). Correspondingly, McKnight et al., estimated that the risk of renal failure for individuals undergoing lithium treatment is 0.5% compared to the control group, who have a risk of 0.2% (38). However, currently there is an absence of long-term studies that examine the relationship between lithium treatment and chronic kidney disease and thus, no management methods exist. Therefore, it is important to apply research efforts to gather evidence on lithium nephropathy and seek solutions to combat this problem.

Lithium is a recommended treatment in BD during pregnancy and is used to combat relapse during postpartum (41). However, according to a study by Poels et al., lithium treatment is associated with risks during the pregnancy period for both the mother and fetus (42). According to Oruch et al., lithium has a narrow therapeutic range of 0.5-1.2 mmol/L and is capable of causing lithium toxicity (43). Particularly, pregnant women in their third trimester are prone to lithium intoxication as lithium levels are observed to gradually increase to preconception levels. In addition, if lithium levels in the fetus equate to those of the mother, variation in dose concentrations have the potential to negatively impact fetal health and increase the likelihood of further complications (42). In order to combat this fetal risk, multiple day dosing has been implicated in order to minimize heightened lithium levels. But, multiple day dosing has been observed to increase the risk of renal side effects and hence non-adherence (44). In addition, many studies (44-47) have found pregnant women who were prescribed lithium during pregnancy suffered cardiovascular malformations, including Ebstein anomaly. Ebstein anomaly is an outflow tract obstruction defect of the right ventricle (48). A study by Patorno et al., found that the correlation between lithium and cardiac malformation was dose-dependent, with risk increasing by a factor of 3 if one surppases 900 mg of lithium per day (48). Correspondingly, a study conducted by Reis and Kallen found high rates of congenital malformations after in utero exposure to lithium (49). Hence, it is important to offer women fetal anomaly ultrasounds which also involve fetal cardiac screening at the 20 weeks gestational stage in order to ensure optimal fetal health.

Lithium treatments among pregnant women with BD have also been associated with an increased risk of preterm birth and neonatal complications. For example, a study conducted by Diav-Citrin et al., found that the rate of

preterm deliveries was greater among lithium-treated individuals (13.7%) compared to individuals from the nonteratogenic exposure group (6.0%) (50). Another study conducted by Newport et al., found a positive relationship between infant lithium concentrations and rate of central nervous system and neuromuscular complications along with greater times spent in the hospital (51). There have also been reports of neonatal jaundice (52), lithium toxicity (53) and nephrogenic diabetes insipidus (54).

Valproate

Valproate, an anticonvulsant medication, is also a mood-stabilizer that is useful in treating difficult bipolar episodes. Despite being an effective treatment, valproate is also associated with unfavourable outcomes for BD patients. For example, a study conducted by Chang et al., found that high serum levels surpassing 110 μg/ml resulted in weight gain, sedation and a decrease in platelet count (55). In addition, valproate treatment was associated with an increased rate of polycystic ovarian syndrome (PCOS) which is associated with increased weight gain (55). Another study conducted by Joffe et al., discovered that valproate is associated with the development of PCOS features such as hyperandrogenism (56). The study found that 10.5% of women on valproate developed oligomenorrhea (infrequent menstrual periods) with hyperandrogenism (56). On the other hand, only 1.4% of women on a non valproate anticonvulsant or lithium had an onset of oligomenorrhea with hyperandrogenism (56). Valproate is also associated with potential metabolic disturbances. One study particularly found that groups treated with valproate recorded higher plasma insulin, triglyceride and BMI levels in addition to lower fasting glucose and HDL levels (57). Thus, although valproate has shown promising results of managing BD symptoms, it also has harmful side effects that must be acknowledged.

Closing Notes

As stated in the arguments above, continued research on bipolar disorder is crucial to enhance our understanding of the societal impact, worldwide prevalence, causes and treatment risks associated with bipolar disorder. With the current advancement in medical technology, it is becoming increasingly possible to discover more genes and environmental factors associated with bipolar disorder. Hopefully, researchers enhance their efforts in understanding mental illness and improve treatments in the near future.

Chapter 5
Treatments for Bipolar Disorder

Arnavi Patel

Similar to many other psychiatric disorders, bipolar disorder has many treatments available. These include pharmacological treatments as well as therapeutic treatments. Bipolar disorder is usually treated in two phases: acute and long term prevention (1). The current treatments available aim to treat bipolar disorder in both phases. One of the most common prescriptions for bipolar disorder is a mood stabilizer. Mood stabilizers are pharmaceutical drugs used in acute bipolar disorder and in long term prevention. Common mood stabilizers include lithium salt, valproate, carbamazepine and lamotrigine. Furthermore, atypical antipsychotics have also gained popularity in the treatment of bipolar disorder. Some common atypical antipsychotics include olanzapine, risperidone, quetiapine, aripiprazole and ziprasidone. Aside from pharmaceutical treatments, therapeutic treatments are also used to lower the severity of symptoms of bipolar disorder. Therapies such as family focused therapy, cognitive behavioural therapy, and interpersonal and social rhythm therapy have been prescribed to assist patients in managing and treating their disorder. While there is a vast range of treatments available for bipolar disorder, each treatment has its own advantages and disadvantages. In this chapter, treatments for bipolar disorder will be discussed as well as advantages and disadvantages associated with each treatment.

Pharmacological Treatments

Mood Stabilizers

Mood stabilizers are defined as drugs that act therapeutically in mania and/or depression, prevent future manic and/or depressive episodes, and do not worsen therapeutic or prevention aspects of the illness (2). Mood stabilizers were first introduced to psychiatric treatment in the 1960s, with lithium salt being the first approved (2). Success of lithium was followed shortly by the

introduction of valproate in 1960/1970s (2). By the early 1970s, carbamazepine was also used as a mood stabilizer (2). In the early 2000s the mood stabilizing properties of lamotrigine were discovered and soon were used to treat bipolar patients (2). Before the introduction of lamotrigine, antipsychotics such as clozapine, olanzapine, quetiapine, aripiprazole, and risperidone were also suggested as mood stabilizers (2). However, since they are referred to as antipsychotics, they will be discussed in more detail in a later section of this chapter. All medications suggested as mood stabilizers have varied effects on bipolar disorder (2). Clozapine, olanzapine, aripiprazole, and risperidone all have antipsychotic and antimanic effects, whereas lithium, carbamazepine, and valproate have strong antiemetic effects (2). However, lithium has the strongest antidepressant effect (2). Similarly, lamortigne has a larger effect on depression than mania (2). Out of all the mood stabilizers available, quetiapine has the most balanced effect on bipolar disorder (2).

While mood stabilizers have shown to have a significant effect on the treatment of bipolar disorder, they generally tend to have a varied response within patients. Bipolar patients tend to respond to mood stabilizers differently from one another. One third of the patients treated with lithium salt have an excellent response resulting in total prevention of episodes (2). These patients have been clinically characterized by the clinical course of episodes, complete remission, family history of bipolar disorder, low psychiatric comorbidity, and hyperthymic temperament (2). Patients who respond well to carbamazepine or lamotrigine have also been identified as clinically different from those who respond well to lithium (2). The variability in response from patients is a downside of mood stabilizers. While it is common knowledge that any type of medication will not affect two people the same way, it is still a disadvantage of mood stabilizers. However, research suggests the likelihood of a response from patients can be predicted by the characteristics of their disorder.

Lithium

Lithium is the most commonly prescribed mood stabilizer for bipolar patients. It is the first medication to be used and it has been set as the standard for therapy. Furthermore, it is also the most extensively researched mood stabilizer (3). Lithium is also the only treatment which shows a reduced risk of suicide and suicidal behaviour (3). Patient with bipolar disorder who undergo lithium treatment are less likely to make suicide attempts, require hospitalization for suicidal behaviours, and commit suicide than paitients treated with valporate and carbamzapine (3). However, lithium also has some disadvantages, especially in younger patients. Younger patients tend

to stray away from lithium due to the possible side effects (3). Some side effects include cognitive dulling, tremors, exacerbation of acne, and weight gain (3). Furthermore, patients are also less likely to pursue lithium therapy due to the need for regular blood work and the possibility of developing hypothyroidism and interstitial kidney disease after years of therapy (3). Lastly, lithium also has a low safety index in overdose which adds to the list of reasons to not start lithium therapy (3).

Valproate

Valporate is increasingly becoming more popular as a treatment for bipolar disorder. Patients are now seven times more likely to be prescribed valproate than lithium (3). Valproate is also better tolerated by younger patients and less stigmatized, which is a benefit (3). However, there are also disadvantages that are associated with valproate. To start, it is not well studied for depression in adults (3). Furthermore, its effects on depression in the younger population are also not well studied in controlled trials (3). Valproate, however, is known to have a greater antimanic effect (2). As a mood stabilizer, though, it is discouraging to not know the antidepressant effects on valproate. This may limit choices for some patients. Furthermore, there are also adverse side effects of valproate which may cause patients to stray away from the medication. Some of these side effects include weight gain, changes in hair growth which involves alopecia (excessive loss of hair),hirsutism (excessive hair growth), and menstrual irregularities (3). These side effects are also experienced more commonly in women than men (3). Weight gain, hirsutism, and menstrual irregularities are also common symptoms of polycystic ovary syndrome (PCOS), which suggests valproate can cause PCOS-associated symptoms (3). Since PCOS can sometimes lead to infertility, this may discourage some patients from valproate. However, it is unknown whether valproate actually causes an ovarian change (3).

Lamotrigine

Lamotrigine is the newest mood stabilizer currently being used. It is also the first medication to not have effective antimanic treatment (3). However, it rapidly became the most widely used medication for bipolar disorder (3). Clinical observation shows lamotrigine has benefits for the acute phase of treatment and relapse prevention (3). It also has the highest day to day tolerability and is unlikely to cause sedation, tremors, or weight change (3). However, lamotrigine has two major setbacks. First, the evidence to support the efficacy of lamotrigine is inconclusive. Two studies reported about fifty percent of bipolar depressive patients responded to therapy, and

lamotrigine did not cause treatment emergent affective switches (TEAS) (3). However, two other studies failed to show significant therapeutic benefits of lamorginte on primary outcome measures but did show effectiveness on secondary outcome measures (3). Furthermore, three randomized controlled trials failed to show a difference in effectiveness between lamortinge and a placebo (3). The variation in outcomes between these studies is worrisome because the research is unable to show whether lamortinge is significantly effective in treating bipolar disorder or not (3). The second major setback of lamaortingine is the possibility of a fatal dermatological condition (3). While it is uncommon, in some cases, lamortignage can lead to the development of Stevens Johnsons Syndrome, which is a severe drug reaction characterized by mucocutaneous tenderness, hemorrhagic erosions, erythema, and blisters (3-4). After the start of the treatment with lamotrigine, it is common to develop some beginning rashes (3). However, due to the fatality attached to Stevens Johnson's Syndrome, it is crucial to assess each new rash (3). In some cases, it may be hard to decipher a benign rash from one Stevens Johnson's Syndrome (3). In these cases, treatment may be abruptly stopped to reduce the risk of developing the syndrome (3). However, this may cause a lack of trust for medication with patients and a constant threat of developing a fatal condition may discourage patients from this medication (3).

