Assistive Technology Options for Students with Early Onset Bipolar Disorder

What is bipolar disorder?

Early onset bipolar disorder is a serious brain illness that affects young children. Bipolar disorder is generally diagnosed in the early to late teenage years, and lasts the rest of the person's life. However, early onset bipolar disorder can be diagnosed in the very young. Anyone can be diagnosed with bipolar disorder. Genetic factors may play a role, as sometimes this disorder is found to run in families. Scientists discover new things as technology allows them to visualize how the brain works. While each diagnosis of bipolar disorder is unique, as individuals are unique, they do share some of the same general symptoms. It is important to note that teens go through normal ups and downs, however, this disorder is much more extreme. (NIMH/NIH.GOV)

This disorder has also been called "manic depressive/manic depression". There are little to no physical impairments as a result of this illness, instead however, the mood is affected, as is overall well being. Individuals with this disorder exhibit "mood episodes". These episodes can include a change in mood along with unusual sleep patterns. Their behavior activity levels and thoughts are affected also. In children an initial cause for concern might be behavior that is very different from their "normal", or the "normal" of those in their cohort. Manic behavior can last days, weeks, or sometimes longer. During manic episodes children and teens may feel very happy, or they might act sillier than they generally do; they might have a very short fuse, or talk really fast about many different things. These kids might have trouble sleeping without feeling tired. They may engage in risky behavior, putting themselves or others in dangerous situations. On the other side of the coin is the depressive episode. During a depressive episode they might feel very sad or despondent. They might complain about pain in their bodies, and sleep either too much or too little. They might binge eat, or not eat enough. And most tragically, they may think about death and suicide. They could even potentially have a mixture of these behaviors/feelings and run very hot/cold. (NIMH/NIH.GOV)

Young people diagnosed with bipolar disorder may have other problems at the same time. They might also have ADHD, which makes it difficult for children to remain focused for

extended periods of time. They may also have anxiety disorders, or exhibit signs of substance abuse. It is important to watch for signs of kids diagnosed with this showcasing suicidal thoughts or tendencies.

In general, a bipolar adult can have intense “mood episodes” that can last weeks or months at a time. Children on the other hand may cycle through rapid shifts many times a day. Many children are difficult to wake up in the morning, but have increased energy throughout the afternoon and into the evening hours.

The signs and symptoms of early onset bipolar disorder are challenging to identify because there are no tests per say to diagnose it. A doctor will generally ask questions about the child’s mood and sleep patterns, and family history/living conditions. Neither brain scans such as MRIs nor blood tests will point to a diagnosis. Doctors will try to rule out other things before a diagnosis is given. (bipolar child) Children as early as 18 months old can show signs of early onset bipolar disorder. These little ones are very difficult to settle, they rarely sleep, and are very anxious when separated. (bipolar child)

At this moment in time the DSM (The Diagnostic and Statistical Manual of Mental Disorders) lists bipolar disorder in the “Adult mood disorder” section, because until recently, “it was not thought that children could experience manic symptoms.”(jbrf.org) There are some children who do meet the criteria, and do receive a diagnosis. Most children do not meet these criteria however, because their moods cycle much more frequently, and there is some debate that these children might be suffering from something else entirely. (jbrf.org) It is unanimous amongst professionals regardless of where they find themselves in the debate, that these patients need a further classification of their illness, so they can receive the help they require. (jbrf.org)

Children misdiagnosed with only ADHD, ODD (Oppositional Defiance Disorder), OCD, or major depression may be given medications that make undiagnosed bipolar symptoms worse, as antidepressants and stimulants can work against a bipolar system. In a journal written in 2001, research was compiled in an effort to determine if early onset bipolar disorder was a result of prescribing stimulants for ADHD. They found that there was a correlation between age of onset and stimulant use. (DelBello et al, 2001)

This disorder itself is not terribly disabling, however it is usually accompanied by other disabilities that require assistance in a school setting. Students in this situation may require assistive technology to aide them in completing daily tasks. These aides are given to persons

with disabilities to make their lives easier. What is unique about early onset bipolar disorder is the varying degrees of severity of this disability, and the array of co-morbid diagnoses that may be attached to it. Therefore, the needs of one student with early onset bipolar disorder may differ greatly from another in terms of assistive technologies. These technologies give people the freedom they need to live their lives independently and efficiently. There are many different degrees of assistive technology. "The Technology Related Assistance to Individuals with Disabilities Act of 1988 described an assistive technology device as 'any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.'" (Library of Illinois)

High Tech (software solutions) Assistive Devices For Early Onset Bipolar Disorder

Implementation of high tech assistive devices/solutions to educate students with early onset bipolar disorder depends greatly on the co-morbid diagnoses of the student. In order to accurately address this issue, we are examining this disorder from a multiple disability perspective, as this disorder does not present itself alone; it can, and as a general rule does, have additional diagnoses. Students diagnosed with Bipolar Disorder qualify for Special Education services under ED (emotional disturbance).