Antipsychotic Medications

In addition to mood stabilizers, antipsychotic medications have also been proposed as potential treatments for bipolar disorder. Second generation, or atypical, antipsychotics such as aripiprazole, quetiapine, ziprasidone, olanzapine, and risperidone have recently been prescribed to patients. Antipsychotics are prescribed in combination with lithium or valproate, or as a monotherapy (5). However, not all antipsychotics work in the same way. Research shows that when aripiprazole, quetiapine, or ziprasidone are prescribed in combination with lithium or valproate, the overall risk of relapse is reduced (5). Furthermore, quetiapine is the only drug to reduce both manic and depressive episodes when combined with lithium or valproate (5). Aripiprazole has only been shown to decrease manic relapses but not depressive ones, when prescribed alongside lithium or valproate (5). However, reliable data regarding the effect of olanzapine and risperidone does not exist (5). Moreover, regarding monotherapy of antipsychotics, only quetiapine has shown more effective results compared to lithium or valproate monotherapy (5). Compared to a placebo however, olanzapine, quetiapine, and risperidone have all been shown to be more effective in reducing overall risk of relapses (5).

While antipsychotics have been shown to be an effective treatment for bipolar disorder, there are some adverse effects that have been observed. Weight gain has been observed in all second generation antipsychotics (5). Tremors have also been noted in patients receiving aripiprazole and risperidone (5). Furthermore, akanthsia, a movement disorder characterized by restlessness, has also been observed in patients receiving aripiprazole (5). Lastly, sedation has been caused by olanzapine and quetiapine, however, insomnia has been less observed with these medications (5).

Therapeutic Approaches to Treatment

Evidently, there are many pharmaceutical treatments available for individuals with bipolar disorder. All pharmaceutical treatments have been shown to be effective in treating certain aspects of the disorder, however, there are also various drawbacks associated with each. Luckily, there are other therapeutic treatments available. Some of these include family focused therapy, individual therapy, and cognitive behavioural therapy.

Family Focused Therapy

Family focused therapy is an intervention for adults and children living with bipolar disorder, and their caregivers (6). This intervention is usually administered alongside pharmacotherapy (6). As the name suggests, family focused therapy involves working with the patient and their families to provide education regarding bipolar disorder, communication enhancement training, and problem solving skills (6). The intervention usually involves twenty one sessions which are administered weekly, biweekly, then monthly, over the course of nine months (7). Family focused therapy is centered around a collaborative care approach in which the clinical tries to develop a relationship between the patient and their family, and help the family make sense of the interactive roles of biological predispositions, stress, functional impairments, and personal responsibility for change (7). During the first part of the intervention, families are taught about the nature, symptoms, course, and treatment of bipolar disorder (7). They are also taught that episodes of bipolar disorder are an interaction between genetic, biological, familial, and social-environmental risk of protective factors (7). Furthermore, the importance of continued medication and the role stress management has in reducing the likelihood of future episodes is also taught in the first segment of therapy (7). Research regarding the efficacy of family focused therapy supports the notion that it is an effective method of treatment for bipolar disorder. Family focused therapy has been found to speed up the recovery from mood episodes, reduce recurrences, and reduce symptom severity, when

administered in combination with mood stabilizing medications (6). Furthermore, family focused therapy has had a greater effect on patients with highly expressed relatives (6). Evidently, it is clear that family focused therapy is an effective treatment for bipolar disorder, however, it is crucial that family members are engaged in order for the therapy to work.

Cognitive Behavioural Therapy

Another therapy that is often used in the treatment of bipolar disorder is cognitive behavioural therapy. Cognitive behavioral therapy aims to manage and prevent cognitive, affective and behavioural symptoms of the depressive and manic phases among patients with bipolar disorder (8). This therapy employs various strategies intended to reduce negative consequences in the psychosocial and interpersonal areas of a patient's life, thereby improving the overall quality of life of bipolar patients (8). Some of these strategies involve inclusive education for the patient and their families about the treatment and common difficulties associated with the disorder and teaching methods to monitor and track the occurrence and severity of manic and depressive symptoms (8). Furthermore, adherence to medications taken in conjunction with therapy is facilitated through education and a reality test of thoughts and belief (8). Psychological strategies, such as cognitive behaviour ability, to manage potential stress factors that can interfere with the treatment and/or cause episodes of mania or depression are also provided (8). Strategies to reduce trauma and stigma associated with the diagnosis of bipolar disorder are also used (8). In order for cognitive behavioural therapy to be successful, active cooperation of the patient and sometimes their family is required (8).

However, the effectiveness of cognitive behavioural therapy has been debated. A meta analysis by Ye et al., shows cognitive behavioural therapy may not significantly improve relapse rates and depression (9). All of the studies that were examined in the meta analysis show no significant difference in relapse rates between cognitive behavioural therapy patients and patients in the control group at post-treatment (9). Furthermore, significant differences were also not observed at a 12-month follow up (9). However, at a 6-month follow up, significant differences in relapse rates between patients treated with cognitive behavioural therapy and patients in the control group was noticed (9). This suggests cognitive behavioural therapy potentially has a short term effect on relapse rates, however, this effect seems to weaken with time (9). Significant effects in depression levels from baseline to the end of the treatment were also not noted (9). Furthermore, cognitive behavioural therapy did not have a significant effect on depression levels at a 3, 6, or 12

months follow ups (9). However, cognitive behavioural therapy did have an effect on mania levels (9). The meta analysis shows cognitive behavioural therapy significantly decreased the severity of mania (9). However, this effect seemed to also weaken with time as no significant differences in severity of mania was noted at a 3 months follow up or a 6 months follow up (9). Although there are some drawbacks to cognitive behavioural therapy, it has advantages which can be used in the treatment of bipolar disorder.

Interpersonal and Social Rhythm Therapy

The last therapy that will be discussed in this chapter is interpersonal and social rhythm therapy. This therapy is based on the social zeitgeber hypothesis and is centered around the idea that regularity in social routines and stability in interpersonal relationships have a protective effect in recurrent mood disorders (10). The therapy is designed to focus on the link between mood symptoms and the quality of social relationships, importance of maintaining regularity in daily routines, and the identification and management of potential causes of rhythm disruptions (10). During therapy, patients focus mainly on resolving current interpersonal issues, such as unresolved grief, interpersonal disputes, role transitions, and interpersonal deficits, and preventing future problems in the identified areas (10). Furthermore, bipolar I patients have additional problem areas related to the mourning of the life the person could have had if it were not for the disorder, often referred to as "grief for the healthy self" (10). Compared to clinical management, interpersonal and social rhythm therapy seems to perform well (10). In one study, patients in interpersonal and social rhythm therapy went longer without a new affective episode during the acute phase (10). In addition, study participants had a higher regularity of social rhythms at the end of the acute phase which was linked to reduced likelihood of recurrence during the maintenance phase (10). However, no significant differences were noted between clinical management and interpersonal and social rhythm therapy in terms of time to stabilization of the disorder (10). Overall, interpersonal and social rhythm therapy does seem to be a potential treatment for bipolar disorder in the future.

Closing Notes

In conclusion, there are many treatments available for bipolar disorder, whether they are pharmacological or therapeutic in nature. While all treatments have unique drawbacks, they also provide advantages that can be beneficial to individuals with bipolar. However, all treatments seem to have different mechanisms and different effects on patients. This may be a

potential advantage as it provides patients with a vast range of treatments to choose from to fit their needs.

Chapter 6
What is the Science Involved in Studying Bipolar Disorder?

Peter Anto Johnson

Introduction

The science of bipolar disorder is one characterized by multiple dimensions. In fact, it is one in which the body of literature has been continuously and significantly evolving over the last few decades. In this chapter, we attempt to touch the surface of a discussion on a vast and perpetually dynamic, and malleable evidence base. In particular, we will consider the neuroscience and pathophysiology in the brain, ponder the conceptual and psychological frameworks of bipolar disorder, and finally, provide a glimpse into the understandings and insights gained about therapeutics, and pharmacology in the context of this condition.

Neuroscience

At its heart, the brain's function during bipolar disorder becomes significantly compromised. For an individual patient with bipolar disorder, the disruption in brain activity can result in manic, hypomanic, depressive, and mixed affective episodes (discussed below in the Psychology section) to be observed (1). Although shrouded with much uncertainty, a number of hypotheses have also emerged regarding the cause and mechanism of brain dysfunction during bipolar disorder.

Causes

Although the causes of bipolar disorder are still very much unknown, the most commonly recognized cause is genetic and estimated to explain approximately 70-90% of all cases (2). Several candidate genes in vari-

ants such as CACNA1C, ODZ4, and NCAN that contain single-nucleotide polymorphisms (SNPs), which are associated with bipolar disorders (3). According to one study, genetic causes can be a result of lack of or reduced expression of specific DNA repair enzymes and increased oxidative damage to the DNA (4).

The next most common cause is environmental factors. In truth, however, these factors may not be completely isolated from genetic factors. Based on the diathesis–stress model, there may be an interaction between genetics and environment (5). Psychological insults in the environment such as a loss, grievance, harsh childhood experiences, or traumatic life event have been shown to increase the risk of bipolar disorder development and a number of associated psychiatric conditions. In addition to this, there are often complex genetic factors that have predisposed the individual to develop bipolar disorder.

Finally, there may be several neurological causes that can lead to bipolar disorder. These include neurological conditions or injury such as stroke, traumatic brain injury, HIV infection, multiple sclerosis, porphyria, and temporal lobe epilepsy (6). However, these causes are much less common compared to the genetic and environmental causes of bipolar disorder.