We are choosing to focus on this comorbid diagnosis, as ADD/ADHD is generally found to go hand in hand with early onset bipolar disorder. Some common assistive technologies for students with ADD/ADHD are recorded materials, voice reminders for assignments, handheld scanners, palm computers, software for concept development (to organize thoughts before writing). It is important to note that those with ADD/ADHD might have trouble with other functional life skills, and may also need help in areas like reading, and writing. A few examples of text-to-speech programs to assist with deficits in this area are (according to http://www.techpotential.net/attoolbox): TextAloud MP3 for PCs, GhostReader for Mac, and the following MacOS bundled software: iBooks , VoiceOver and Speak Selected Text. With help reading, writing, and studying, there is a wide array of assistive software. Some examples are: Kurzweil 3000 (Mac & PC), Read&Write (formerly Read&Write Gold) (Mac & PC), Read&Write for Google (Chrome extension) - for use in Google Drive on Mac, PC, Chromebook, and SOLO Literacy Suite (Mac & PC) – comprised of four interrelated

applications: Read:OutLoud, Draft:Builder, Write:OutLoud, and Co:Writer. Some resources for print to electronic text and audio books are Bookshare (e-text) - eligibility required, National Library Service (audio materials) - eligibility required, Blio (primarily e-text in proprietary reader), Project Gutenburg (e-text). For organization of thoughts and concepts these tools can be used: MindMeister (iOS, Android, Chrome, online), Kidspiration Maps (iOS), Inspiration (Mac & PC), LucidChart (Chrome, online), and Webspiration (online). Students who need laptop alternatives that they can use in the classroom, and don't need the features of laptops or tablets can use Fusion (Mac & PC), and Forte (Mac & PC) to generate text. On the opposite side of text-to-speech, is speech to text. Students may require assistance when they need to put their thoughts into words. Assistive technology that can be useful in these situations are Dragon NaturallySpeaking (PC), Windows Speech Recognition (included in Windows operating systems), Dictation and Dictation Commands (utilities built into Mac OS), and Voice Typing (Google Docs on Chrome browser). These software applications can be combined and tailored to the individual student to coincide with the students learning objectives.

Focusing ONLY on bipolar disorder, there are different subtypes of Bipolar Disorder (although the following may change when the DSM-V is released in a few years):
Bipolar Disorder Type I is characterized by at least one manic episode, with or without major depression. With mania, either euphoria or irritability may mark the phase, and there are significant negative effects. Bipolar Disorder type II is characterized by at least one episode of hypomania and at least one episode of major depression. With hypomania the symptoms of mania (euphoria or irritability) appear in milder forms and are of shorter duration. They do not affect social or school functioning as dramatically. Cyclothymic Disorder is not as severe as either Bipolar Disorder I or II, but the condition is more chronic. The disorder lasts at least two years, with single episodes persisting for more than two months. Cyclothymic disorder may be a precursor to full-blown bipolar disorder in some people or it may continue as a low-grade chronic condition. Some people refer to Cyclothymic Disorder as Bipolar III." (Schoolbehavior.com).

Students with bipolar disorder may also find themselves in need of reminder apps to aide in memory. When mania or depression hits it may be very difficult to focus long enough to remember appointments and other items that may require attention. A couple of apps to help during this time are: "Wunderlist - available for both Apple and Android, this app allows you to

create lists, collaborate with others, and get reminders for your to-do list, and Evernote - to help create notes, which can be text, photos, webpage clippings, voice memos, or file attachments, set reminders, and organize information." (University Library) Mood charts can also be very helpful to those who suffer from early onset bipolar disorder, as doing so can help track symptoms and cycles, and any common triggers that might be a precursor to a mood shift. The University of Illinois states that these technologies are useful: "MoodTrack Diary, this app allows one to track moods freely and rate them from 1-5. Moods are displayed in a timeline, which makes it easy to visualize mood cycles. Also available is the chance to connect with and support others who use this application. Another recommended app is Moodlytic. This app provides a more in-depth and guided mood tracking experience. You can track your mood, use tags and photos to add more detail, and see analytics of your moods and the various causes. Finally, eMoods Bipolar Mood Tracker is specifically geared towards bipolar disorder. It allows one to track highs and lows, sleep, medications, and other symptoms related to bipolar disorder. A report can be sent via email to doctors or therapists at the end of every month so they can better identify your triggers and understand your mood cycles.