Mechanisms of Pathophysiology

As aforementioned, the exact mechanism of action in bipolar disorder is still not fully understood. Nonetheless, many pathways have been proposed to explain the pathophysiology of bipolar disorder. While inexhaustive, several of the following mechanisms we list here are commonly recognized in the literature as mechanisms or aspects of mechanisms involved in the development of bipolar disorders:

1. The most common model for bipolar disorder suggests an imbalance in the function of the two brain systems: the ventral system (regulates emotional perception), which includes the amygdala, insula, ventral striatum, ventral anterior cingulate cortex, and the prefrontal cortex, and the dorsal system (controls emotional regulation) including the hippocampus, dorsal anterior cingulate cortex, and prefrontal cortex segments (7). According to this hypothesis, bipolar disorder occurs when the ventral system is over-activated and the dorsal system is under-activated.

2. Another model suggests that connections within or surrounding the ventricular prefrontal cortex can lead to damage or dysfunction, which leads to bipolar disorder (7).
3. It has also been hypothesized that an increased sensitivity in reward circuits of the basal ganglia, which coordinate motor, cognitive and behavioural function, leads to manic episodes and a lower sensitivity causes depression (8). This model factors in the diathesis-stress model and requires an environmental factor to stimulate the cycle in this circuit for the development of bipolar symptoms.
4. A different hypothesis aligning with the diathesis-stress model proposes that early-life stress and dysregulation in the hypothalamic-pituitary-adrenal (HPA) axis may lead to hyperactivity in circuits leading to bipolar disorder (9).
5. Many incomplete mechanisms suggest the involvement of certain regulatory systems in the brain (e.g., circadian rhythms and melatonin regulation, dopaminergic systems, serotonin pathways, neural GABA and glutamate pathways, etc.) and/or structural components (e.g., mitochondria, sodium-potassium ATPase, G proteins, protein kinase A, other signaling cascade products or byproducts, etc.) (10, 11)

Much of the neuroscience and pathophysiology of bipolar disorders is a work in progress and continues to evolve. Despite this, our insights about the condition in terms of psychological behaviors and symptoms as well as therapeutic management of the condition is much more advanced than our knowledge about underlying mechanisms.

Psychology

Bipolar disorder is sometimes virtually indistinguishable from major depression disorder (1). It is characterized by neutral states and more excitable manic or hypomanic phases of abnormally elevated happy or irritable moods. As discussed in Chapter 2, in some cases, the manic or hypomanic phase may sometimes manifest as creative outlets in a number of fields including the arts, music, science, and humanities. Nevertheless, for many, the frequency, timing, and intensity of this phase could be unpredictable and may vary significantly depending on the individual. Apart from mood fluctuations that are associated with different phases, the cluster of symptoms associated with bipolar disorder have the potential to remarkably impact a person's mood, energy, and ability to function (14). Inevitably, this will have a significant impact on the lives of affected individuals.

In Sigmund Freud's hallmark work on bipolar disorder, "Mourning and Melancholia" originally published in 1918, he attempts to classify bipolar disorder according to his psychodynamic theory (12). In his classification of bipolar disorder, he attributes the cause of all illnesses as a psychosomatic response to loss. He draws a fine line in his piece between mourning, a conscious response characterized by grief, and melancholia, a form of pathological depression – providing a conceptual framework dividing the two types of emotions seen in bipolar disorder. Although he does not explicitly mention or diagnose this condition in his work, Freud provides a basis for the diagnostic approach characterizing both responses as a condition induced by the stimulus, loss. In his psychoanalysis of these two states of mind, he explores the state of the mind in opposite extremities. He defines mourning as a wholly healthy response and the mind's natural inclination to loss. On the other hand, he states melancholia is an adamant disease with symptoms that gradually consume self-esteem, depreciate individual worth and give rise to contemplations of suicide.

According to McLeod, the Freudian psyche is a model constructed to embody a primitive theory that encompassed Freud's subjective views (12, 13). The intangible classifications of id, which is established as instinctual drives limited moderately by ego, and completely by superego, and libido as a form of energy deriving from id, offered an early attempt to characterize the mind. While psychological, his message regarding the state of lament is also philosophical - particularly the notion that prolonged melancholy from loss will only result in a state of immobility, in an emotional sense. According to McLeod, Freud conveys that it is critical to move forward accepting the loss and persisting to live instead of contemplating on the loss.

Apart from the foundational Freudian classifications of bipolar disorder, there also exist classifications based on the behavioural and emotional states or phases of the condition. This is the current classification system that has been institutionalized in many psychiatry practices. Based on this system, bipolar disorder is categorized into bipolar I, bipolar II, and cyclothymic disorders (14). These classifications are made according to the frequency, timing, and severity of episodes.

Manic Episode Criteria:

To be considered as a manic episode, there should be (i) at least one period of time during the week when the person is experiencing high-spiritedness or irritability, (ii) having more energy compared to normal, and (iii) experiencing at least three of the following changes in behaviour (14):

1. Decreased need for sleep (i.e., feeling energetic despite having slept for lesser periods of time)
2. Fast speech
3. Racing thoughts or quickly changing topics while speaking
4. Increased activity, restlessness, or working on several tasks at the same time
5. Risky behaviour (e.g., reckless driving, spending sprees, etc.)

For these criteria to be met, it is critical that these behaviours are compared to what is the representative norm for the person. It is also important that these symptoms are severe enough to be having a significant impact on the patient's life prior to treating the condition. Incidentally, psychosis or a detachment from reality may be present in some severe forms of manic episodes.

Hypomanic Episode Criteria

A hypomanic episode, when compared to a manic episode, is characterized by symptoms of manic episodes which are still present but with a lower severity (14). However, these symptoms must last at least four days consecutively for these episodes to be classified as hypomanic episodes. In contrast to manic episodes, hypomanic episodes do not tend to result in major challenges to daily functioning.

Major Depressive Episode Criteria

Contrary to manic and hypomanic episodes, a major depressive episode is one characterized by low or flat moods (14). For an episode to meet the definition of a major depressive episode, it must meet at least five of the following symptoms including at least one of the first two:

Intense feelings of sadness or despair Loss of interest in activities the individual had once enjoyed Feeling worthless or guilty Fatigue Increased or decreased sleep Increased or decreased appetite Restlessness or slow speech or movement Difficulty concentrating Frequent thoughts of death or suicide

Bipolar I Disorder

For a person to be diagnosed with Bipolar I Disorder, they must meet the criteria for a manic episode (14). In addition to this, they may also meet the criteria for hypomanic or major depressive episodes. Most of the time,

people with Bipolar I disorder have periods of neutral mood as well, which may make diagnosis challenging at times.

Bipolar II Disorder

Compared to Bipolar I Disorder, a diagnosis of Bipolar II Disorder requires that a patient has at least one major depressive episode and at least one hypomanic episode (14). As such, manic episodes are not observed in patients with Bipolar II Disorder. Individuals can likely return to their normal functions in between episodes and in certain cases, hypomanic episodes have a 'positive' effect that patients find pleasurable and that increases their productivity at tasks, and performance.

Cyclothymic Disorder

Relative to Bipolar I and Bipolar II Disorders, Cyclothymic Disorders are reportedly much milder versions of bipolar disorders where some symptoms of Bipolar I and Bipolar II disorders are seen but not severe enough or do not meet all of the criteria (14). Characteristic to Cyclothymic Disorders are "mood swings". For Cyclothymic Disorders to be diagnosed, however, these symptoms which include hypomanic and depressive episode symptoms (does not need to meet all of the criteria) must be present for at least two years, and during this period, these symptoms which typically include mood swings should have lasted for at least half of the time and never stopped for more than two months.

In most cases of bipolar disorders, there are many accompanying comorbidities (14). It is relatively common to observe anxiety disorders, substance use disorders, and/or attention-deficit/hyperactivity disorder (ADHD) in individuals with bipolar disorder. Frequently, these conditions can interact with bipolar disorder and make the symptoms even more severe. As such, these individuals are at an increased risk of suicide compared to the general population. Other times, these comorbidities can lead to the diagnosis of bipolar disorder or the other comorbidity or comorbidities not being diagnosed or even misdiagnosed due to the presentation of symptoms under the criteria.

Pharmacology

The first-line of treatment for bipolar disorder are Lithium and Quetiapine. Certain anticonvulsants such as valproate and carbamazepine are also common therapy for mood stabilization and relapse prevention (15). On the

other hand, antipsychotics are also typically used for management of manic states, episodes, and symptoms (16). They can also function as long-term mood stabilizers and are particularly useful when symptoms are severe or there are significant behavioural changes .

When administering these therapies, monitoring for side effects is critical. In particular, lithium monitoring should include a close obeservation of creatinine and thyroid-stimulating hormone or TSH within 9-12 hours after the dose and then at 4-5 days for steady-state concentration monitoring (15). If the patient is pregnant and over 40 years of age, ECG is also monitored due to the ability of lithium salts to cause electrolyte abnormalities within cardiac cells of the heart. If the patient has a history of polyuria or polydipsia (peeing too much urine or drinking too much water, respectively), using the CANT drugs, which include **c**alcium channel blockers, **a**ngiotensin-converting enzyme (ACE) inhibitors, **n**on-steroidal anti-inflammatory drugs (NSAIDs), and **t**hiazide diuretics will increase lithium levels. When performing a physical exam on a patient who has been administered lithium, it is essential to assess clinical parameters including the presence of any postural tremor, acne or psoriasis, and any weight changes . During pregnancy, lithium can increase the risk of Ebstein's anomaly, a condition where the right atrium becomes large and the right ventricle decreases in size during pregnancy, by 20 times. Even though the risk is still low, patients should nevertheless be warned of this side effect. Based on these parameters and levels of lithium in the blood plasma, practitioners can guide dose adjustments of Lithium, preventing any adverse toxic effects.

Common anticonvulsants including valproic acids, such as Divalproex, and carbamazepine must also be monitored for critical side effects (15). Lung function tests and complete blood counts to monitor for agranulocytosis or lowered white blood cell counts from carbamazepine are crucial. Additionally, the physical exam should also assess tremors, weight changes , alopecia (hair loss in patches, and polycystic ovary disease in women. A history of gastrointestinal upset or sedation is another indication for monitoring levels of these anticonvulsants. It is fundamental to note that Divalproex is the highest risk in the case of pregnancy. These are severely teratogenic and are worse than carbamazepine and lamotrigine and as such, they should never be given in pregnancy.