Low Tech Assistive devices

Low tech assistive technology is said to be a simpler and less expensive solution to aiding those with disabilities. These technologies could include simple devices or equipment that is made up of simple features that don't require training to operate. Some examples of low tech assistive devices that have been found most useful for those with bipolar disorder who have been diagnosed with ADD/ADHD are highlighters (for visual cues), index tabs to more easily find materials, and color coded folders. They might find printed or picture schedules helpful as well. The importance of these (high/low tech) technologies is that they all have a common goal in mind, which is to help ensure the independence and freedoms of the people who need them.

Case Study: Jimmy, a student in Deduction Central School District with Early Onset Bipolar Disorder

Jimmy is a student in Deduction Central School District, found in rural Baskerville, NY. Within his first year at school Jimmy is diagnosed with childhood onset bipolar disorder, for which he takes daily medication. His educational classification is ED (emotionally disturbed).

He enjoys spending time with his friends, playing baseball, and video games. He does not enjoy music class, or places that are crowded. Jimmy likes jokes, and can often be seen laughing with his older brother who, in his words, "tells them the best." He can be irritable, and does not like finding himself in unfamiliar situations. Jimmy is at grade level in reading, and will read when asked to, but he won't read for leisure as he complains that he can't remember the story lines. He dislikes writing; his writing samples include simple sentences with few details and contain frequent spelling and grammatical errors. Jimmy struggles to grasp math concepts and at times falls as many as two years behind his cohorts. In order for Timothy to be successful in school throughout his career, his IEP will list technologies needed to ensure his success. This way his teachers can secure his requirements.

Jimmy in Watson Elementary: Pre-Diagnosis

______Jimmy was born naturally, with no complications at 41 weeks gestation with a birth weight of 7 lb 3 oz. His mother had adequate prenatal care, and was a non-smoker while she carried him. His parents divorced soon after he was born. His maternal grandmother, and his mother were both diagnosed with depression, and his father was diagnosed with bipolar disorder when Jimmy was six years old. Jimmy lived with both of his biological parents until he was two, when his parents divorced after a long period of turmoil. As early as 8 months old it was noted by Jimmy's pediatrician that he was very difficult to sooth. Jimmy began displaying erratic sleep patterns by the age of 12 months of age, and by the time he was 18 months old it was noted in his medical record that he was "difficult to discipline". By the time Jimmy was 3 years old, he was referred to a psychiatrist. Many of the appointments were cancelled. When Jimmy was 4 it is noted that he had recurrent ear infections, and problems with asthma, it was also at this time that he told his mother that he wanted to kill himself. He complained frequently of headaches and that he was tired. By the age of 5 night terrors were occurring regularly. Jimmy had/has difficulty making friends his own age, this was attributed to his parents continued tenuous relationship with each other. Jimmy was diagnosed with early onset bipolar disorder shortly after he announced his desire to end his life. He was not diagnosed with any comorbid disorders beforehand.

Jimmy enjoys reading, but claims to have a difficult time concentrating. His parents say that this has worsened as he has gotten older. His teachers have reported very fidgety behavior,

and note that at times he speaks very rapidly, jumping from one subject to another. Other times they say it is very hard to get him to engage in class, and he loses his temper very easily. He has been known to cycle through these moods several times in the course of a day. Communication with Jimmy's classroom teachers and his mother (who works at the school) seems to help in some situations. Jimmy has stated that he finds math "really hard". His math teachers have commented that it is hard for him to focus in class. It has also been reported that his feelings of hopelessness, and depression tend to occur at the beginning of the school year (in the fall), and he displays excitement and euphoria more often at the end of the school year (in the Spring)

Socially, Jimmy seems to find making friends quite difficult due to his short temper and issues communicating or sharing with others. He has been observed during interactions with other students in which he has been seen snatching toys from other childrens' hands and throwing things at them. He will have spurts in which he is able to sit down and control himself, but has episodes of anger and hostility with no known cause. Due to this, classmates tend to avoid playing with or befriending Jimmy.

Jimmy in Watson Elementary: Post-Diagnosis

Jimmy has been prescribed Depakote© and Prozac© in an effort to prevent manic episodes. At this moment in time, they seem to have contributed to somewhat of an improvement in behavior, though Jimmy complains that he misses the feeling of being manic. As Jimmy grows a re-evaluation of his treatment will be necessary. The side effects (fatigue, and cognitive dulling) seem to have had an effect on his ability to learn, and his conscious availability in the classroom. His mother has commented that it is difficult to get him up in the morning. When he enters middle/high school it might be necessary to schedule his more academically demanding courses later in the day. Jimmy is currently seeing a psychiatrist and has had extensive neuropsychological testing that has been useful in pinpointing his strengths and weaknesses. Jimmy's doctors have recommended program modifications and remediations. Watson Elementary has also documented evaluations and has gathered data about his academic, social, and psychological functioning.