The starting dose of antipsychotics (normally atypical antipsychotics) in bipolar disorders are always low due to its well-recognized side effects, which include blurred vision, dry mouth, constipation, weight gain, and constellation of features observed in metabolic syndrome (16). As such, regular

health check-ups at least every 3 months are a necessity and should be even more relevant and frequent if the patient is diabetic. Oftentimes, they can be combined with lithium and valproate.

The mechanism of action for lithium and valproic acids depends largely on the Gamma Aminobutyric Acid (GABA) receptors in the brain. GABA is an inhibitory neurotransmitter (15). Patients with bipolar disorder usually have diminished levels of GABA neurotransmission. As a result, low GABA levels can cause increased levels of excitation toxicity in the brain. The effect of lithium is naturally to increase levels of GABA in the brain, which can thereby reduce the amount of glutamate, which is an excitatory neurotransmitter, and downregulate the N-Methyl-D-aspartic acid (NMDA) receptors, which are critical for glutamate neurotransmission. Lithium also directly activates the GABA receptor, which can have an inhibitory effect on the brain. Quite similarly, the effects of valproic acid are also hypothesized to be based around the GABA receptor-mediated effects it can have. However, unfortunately, the literature around valproic acid and its mechanism of action is quite complex and still poorly understood at this time.

Antipsychotics are often categorized into typical (first-generation) and atypical (second-generation) (16). Both are similar in their mechanisms of action in that they block the D2 Dopamine receptors in the brain and thereby inhibit dopaminergic transmission. However, these therapeutics also have their unique effects on the nervous system and the body as a whole that both healthcare professionals and patients should be aware of prior to starting a course. However, even today, much is not understood about the mechanisms of actions of these drugs and their full range of effects and complications within the context of bipolar disorders. Antipsychotics work extensively on the dopaminergic systems of our body. Dopaminergic systems exist in the central and peripheral nervous systems. Dopamine neurotransmitters and receptors have been identified in various organ systems outside the brain, such as the spinal cord, nerves that supply the heart, and even the gut (in the enteric nervous system). There are two broad categories of dopamine receptors - the D1 group (composed of D1 and D5 dopamine receptors) and the D2 group (composed of D2, D3, and D4 dopamine receptors). The receptor families both belong to a class of G-protein coupled receptors, which have a characteristic seven transmembrane domains. Interestingly, these receptor families have distinct second messenger systems which promote subsequent processes in the cell (17).

The receptors are located in the cell membrane and have an amino (-NH2) terminus outside the cell membrane and a carboxy (-COOH) terminus inside

the cell (14). The D1 family of receptors differs from the D2 family of receptors structurally in that it has a long intracellular carboxy-terminal loop of amino acids which make up the protein receptor while the D2 family of receptors have a large third intracellular loop. Functionally, the D1 family of receptors differs from the D2 family of receptors in that it stimulates the formation of cyclic AMP second messengers while the D2 family of receptors decreases the production of cyclic AMP. In doing so, the D2 family of receptors, which includes the D2 dopamine receptors that antipsychotics target, work to modulate cellular ion currents, particularly of potassium and calcium ions.

Moreover, although there are numerous clinical guidelines and recommendations for the management of bipolar disorders, there are no algorithms like that developed for other psychiatric conditions such as schizophrenia (16). As a result, the management of bipolar disorders with antipsychotics may be case-dependent and ultimately rely on the availability, region, and resources of the healthcare setting. Nevertheless, many of the first-line therapies and approaches are similar involving monotherapies initially, followed by combination therapy with other antipsychotics, other medications, or even electroconvulsive shock therapy.

Closing Notes

The science, theory, and practice behind and surrounding bipolar disorder is complex and thus, it is essential to recognize that there is much that is still not known and/or fully understood about this condition. Nevertheless, we are perpetually making progress in this advancing field and hope to gain further insights into this condition in the coming generations.

Chapter 7
What Questions do we Still Have About Bipolar Disorder?

Nasia Sheikh

Bipolar disorder is a serious, chronic psychiatric disorder that affects approximately 1% of the population (1). It is characterized by recurrent depressive and manic episodes, alternating with periods of well-being (1). It is typically associated with other mental and physiological comorbidities and a high risk of suicide (1). Bipolar disorder was first identified in the 19th century and countless studies have been performed attempting to better understand the illness and treat it. Despite this, there is still much that is unknown about this disorder, especially in regards to management and treatment.

Treatment and Medications

Treatment of bipolar depression specifically has been challenging for clinicians, as classic treatments of depression such as antidepressants and lithium show smaller (if any) effects (2). There is some evidence that antidepressants may even worsen the condition of patients with bipolar disorder (2).

One of the major pharmacological drugs used to treat bipolar disorder is lithium (2). It is regarded as the gold standard treatment in preventing recurring mania and depressive episodes in bipolar disorder and has remained so for the last 70 years (2). Over the last decade, a few other treatments have emerged such as second generation antipsychotics and anticonvulsants which have fewer side effects compared to lithium (2). Despite this, lithium is still often considered the first line medication, especially in older patients (2). Although lithium is still prescribed to older patients, there are concerns regarding tolerability and adverse events and requires further investigation. Additionally, there are a number of side effects associated with the use of lithium, especially with long-term use. These include nausea, vomiting, diarrhea, hypothyroidism, renal complications, and even cardiovascular issues

(2). In addition to these side effects, there is some debate about whether or not long-term lithium use has a negative effect on cognition (2). Common complaints from individuals treated with lithium are fatigue, lack of mental clarity, and inability to concentrate (2). Bipolar disorder in itself is also associated with cognitive dysfunction, thus it is unclear whether the cognitive deficits are from the disorder itself or from lithium (2). Future studies should explore the effects of lithium on cognition in bipolar disorder patients.

Although there is evidence that lithium may be beneficial in shortening recovery time, reducing suicidality, and improving overall functioning to some extent, there is little information available on the impact of early treatment on the long-term psychopathological progression of bipolar disorder (3). This could be a life-altering discovery if it is found that early treatment has significant impacts on the progression of bipolar disorder in patients. If it is found that early treatment could significantly minimize or even prevent the progression of bipolar disorder, it would greatly encourage the early identification of the disorder in patients and greatly improve patient quality of life. This could also significantly reduce the burden on the healthcare system if it is effective, as patients with bipolar disorder may not require as intensive treatment throughout their life. This is another avenue of research that should be researched further in bipolar disorder patients.

Another medication that is prescribed to patients with bipolar disorder are anticonvulsant drugs. This is a much newer avenue of medication for bipolar disorder compared to lithium (4). Surprisingly there are only a few anticonvulsant drugs that are regularly prescribed to patients with bipolar disorder and are effective in managing mania, and there are limited studies examining combinations of lithium and anticonvulsants (4). There are theories however, that a combination of lithium and anticonvulsant drugs would maximize synergistic pharmacodynamics effects in the treatment of bipolar disorder (4). Unfortunately there is not enough evidence of the effects of combining these drugs, but this could be an area for future research in treating individuals with bipolar disorder.

A novel technology that could be utilized in treating patients with bipolar disorder as well as provide insight into the pathogenesis of the disorder is human induced pluripotent stem cells (5). Pluripotent stem cells originate from somatic cells, which are easily accessible (5). There is some early evidence by using this technology that suggests that mitochondrial dysfunction might play a role in the pathogenesis of bipolar disorder (5). However, this technology is relatively new and further research is required to confirm these results (5).

Racemic ketamine is another emerging treatment option for bipolar disorder. Preliminary results have shown efficacy in single and repeated dose administration in adults with bipolar disorder (5). Ketamine as a treatment option has a number of benefits including, rapid symptom attenuation, efficacy in treatment-resistant and severe depression, and possible anti-anhedonia and anti-suicide effects (5). Ketamine does not appear to induce hypomania, manic, or psychotic symptoms when compared to placebo, but there is an absence of safety and efficacy data (5). Thus, the possibility of misuse, and gateway activity from ketamine's opioid mechanisms should be considered as serious negative side effects (5). Further research is required to determine if ketamine is a suitable treatment option for patients with bipolar disorder.

Another potential therapeutic option for bipolar disorders is the targeting of central neurosteroids (5). Specifically, intravenous brexanolone has been shown to be effective in postpartum depression (5). This suggests that this may be effective in bipolar depression (5). However, this has not been tested in bipolar disorder patients yet, but could be a potential future treatment option.

Progressions of Bipolar Disorder beyond Early Adulthood

The progression of mania and hypomania in adolescence into early adulthood of patients with bipolar disorder has been well documented, with numerous studies completed on the topic (3). However, there has been little research done to observe and document mania or hypomania beyond early adulthood. This is an important avenue of bipolar disorder that should be studied as bipolar disorder is often a lifelong disorder. There is currently no definitive cure available for patients with bipolar disorder (3), which implies that individuals with bipolar disorder do not suddenly stop having bipolar disorder after early adulthood.

There are many aspects of life that change after adolescence, including physiological, social, and mental aspects. These factors, especially social and occupational functioning, and how they are affected by bipolar disorder have not been studied (3). Since bipolar disorder is a chronic disorder, and often times can be debilitating, it is likely that this disorder will heavily influence an individual's ability to obtain and maintain a stable job and stable relationships. The effects of bipolar disorder on patient quality of life, specifically after early adulthood, is an area of bipolar disorder that requires further research.

Bipolar Disorder in Different Socio-cultural Contexts

The majority of studies completed on bipolar disorder have been completed in the United States of America (3). Bipolar disorder could differ greatly depending on individuals' social standing as well as their cultural upbringing. It is unknown how or if they do differ. There have also only been few studies exploring the cost-of-illness for bipolar disorders in low and middle-income countries (5). Additionally, not all treatments are available in all countries, which results in disparate treatment practices and health outcomes in different countries (5). Further research is required in different countries to determine whether or not differences exist and what that means for patient treatment.

Gut Microbiota in Bipolar Disorder

The gut microbiota is an essential factor in maintaining homeostasis with the host organism as well as in growth and the digestive process (6). Specifically, it plays a crucial role in preserving the barrier of the gastrointestinal epithelium, the luminal absorption of water, electrolytes, and nutrients, and acting as a defense system against toxins and pathogens (6). In the case of psychiatric disorders, the pathogenic role of microbiota can be traced back to the development and function of the central nervous system and other behavioural aspects, specifically the gut-brain-microbiota axis, which is the modulatory action that the microbiota exerts on the brain (6). This relationship could directly be implicated in the development of neuropsychiatric disorders such as bipolar disorders (6) but this topic has only recently begun to be explored in the past few years.

Bipolar disorder is often characterized by the presence of a low-grade inflammatory state, which suggests that the gut microbiota could be involved in the development of the disorder through the modulation of the immune response (6). Interestingly, in a study conducted on patients hospitalized for acute mania, it was found that the prescription rate for recent antibiotic therapy was significant and was associated with greater severity of manic symptoms (6). Another mechanism through which the gut microbiome could play a role in bipolar disorder is through the synaptic pruning process (6). It has been shown that patients with bipolar disorder develop a defect in the synaptic pruning process, which ultimately affects them at a neuronal level (6).

Unfortunately, since the study of the gut microbiome in relation to bipolar disorder is a relatively new avenue of research, there are limited studies

exploring the compositional alterations of the microbiota in bipolar patients during a manic episode (6). There is however, some evidence that suggests that bipolar patients, during a manic phase, have altered permeability of the gastrointestinal barrier (6).

Further research into the gut microbiome and bipolar disorder could also result in novel treatment options for the disorder. Specifically, the use of probiotics and prebiotics may be useful in managing bipolar disorder (6). This would be especially beneficial as this treatment would be non-invasive.

Considering all these factors, it would be interesting to investigate if or to what extent the gut microbiome affects the onset and progression of bipolar disorder. Additionally, it would be of importance to investigate the presence of specific alterations in the microbiota that could be associated with specific pharmacological treatments (6). This could potentially have important implications in clinical practice by providing psychiatrists with an additional factor to consider when abnormal reactions to treatments occur (6).

Genetics and Bipolar Disorder

There is some evidence that there is an association between patients with bipolar disorder and increased propensity for risk taking (1). These two phenotypes are genetically correlated, but there is very little knowledge on the shared genetic determinants (1). The neurobiological determinants of increased risk taking or more broadly, impairments in decision making, are largely unknown (1). However, there are specific subgroups of patients with bipolar disorder that show an increased predisposition to increased risk taking behaviour (1). Despite the fact that a relationship between bipolar disorder and increased risk-taking exists, it is unknown which specific causal genes and biological mechanisms, as well as any possible shared genetic factors between the two are responsible for this (1).

Identifying shared genetic factors between bipolar disorder and increased risk taking behaviour could improve our understanding of the genetics underlying the two phenotypes while also laying the groundwork to develop gene therapy based treatment for bipolar disorder (1).

Insulin and Bipolar Disorder

There is emerging evidence that suggests that disturbances in central insulin signalling and function may play a role in the pathogenesis of bipolar

disorder (5). This is supported by the fact that individuals with bipolar disorder have a higher prevalence of type 2 diabetes (5). Unfortunately the exact relationship is difficult to observe in patients with bipolar disorder due to confounding factors, such as exposure to psychotropic agents, which promotes weight gain (5). Further research is required to identify the relationship between insulin and bipolar disorder.

Cognition and Bipolar Disorder

There is some evidence to support the idea that cognitive deficits are centrally involved in the emotion difficulties characterized in bipolar disorder (7). This idea overlaps with transdiagnostic models of the importance of cognitive deficits, specifically executive function deficits, with emotion-related symptoms in psychiatric disorders (7). If the theory that cognition can explain emotion problems is shown to be true, this would provide a novel way to view emotion difficulties and their treatment in patients with bipolar disorder (7). However, before this idea can be explored further, there are a number of questions that need to be addressed in bipolar disorder literature that have not yet been addressed (7).

First of all, a common assumption about bipolar disorders is that either cognition or emotion are central starting points (7). However, it is more likely that a number of variables are involved as multiple variables are involved in shaping both cognition and emotion (7). For example, early trauma and adversity are both linked to cognitive and emotional deficits (7). Therefore, it is important to consider contextual factors that may contribute to emotional and cognitive deficits seen in bipolar disorder patients (7).

In addition to linking emotion and cognition, there is little known about whether cognition can fully explain the range of emotion problems seen in bipolar disorder patients (7). Currently, bipolar disorder research has been focused primarily on emotion regulation even though emotion experience and reactivity may be of importance as well (7). Understanding the response to standardized emotion relevant challenges and the time course of reactivity and recovery could help explain whether considering cognition as a driver of the facets of the emotional profile of bipolar disorders is appropriate (7).

Another question that should be addressed, perhaps one of the most important, is the question: “which facets of cognition are most centrally involved in emotionality within bipolar disorders?” (7). Much of the earlier research exploring cognition in bipolar disorder has been focused on specific facets of cognitive inhibition or executive function, but it is entirely possible that a

more general cognitive factor guides performance of specific cognitive tasks and emotional outcomes (7). If this is the case, focusing singularly on one aspect of cognition to explain the problems of bipolar disorder would be a flawed approach (7).

Another avenue that has not yet been explored in bipolar disorders is whether the effects of cognitive deficits fully explain the functional outcomes observed among those with emotion dysregulation (7). It is unclear whether emotion qualities can explain functional outcomes beyond the role of cognitive deficits (7). Understanding the relationship between cognition, emotion, and functionality is especially important in determining the most important targets for intervention (7).

Concluding Thoughts

There are a number of aspects of bipolar disorder that have only just recently begun to be explored, with some even living only as a theory with no research completed as of yet. Every one of these aspects could prove to be important in furthering the treatment, management, and understanding of bipolar disorder. Future research efforts in bipolar disorder should focus on exploring these avenues further to provide a better understanding of the disorder and increase patient quality of life.

Chapter 8
What is the best way to help a loved one or yourself who has bipolar disorder?

April Sui

While professional assistance is a crucial component, the care provided by people surrounding patients remains an important pillar in the treatment of bipolar disorder (1,2). These care providers might be hired informal caregivers or unpaid friends and family of the bipolar disorder patient who give support in activities of daily life that differ from that of experts and medical professionals (1,2).

This chapter aims to explore general guidelines for providing care for a bipolar disorder patient as a caregiver and help as a familial relative or friend of the patient. The potential effects on both patient and caregiver as a result of the care provision relationship will also be examined. The following information applies principally to individuals living with bipolar disorder who are over the age of 18. While it is based on the results of scientific research, it is not meant to replace medical advice. It is recommended that the caregiver and care-recipient discuss any issues in treatment with a clinician.

It should be noted that bipolar disorder can present itself in different ways and the caregiving experience will vary across patients (1,3). Deducing what is suitable for a single situation may involve a process of trial and error and the options mentioned in this chapter may not be applied completely in practice (1).

Caregivers

Many individuals living with bipolar disorder have found it helpful to establish support networks. Such a network might include various people in the patient's life. Select friends and family members for companionship

may assist the person with their illness if needed (1). Acquaintances who are more distant such as a close neighbor, may also be a part of this circle. Certain colleagues or people who share areas of interest as well as members of peer-support groups may be like-minded people with whom the patient can communicate (1). Lastly, a stable relationship with a mental health team or clinician can facilitate the best treatment and help the individual better cope with their illness (1).

The type and level of support provided by caregivers will vary. Some may help in preventing relapse while others assist strictly when there is an emergency (1). The person's needs will depend on the severity and phase of their illness. It is possible that they do not need substantial help with their condition when they are doing well (1).

The kinds of support a caregiver might provide can be broadly categorized. Practical help involves daily tasks such as helping with domestic chores and transporting a person to see a doctor if they are ill (1). They might assist with information and suggestions, like participating with the patient in discussions regarding the illness or resources. Companionship might include speaking about ongoing issues or partaking in enjoyable activities together. A caregiver might also be present for emotional support, reminding the person that they have faith in their ability to cope with their illness and to build a good life or reassuring them that they care (1). However, words are not always a requirement to be supportive and non-verbal support may include monitoring symptoms, making oneself available to listen or showing an encouraging gesture (1).

In the Case of an Episode

Manic, hypomanic, depressive and mixed episodes are part of what a person may experience due to bipolar disorder (1,3). Primarily, it becomes important to establish clear and calm communication with the person. Try not to use loud and emotional communication such as overly dramatic displays of concern or yelling and avoid reacting impulsively to the person's actions or words. It is a good idea to be supportive and acknowledge their feelings at such times (1). Next, prioritize assisting the individual to access treatment. Help or encouragement to contact their mental health team can be offered as well as acquisition of emergency assistance should there be a risk to human wellbeing (1). Furthermore, maintain contact with the bipolar person. Listen, observe and ask in an appropriate manner how they are doing so as to keep track of any worsening in their symptoms (1). This might involve a person's sleep, activities and mood (1).

If the person is depressed, particular steps can be taken as well. Offer them comfort and assurance that you care and express concern to a degree that does not overwhelm them (1). Avoid telling or forcing the individual to simply compose themselves as they may not be able to communicate clearly what they need at that moment (1). Remain aware of the existing risk of suicide; depression poses higher risks even though not every bipolar person becomes suicidal (1).

If the individual is manic or hypomanic, additional supportive action can also be implemented. Try to establish a calm environment by minimizing triggers and stimulation that may make their mania or hypomania worse such as social meetings and caffeine (1). Remain alert to the person's manic or hypomanic mood and avoid being caught up in their emotion and obligation to take part in their numerous goals (1). Unrealistic or overly optimistic plans during the manic state may lead to negative repercussions (1). Communicate using brief, clear responses and avoid arguments and lengthy conversations as the person may feel vulnerable and take offence easily regardless of their apparent confidence when they are in an elated mood (1).

Living Well and Enjoying Life

In conjunction to helping the bipolar individual during episodes, there are ways of aiding them to lead more enjoyable lives.

One way to help is to support the individual's medical treatment. This does not indicate managing their medications for them, as that can undermine their self-esteem and exhaust the caregiver (1). Withstanding, if the person is seriously ill and incapable of taking care of treatment on their own, the caregiver may need to take on an active assistance role in this area.

There are also ways in which caregivers and family members may play a role as a part of the person's psychological treatments. Family Focused Therapy, or FFT encompasses the bipolar individual together with their familial relative(s) (1,6). It involves discussion and information regarding the illness, treatment, solutions for managing as well as how to solve problems and communicate as a family (1,6). Family-Focused Treatment-Health Promoting Intervention is a family focused treatment for caregivers (1). Like FFTs, this combination features information concerning the illness in addition to focusing on guiding caregivers with maintaining self-care priorities and reducing health issues such as depression (1,6). Caregiver group psychoeducation brings together caregivers so they can learn about bipolar disorder, treatments, dealing with stress within the family and preventing relapse (1).