Jimmy continues to display executive function deficits which affect his ability to concentrate for lengths of time comparable to his cohorts. Jimmy displays inflexibility and anxiety with a sudden change of schedule. Preparing him ahead of time seems to lesson some of his anxiety. Transitions remain difficult for him. Due to his inability to concentrate for long periods of time. He is disorganized and does not complete homework in a timely manner. He forgets needed materials at home, and often fails to complete projects as a result. He lacks the basic interpersonal skills needed to make and maintain friendships. He requires continued instruction and counselling to support success in this area. Jimmy displays evidence of poor self esteem, and will need calm, reassuring teachers in order for him to interact successfully in the classroom.

Jimmy in Baker St. Middle School:

______There is emerging evidence that Jimmy may be experiencing manic episodes more frequently now that he has entered middle school, therefore a re-evaluation of his medication schedule should be addressed soon. Jimmy's overall cognitive abilities have improved, though he still struggles with organization. Within the last year Jimmy has been diagnosed with ADHD, and dysgraphia and dyscalculia. He now receives services for these impairments. Contingency plans have been developed for those times when fatigue or mood swings interfere with learning. To address the reversal of Jimmy's sleep/wake cycle, his core academic classes are scheduled in the afternoon. This makes it possible for him to also take tests later in the day. On very difficult days Jimmy is permitted to come into school after his first period PE class. When Jimmy begins to exhibit signs of extreme irritability, a quiet place has been made available at the school for him. He continues to be counseled in the ways of self-soothing, and anger management techniques. He also sees the school psychologist to receive coaching in the areas of social interaction in group settings, and personal interaction.

Jimmy has been assigned an aide who has has training in defusing situations before they escalate in the classroom. His favorite teacher is his science teacher, and he has been provided with a permanent pass to go to this teacher's room when he needs to. An FBA (Functional Behavior Assessment) was administered at the end of the last school year, and a BIP (Behavioral Intervention Plan) was implemented and added to his IEP. Jimmy continues to display anxiety during transitions. Those involved with him on a regular basis have been

instructed to give warning before a transition. This can be as simple as giving him a several minute warning, and then counting down as the transition gets closer. An aide will also assist him with transitions during non-instructional times. He does not require any adaptive PE accommodations, and has joined the soccer team at the school. It is written into his IEP that if there is a change in his medications that results in fatigue he is permitted to nap. A second set of textbooks has been provided for Jimmy for him to keep at home to help with his organizational deficits. He uses color coded folders for different subjects that match the colors of his textbooks. Jimmy is allowed extra time for writing assignments, and is permitted to use word processing software that contains a spell checking program. Classroom notes are provided for Jimmy, and a scribe has been assigned to him for testing purposes. He also uses voice to text software when long writing assignments are required. In math Jimmy is allowed the use of a calculator, and extra time to complete tests. He is also not penalized for writing numbers the wrong way.

Jimmy's performance in school is a little below the average among his peers. His favorite subject is science, and he has a great love of animals. He volunteered at a local animal shelter over the summer and walked the dogs. He says he would like to be a dog trainer or a science teacher (as that is his favorite teacher).

Jimmy is Sherlock High School:

______Jimmy is now in high school. He is now utilizing eMoods Bipolar Mood Tracker. This is a free app that charts Jimmy's highs, lows, sleep patterns, and medications. This app is downloaded on his phone, and sends PDF reports to his doctors to alert them of his mood patterns and any possible triggers. He requires an Apple ©/Chrome © laptop to have 24 hour access to his textbooks that have been made available to him in a digital format. This will enable him to have continuity between school and home, and aid in his organization. Jimmy would benefit from SOLO Literacy Suite. This application incorporates an array of tools that will allow him to make progress in his general ed. classroom. Included in this suite is a text reader, graphic organizers, word prediction software, and a speech-to-text feature.

Concern has been expressed about his sometimes increasingly appropriate behavior around individuals of the opposite sex. Communication between his teachers, the school psychologist, his doctors, and his parents continues to be strong and cooperative. His visits with the school psychologist have been increased to address his behavior with his female peers.

Continued modeling and scenario based sessions are assisting Jimmy to learn how to self-monitor his behavior in social situations. As Jimmy gets closer to graduating from high school, efforts are being made to prepare him for life after high school. Jimmy would still like to attend college. Scheduling college visits with the colleges he's interested in will help with any transition after high school into an institution of higher learning.

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