While it is not possible to completely eliminate stress from a person's life, it is possible to reduce bipolar triggers (1). First, identify the possible triggers and factors that worsen the person's mood by discussing with them and thinking back to any stressors from previous episodes (1). Encourage lifestyle changes for the person such as maintaining a healthy diet, following a regular sleep schedule and monitoring their level of stimulation (1). Reducing stress can also contribute to minimizing potential triggers (1). Some people with bipolar disorder are also sensitive to stressful situations, such as distressing criticism and conflict, which can lead to relapse (1).

Furthermore, identifying warning signs of illness can prevent relapse for the person in the future. To do so, it is important to know and understand the individual's warning signs by learning about common signs as well as asking the individual themself (1). Be aware of changes in the person's regular manner of being so as to recognize warning signs when they present themselves (1). Pay attention to any mild symptoms that are already present in order to observe signs of the person showing new symptoms or growing more ill (1). Here, communication remains important as it helps to establish a preferred method with the person for telling and discussing with them about their warning signs when they appear (1). Support can be provided in offering them reassurance, monitoring any worsening in the signs and avoiding exacerbation of their unstable mood (1).

Friends and Family of Bipolar Individuals

There are ways in which family members and friends of those with bipolar disorder can help (4,5). Doherty and MacGeorge conducted a study in 2013 of how young adults ages 18 to 30 perceived supportive behavior (4). The paper found several areas of support that friends as well as family members might offer which the participants identified as being helpful (4). Some of these mention ways to help a person with bipolar disorder that are similar to what was discussed concerning caretakers.

The category of emotional support consisted of reappraisal and conversational support, opening up opportunities to communicate and sustain identities not compromised by the disorder. Furthermore, sustaining self-esteem or encouragement and expressions of love were also a part of this category. These types of behaviors were found to address the emotional stresses that come with having bipolar disorder and participants found supportive those individuals who expressed affection, and made them feel better about themselves (4). Conversational support involved actions such as speaking with the person and giving them a space in which to share comfortably, as identi-

fied in the study (4). One participant described how he found it helpful when his friend would periodically call and initiate conversation without explicitly inquiring about his coping with the illness (4). Reappraisal support was described as behaviors that allowed the individual to develop fresh positive perspectives of their situation (4). There were 16 out of the 30 participants in the study who explained how support providers had helped them view bipolar disorder in a different light, in particular concerning the reality of this mental illness (4). Other forms of this support include assisting the person in reevaluating a difficult situation, lightening the mood or discussing a more hopeful point of view.

Encouragement or esteem is another area of support. Behaviors that effectively boosted self-efficacy and self-esteem were identified (4). These were often described as the support provider freely expressing their confidence in the bipolar person's capabilities or making comments regarding their accomplishments and progress (4). One woman pointed out that she was better able to cope with her illness with her mother's expressions of confidence (4). Another spoke of her roommate's helpful actions in commenting on the progress she had made in managing her bipolar disorder (4).

Expressions of love is a kind of support consisting of diverse verbal as well as physical manners of providing support to demonstrate affection towards the bipolar individual (4). For one participant, her mother's gestures and physical closeness, such as placing a hand on her as she was laying down, offered her help in her periods of depression (4).

Everyday support is made up of tangible and activity support, assisting the individual by making contributions to their daily life quality (4). These behaviors were often noted by care recipients as being unintended for particularly helping bipolar disorder on the part of the support provider and could have been unnoteworthy actions (4). Tangible support might come in the form of assistance with financial stability, housing, favors and transportation (4). Financial support was often found to have been helpful, especially in association with necessary medication and treatment payments. Activity support is when a support provider completes an activity with the individual such as spending time with one another, resting around the house or being out of the house together (4). One woman in the study described how even a mundane outing to the supermarket with her mother prompted her to step out of her home and helped her to cope (4).

Illness-management support forms the next constellation of beneficial supportive behaviors, linked to the need for continuous psychiatric intervention

(4). Individuals living with bipolar disorder in the study found it useful when support providers helped them with problems originating from their condition, determining when medical intervention was required, and maintaining regimens concerning lifestyle, counseling and medication (4). Under this category, treatment, vigilance and education type support will be explored.

According to Doherty and MacGeorge, treatment support consists of behaviors that assist the person in persevering with their treatment regimen (4). This may include efforts in medication management and interacting with medical professionals. For one participant, their spouse's encouragement to find a new therapist and involvement in medication management helped them when they were lacking motivation during a depressed episode (4).

Next, vigilance support included actions that served to oversee how the person was going about daily functions or how they were managing in relation to their illness. It was identified by a participant that she found it helpful when her friend monitored and commented on her moods so as to aid her in becoming more aware (4). Another participant mentioned how her friend developed the capacity to notice her abnormal mood alterations and possible contributing factors relating to medications (4).

Lastly, educational support consisted of the support provider expressing clear intent or making legitimate efforts to gain knowledge about bipolar disorder. Examples of this might be taking part in group meetings, conducting research regarding this illness or inquiring about the individual's personal experience with bipolar disorder (4). In some participants, the very notion that a family member or friend desired to improve as a support provider had its own helpful effect (4).

Caregiver Burden

Living with bipolar disorder places a significant load upon an individual, whether that be on a medical, socioeconomic or personal level (2). Additionally, the burdens associated with this illness can also extend to the caregivers and family members who support and care for bipolar individuals (2). Caregiver burden has been previously explained as the problems, hardships and harmful events that impact the lives of a psychiatric patient's loved ones (2). This may include members of the household or family, sometimes extending to close friends.

For those who take care of a person living with bipolar disorder, the nature of their burden may vary depending on their personal conceptions (2). Any previous experience with health services may have an influence upon their beliefs, perceptions and ideologies regarding this illness and thus affect the gravity of the burden they shoulder (2).

It has been found that increased levels of stress and health issues present themselves in such people who play an informal role looking after someone with long-term illness (2,6). Caregiver burden also has been linked to depression, implicating effects on the patient's recovery as it can create additional stress within the living environment (2). Further work still needs to be done in order to better understand the concerns of caregivers so as to modify training and support for them as required.

Overall, there remains no universal solution for supporting caregivers of those living with bipolar disorder and the facilitation of access to more specialized interventions may be needed (2). In general, information availability to caregivers as well as family and friends continues to be important as such support providers play a crucial informal role with potentially positive effects on the lives of bipolar individuals and the relationships between them (7).

Chapter 9
Stigma Around Bipolar Disorder

Asfar Khan

Introduction

What is "stigma"? "Stigma" is systemic or internalized negative stereotypical attitudes or beliefs around a specific matter or subject. The stigma around bipolar disorder would then be internalized or systemic negative beliefs/attitudes around bipolar disorder (1). These stigmas result in discriminatory behavior and direct harm against those with bipolar disorder (1). In today's society, the overall stigma around bipolar disorder is that mental illness is a flaw, a weakness, and in certain cases associates individuals with bipolar disorder as unpredictable, and violent (1). These stigmas can be present at multiple levels (1). These stigmas can be present in the immediate circle such as family and friends, in the healthcare system within healthcare professionals, and even within the individual diagnosed with bipolar disorder themselves (1).

Stigma can take three different forms, structural stigma, social stigma, and self-stigma.Structural stigma refers to institutional stigma, present to the policies and practices of institutions that hold power (1). Social stigma is the presence of stigma within an individual's social circle, or how social groups push forth stereotypes about the stigmatized disorder (1). Self-stigma is negative self-belief and attitude about one's own disorder (1). This can result in decreased quality of life, social exclusion, and withdrawal (1). In some cases, the stigma may even serve as a barrier when it comes to seeking help or treatment (1).

How is Stigma Measured?

Stigma is most appropriately measured using an array of different qualitative research techniques (1). The benefit of using qualitative techniques is

that it allows the researchers to capture personal anecdotes attached to an individual's stigma (1). Quantitative techniques and tools have also been developed (1). Some examples include the Mental Illness Stigma Scale (MISS), the Mental Illness Clinicians Attitude Scale (MICA), the Opening Minds Scale for Health Care Providers (OMS-HC), and the Internalized Stigma of Mental Illness Scale (ISMI) (1). The Mental Illness Stigma Scale is a general scale that is given to adults and measures different factors such as anxiety, hygiene, treatability, and recovery (1). The Mental Illness Clinicians Attitude Scale and the Opening Minds Scale for Health Care providers are similar tools to the Mental Illness Stigma Scale, however, are specific to a population (1). Finally, the Internalized Stigma of Mental Illness Scale is a self-reporting questionnaire that measures self-stigma, looking into areas such as perceived discrimination, alienation, and social withdrawal (1).

In this chapter, we will discuss the different literature identified pertaining to the stigma surrounding bipolar disorder. The evidence identified will be based on a systematic literature review conducted by Hawke et al., 2013 (1).

Bipolar Disorder and Stigma

The systematic literature review identified five qualitative studies that discussed stigma in relation to bipolar disorder (1). The first study was by Michalak et al., 2006 (1). The authors conducted a qualitative study to learn about how stigma affects bipolar disorder from 35 individuals with bipolar disorder, 5 family members, and 12 healthcare workers. Results of the study found that stigma did in fact have an effect on the quality of life of individuals with bipolar disorder and has impacts in the workplace as well as the healthcare industry (1). The second study was by Sajatovic et al., 2008 (15). The authors of this study found similar results by conducting a qualitative study, exploring how stigma relates to bipolar disorder through the experiences of 19 individuals with bipolar disorder (15). Overall, the authors found that bipolar disorder was highly stigmatized and that individuals with bipolar disorder often concealed their disorder (15). However, participants noted that at times, sharing their diagnosis with supportive individuals was beneficial (15). The third study was by Proudfoot et al., 2009 (2). The authors of this qualitative study looked at a sample of 26 patients with bipolar disorder and found that bipolar disorder was isolating due to the stigma (2). Additionally, the participants noted that the stigma often resulted in the distance between family/friends and the individual diagnosed (2). Interestingly, the participants also discussed a potential solution to the stigma through educating individuals about bipolar disorder, strengthening social networks (2). The fourth study was conducted by Ward et al., 2011 (3). Ward

and the authors explored the lived experience of 12 individuals with bipolar disorder and substance abuse disorder (3). It was found that one dominant theme amongst both disorders was stigma (3). The individuals felt that their disorder's label overshadowed their good qualities, and that stigmatization was felt in their personal lives, the workplace, the healthcare setting, and overall life (3). Finally, a study by Suto et al., 2012 explored the subjective experience of 28 individuals with bipolar disorder and 16 family members of individuals with bipolar disorder (1). Overall, it was found that structural stigma restricted opportunities for those with the disorder, specifically leaving them devalued at work, school, or in the healthcare setting (1). Another outcome of this study was that bipolar disorder was found to be portrayed in a negative manner in the media, and that was a strong contributing factor to social stigma, affecting relationships and quality of life (1). Participants also described that with the disorder came shame and self-judgment from internalized self-stigma, which ultimately affected self-esteem, and resulted in social exclusion, diminished goals, and withdrawal (1). In all five studies, it was found that bipolar disorder is highly stigmatized, and often that stigma is internalized. Individuals with bipolar disorder experience this stigma in their social circles, in the healthcare setting, in the workplace, and in school (1). In the latter areas, the stigma around bipolar disorder was found to limit professional growth and resulted in the concealment of the disorder from surrounding social networks (1). However, it was noted that sharing the diagnosis could also lead to help if shared with a supportive network (1).

Stigma and Functioning

The systematic literature review also identified eight different studies that discuss the impact of stigma on different domains of functioning for individuals with bipolar disorder (1). Vazquez et al., 2011 was a study that consisted of a sample of 241 bipolar disorder patients, and it was found that there was more overall functional impairment associated with high levels of internalized stigma, and stigmatizing experiences (5). Similarly, Cerit et al., 2012 explored the relationship between stigma, functioning, symptoms, insight, and social support amongst 80 patients with bipolar disorder (6). It was found that in individuals with bipolar disorder, self-stigma was inversely correlated with overall functioning (6). Self-stigma was found to be higher in individuals with less education, and manic episodes, and depressive symptoms, and less social support, more hospitalizations, was also found in those with more self-stigma (6). Furthermore, stigma was found to be a significant predictor of functioning (6). Thus, self-stigma was found as a prognostic factor that could be targeted in the pathway for bipolar disorder therapy and improving overall function (6). In order to examine the relationship between stigma and overall function in specific domains, Thome et al.,

2012 analyzed 60 patients with bipolar disorder (7). The authors of the study found that stigma was most strongly associated with interpersonal function, cognitive function, and leisure function. However, there was an association between stigma and all functions across the board (autonomy, cognitive, interpersonal, leisure, financial, and occupational) (7). Overall, this study highlighted the extent of the effects of stigma within bipolar disorder (7). Given the impact that stigma has on social support networks, several studies have specifically examined social functioning. Perlick et al., 2001 looked at the relationship between self-stigma and social functioning among 264 patients who had recently experienced an episode of bipolar disorder (1). The authors found that a high sense of stigma following an episode was a significant predictor of lower social and leisure functioning (1). They did find that stigma did not significantly predict family function or overall function, suggesting it is specific to certain domains (1). Hayward et al., 2002 conducted a pilot study of self-stigma, social functioning, and self-esteem in 186 individuals with bipolar disorder, and stigma was again found to be inversely related to social functioning, and self-esteem (9). Aydemir and Akkaya 2011 looked at the relationship between social anxiety symptoms, self-esteem, and stigma amongst 150 patients with bipolar disorder (10). It was found that stigmatization was associated with lower self-esteem, high social anxiety, and overall social functioning (1). The occupational function was also measured in a study conducted by Michalak et al., 2007. The authors qualitatively explored the relationship between bipolar disorder and occupational function in 35 individuals with bipolar disorder (12). It was found that many of the participants felt that stigma had led to job loss or had affected career growth (12). Overall, in all studies, there was a relationship between stigma and functioning in multiple domains in individuals with bipolar disorder (12).

Stigma's Effects on Those Around You

Stigma is known to not only affect individuals diagnosed with bipolar disorder but also known to affect those around them (i.e. family and friends). Through another systematic literature review conducted, Hawke et al., 2013 explored stigma experienced by family members of individuals with bipolar disorder (1). Five studies were primarily identified. Gonzalez et al., 2007 and Sachs et al., 2003 analyzed a sample of 500 family members and 500 individuals with bipolar disorder (11,13). They divided the participants into two groups (family members of patients who were symptomatic, and those who were well for the past year) (11,13). It was found that stigma was more significantly associated with ethnicity, bipolar disorder, and lower social interaction and perceived support (11,13). For family members of stable patients, stigma was also associated with being the parent of a child with

bipolar disorder, and lower levels of education and social interaction (11,13). These studies highlight the importance of stigma in family members (11,13). Another study by Perlick et al., 2007 analyzed the relationship between stigma and depressive symptoms of primary caregivers (1). It was found that stigma uniquely predicted caregiver depression (1). However, they also found that this relationship could be mediated with social support (1). This highlights the importance of a strong social network for individuals who may be particularly vulnerable to depressive symptoms (1). Further analysis by Perlick et al., 2008, found that stigmatized caregivers reported higher levels of stigma, higher levels of burden, and less control over the events in their lives than other caregivers (1). Tranvag and Kristofferson interviewed 8 individuals who were spouses of individuals with bipolar disorder about how their spouses' bipolar disorder has impacted them (8). The most common theme was stigma. Spouses reported negative rumors beginning in their social circles when their spouse was diagnosed with bipolar disorder or hospitalized for it (8). They also discussed the distancing of family members and friends, and ultimately led to spouses withdrawing from social networks (8). Overall, these studies demonstrated that stigma extends beyond just the individuals diagnosed with bipolar disorder but also heavily affects families and friends of the individuals with bipolar disorder (8). The result of this stigma has been social withdrawal, decreased social support, and negative effects on the family members' health (8). These effects can accumulate, and add to the heavy burden of supporting and caring for a family member affected with bipolar disorder (1). Other things to note are that bipolar disorder diagnosis has led to stigma that has been particularly prominent in some cultures versus others (1). All in all, the stigma around bipolar disorder affects not only the individual with the diagnosis but also those around them (1).

Accounts of Bipolar Disorder and Stigma

To understand the effects of stigma in individuals living with bipolar disorder, it's important to explore personal accounts, to give a holistic overview of the issues at hand. Thus, we will discuss the personal account of Gabe Howard, an individual living with bipolar disorder (4). Howard discusses his personal experiences with stigma and discrimination having bipolar disorder, from small aspects of life-altering to major ones (4). When asked about his stigma, Howard said (4):"As a person who lives with bipolar disorder, I have faced a lot of stigma and discrimination, from extreme examples, such as being fired from my job, to small things, like a doctor assuming that I'm on disability (when I've never been on disability). People tend to make blanket assumptions about my life based on a lot of false stereotypes surrounding bipolar disorder and those of us who live with it. People believe we are unable to work, can't be in stable relationships, and must live off our

parents, among other things. These misconceptions hurt, and they can slowly chip away at someone's self-worth and confidence. For example, I own my own home, drive a nice car, have an adorable puppy named Peppy, and love my 75-inch television. When people begin to realize that I'm not the version of someone living with bipolar disorder that they have in mind, a sort of "mental gymnastics" begins to take place. Rather than take my life at face value, as they would for anyone else, they try to make the undeniable facts in front of them fit within their stereotypes of what a person with bipolar is like. First, they start to wonder if I'm in debt up to eyeballs or if I come from a wealthy family. I'm not in debt -- I avoid debt like the plague and don't even have a car loan -- and, while my family is comfortable, my retired, truck-driving father isn't going to be featured on an episode of Lifestyles of the Rich and Famous. Then, when they learn that my wife has a good job, there is an "a-ha" moment in people's minds. They know that I work in mental health advocacy, so they assume my job is some sort of "jobs program" for people with mental illness, rather than a hard-earned career at which I'm quite accomplished. People further assume that my wife makes all the money, and I'm mooching off her success. I've endured comments like, "I wish my son/daughter would marry someone with a steady income like Gabe's wife." I mean no disrespect to my wife when I say this, but, in fact, I make more money than she does, and our accomplishments are equally shared. We are both successful. We achieve together and share equally in the spoils of my success and hers. To have my contributions erased based solely on the knowledge of my illness is a devastating blow. That it is unwarranted and untrue makes it all the worse. I wish people would stop and consider why they feel compelled to force people with bipolar disorder to fit in a specific box. It's nonsense, if you stop and think about it. Do they think the same thing about every single person with any illness? We all have different levels of abilities, intelligence, and value systems. While all of us living with bipolar disorder do have our illness in common, that is really where the similarities end. Treat us the same as you would everyone else, because we are just like everyone else (4)."

Chapter 10
How is Bipolar Disorder Represented in Popular Culture

Anthony Chen

Bipolar Disorder in popular media is often characterized by a plethora of stereotypes which many believe is harmful in its misrepresentation. Bipolar disorder in popular culture is often associated with criminal, violent, impulsive, and irrational activity. The media plays a huge role in enforcing norms in mental health and its perception and may reinforce negative stereotypes against people with bipolar disorder and/or cultivate new negative associations with bipolar disorder. Fictional or journalistic narratives can create stigma and influence audience attitudes towards bipolar disorder, and even shape the understanding of bipolar disorder for those who are unfamiliar with the condition. Moreover, these stigmas created by media can nurture discrimination against those living with bipolar disorder in employment, health, and social interactions. Stigma can heavily discourage people who have bipolar disorder from getting diagnosed or seeking treatment due to fear of social perception. Since the media significantly shapes audience perceptions of bipolar disorder and the people living with it, it is important to understand the narratives present in television and print that inform such perceptions.

By The Numbers

Modern television includes a lot of shows associated with mental health disorders, and these shows frequently overlap with shows that portray crime. A meta-analysis has been conducted in which a sample of 983 characters from 65 episodes of the top-rated crime dramas on their depiction of mental illness. Several response variables were collected on the various characters including race, age, sex, role in the episode, mental illness labels, violence victimization, crime victimization, physical appearance, and social standing.

Social standing of the characters was based on a number of factors such as: whether the character had friends, whether they were employed, whether they had family, and their socioeconomic status (1).

Based on certain statistical tests it was found that violence against characters that were mentally ill was significantly higher than the general population. However, the more striking difference was that mentally ill characters committed violence at a much higher rate (51% as opposed to 18%.) Similarly, they tended to be more involved in crime and were more likely to be the perpetrators of crime. Moreover, 41 percent of characters that were mentally ill demonstrated poor grooming and hygiene. An additional 44 percent of mentally ill characters wore dirty or ill-fitting clothing and had abnormal facial expressions. Finally, in terms of social standing, mentally ill characters tend to be middle class, have fewer friends, and have a much higher chance of being unemployed in comparison to the general population (1). These trends confirm that harmful narratives are being pushed onto individuals living with bipolar disorder and other mental illnesses. They are more often than not portrayed as non-functioning members of society who resort to criminal and violent activity. The portrayal of bipolar disorder specifically is often conflated with psychotic and unhinged actions. There are some confounding variables in the study as the demographics of this crime-television is inherently not representative of reality. The vast majority of characters analysed in the study were white. Moreover, minority groups other than black people were very rarely represented in these broadcasts. There is also a significantly higher proportion of male characters as opposed to female characters. As such, white males are most commonly associated with mental illness and bipolar disorder.

Homeland

The most popular television broadcast depicting bipolar disorder as listed on IMDB is the American Thriller series, Homeland. It portrays Carrie Mathison, a lead CIA agent with bipolar disorder, who is suspicious of Nicholas Brody, a prisoner of war, who she believes to have been "turned" Al-Qaeda. While Mathison is initially portrayed as a competent, intellectual, and functional individual, she descends into common stereotypes such as being impulsive, irrational, unstable, and dangerous, as her disorder progresses. Even though these imaginative decisions can be used effectively to dramatic effect, they are negatively impacting the perception of bipolar disorder presenting it as something to be feared. Even while she was completely functional, Mathison's illness is treated with guilt and secrecy, reflecting the social stigma surrounding bipolar disorder.

In season one, Carrie Mathison is not representative of a stereotypical person living with bipolar disorder. She is employed by the government, has many friends, and is very competent. She is shown to be highly perceptive, logical, analytical, and proficient enough to become a CIA agent. However, her bipolar disorder is treated as a dirty secret, a stain on her otherwise admirable character which she must keep secret from her employers. She must secretly obtain antipsychotic medication in secret from her psychiatrist sister. She believes that registering in formal treatment will be detrimental to her career (2). Although Mathison herself is competent, the show still acknowledges the stigma which makes her mental condition unemployable. The show demonstrates that even if an individual manages their bipolar disorder with adequate self-care and medication, they are not considered "normal". Carrie's difficulty in seeking professional help due to employer stigma also illuminates and reflects the real-life social stigma. In 2019, of the 51.5 million adults diagnosed with mental illness, only 23.0 million received treatment (3). It can only be assumed that far more adults, like Carrie Mathison, are undiagnosed and find difficulty in seeking help. Season one of Homeland represents these struggles realistically but uses the strong and competent character of Carrie Mathison to empower those living with them.

However, in later seasons of the show, many of Carrie's virtues shift, and she begins to become a more helpless and uncontrolled person. In season two of Homeland, Carrie Mathison's personal life is portrayed more in-depth where she is shown as a "troubled woman" who is desperate for fulfillment and meaningful relationships. She has sex with Brody despite knowing his criminal activity and becomes very attached to their relationship. She even becomes suicidal as her desperation reaches a peak (2). The implications being that even a correctly medicated individual can suffer severely from dysfunction. In season three, Mathison decides to stop her antipsychotic treatments which she believed to have been interfering with her cognitive ability and judgment. However, through this she becomes increasingly impulsive, she threatens Saul and lashes out at her superiors. Eventually, Saul discloses Mathison's condition to Congress and she is detained in a psychiatric hospital where she is medicated to an unhealthy extent (2). While these events in of themselves could be understood as a reflection of the patient non-compliance and the crooked treatment strategies imposed by some psychiatric hospitals, the context revealed later sparks more controversy. Mathison's medicative decisions were revealed to be a deliberate plan of hers to lure out Al-Qaeda perpetrators. The manipulation of her own mental health undermines the severity of these actions while still portraying Mathison as helpless and lacking control. In the end, Carrie Mathison becomes another dysfunctional woman, rather than the competent CIA agent, capable of so much on top of handling her bipolar disorder.

Infinitely Polar Bear

Infinite Polar Bear is a 2014 comedy-drama set in the late 1970s following a family. The father, Cameron Stuart, is living with bipolar disorder and the mother, Maggie, must find out how to support their two daughters. One day, Cameron has had a psychotic break and is fired from his job and hospitalized. Thus to take care of their children, Maggie moves the girls to a small old apartment in a bad neighbourhood (4). Here the idea of the traditional nuclear family is subverted as the mother becomes the provider in the place of a dysfunctional father. The crippling and depressing reality of bipolar disorder is explored, with those being affected with psychosis being unable to provide for or support their family. However, the compassionate attitude of Maggie towards her husband's troubles reflects a sympathetic tone. Eventually, Maggie goes to get a MBA degree and Cameron is forced to live with and take care of their daughters. Cameron, often experiences episodes of mania where he sometimes leaves the house randomly at night and works on spontaneous and messy art projects which is a charming nuisance for his daughters (4). It is often represented in the media this correlation between bipolar disorder and creativity. It is an interesting observation that demonstrates the positive associations that media narratives can create about mental illness. However, in scientific literature little correlation has been found between bipolar disorder and creativity (5). Even if scientific literature cannot confirm this relationship, these media narratives connect with many people living with bipolar disorder and offer a positive hopeful message.

Eventually, Cameron reveals to Maggie that he has stopped his lithium treatment and has been self-medicating with alcohol instead. In popular media, the frontline procedure for addressing bipolar disorder is often lithium despite its possible severe side effects. In reality, lithium is now rarely used as a frontline medication for bipolar disorder and is reserved for serious cases where it is used in combination with other therapies (6). Additionally, the relationship between mental illness and drug abuse is often enforced in the media, and while the narrative may be harmful, Infinitely Polar Bear rendition of the drug problem is nuanced. Cameron understands the implications of his drinking but he is also in great pain which he must soothe. His daughters help and encourage him to stop and he does his best to follow their advice. In the end, Infinite Polar Bear demonstrates that while people living with bipolar disorder will have symptoms; while they will have manic and depressive episodes; even if it’s severe enough to where they can’t work, they can still be great productive members of society and great parents. Cameron, although sometimes impulsive and difficult to deal with, always drives his daughters to school on time and gives them a healthy and encouraging upbringing. The film creates the narrative that bipolar disorder does

not have to cripple a family; that childhood with mentally ill parents can be a not so horrifying experience after all.

Silver Lining's Playbook

Silver Lining's Playbook is a 2012 comedy-drama film that is based on a book of the same name. The story begins when the protagonist, Pat Solitano, is released from a mental health facility into the care of his parents. Pat lives with bipolar disorder and was sent to the mental health facility after he severely beat a man with whom his ex-wife was having an affair (7). The framing of bipolar disorder being associated with violent acts exists here, yet Pat is still the sympathetic character. This negative association, while still being propagated, is somewhat justified in the film and is not impulsive to the point of abnormality. Pat is yet another bipolar character who is not self-dependent and must live in the care of others. This reflects the real life attitudes regarding bipolar people and their capabilities to live normally. Silver Lining's Playbook presents the common and daily struggles associated with bipolar disorder with Pat not being able to sleep, having paranoia, not complying with his medications. These common struggles humanize people suffering from bipolar disorder by showing that their everyday problems can be relatable for many types of people. Nonetheless, Pat also demonstrates many symptoms that healthy individuals may have a harder time relating to: hallucinations, periods of rage, and a lack of understanding of the effect of his words on others. Pat often speaks incredibly nonchalantly to the point of hurting people around him (7). Media portrayals like this connect bipolar disorder with social cognition. This may be a harmful association considering that studies have shown that the majority of people living with bipolar disorder show adequate social cognition and emotional intelligence (8).

However even with his flaws, Pat remains an understandable and sympathetic character who is not only defined by his disorder. He focuses heavily on the "silver linings" of life and tries his best to avoid sources of negativity (7). Though his methods are sometimes unrealistic, Pat is a man who works towards happiness. Notably, this is a counter-narrative to most popular depictions of mental illness in which its victim fails to address or take care of their own mental health. Additionally, rather than being an unfulfilled loner, Pat is surrounded by family and friends who are truly supportive to him. This is another counter-narrative as most depictions of bipolar disorder portray lonely people who perceive mental health as a personal and private struggle. Silver Lining's Playbook demonstrates the healthier way to address mental illnesses, which is to share the burden with the people who are willing to support you. As studies have found, bipolar disorder is greatly

associated with social interactions which challenge negative thoughts and may prevent major manic or depressive episodes (9). Pat's condition helps challenge public perception of bipolar disorder as a personal neurological disease and suggests that mental health is a deeply social ordeal. Eventually, Pat finds a new lover as well as a sense of belonging in his family. His journey to find love is innovative as it demonstrates that people living with bipolar disorder can still find happiness and fulfillment with the right relationships and attitudes.

Mr. Jones

Mr. Jones (1993) follows its namesake, a man living with bipolar disorder, who takes pleasure in his exaggerated manic episodes. Mr. Jones performs incredibly impulsive acts during his manic periods such as pretending to be the conductor in a classical music concert and climbing construction sites. During these periods he feels free, imaginative, and capable; he doesn't want to take medication and give up these moments (10). Mr. Jones portrays bipolar mania as a destructive yet incredible sensation that brings happiness. However, for many individuals living with bipolar disorder manic episodes are incredibly scary; sometimes sleepless and tasteless. To represent bipolar disorder in this type of positive and comical fashion can be a disingenuous narrative that trivializes the severity of bipolar mania. At the same time, some individuals find this portrayal refreshing as Mr. Jones, unlike most other characters with bipolar disorder, is not a victim of his disease. Like Infinitely Polar Bear, Mr. Jones presents the imaginative and creative aspects of bipolar disorder. Mr. Jones eventually falls in love with his doctor, Libbie Bowen, who is fascinated with his charm. Like Silver Lining's Playbook, Mr. Jones creates a humanizing narrative where bipolar individuals can still find love and fulfillment.

Conclusion

Many films and television series try to portray bipolar disorder. It is the unfortunate truth that most often it is used as a device for dramatic effect. Violent and impulsive portrayals of characters with bipolar disorder can lead to public misunderstanding and stigmatization of the illness. In-depth, realistic, and positive media explorations of bipolar disorder and the experience of living with it are thus essential in building better public perception, and to encourage people to truly care for their own mental health.

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