Music to Be Used in Treating Mental Retardation and Mental Illness

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Mental retardation and mental illness have been forces for study for centuries. Doctors and psychologists alike have studied these things extensively. A plethora of studies, theories, hypotheses, treatments, and advances in the fields of medicine and psychology have been made and examined because of them. From doctors to scholars, mental retardation and illness have led to a myriad of possible treatment solutions formulated around them. I, like the many scholars and experts, seek to find a solution to these abnormalities. This paper will examine the meanings, causes, facets, and effects of mental retardation and illness on both medicine and psychology; it will also examine the effect of music, as well as the effects it has on the human brain. These examinations will subsequently be used to propose plausible treatments.

Medicine and Mental Abnormality

Webster's New World Medical Dictionary defines "mental retardation" as: "The condition of having an IQ measured as below 70 to 75 and significant delays or lacks in at least two areas of adaptive skills" (Shiel and Stöppler). While this offers an informative, basic definition, it still only scratches the surface of what the conditions entail. These abnormalities range from simple, easy-to-handle conditions such as some forms of Asperger syndrome, a type of autism in which strange levels of focus and attention are observed, as well as inappropriate social communication ("Asperger Syndrome"). Others involve intense and dedicated care due to their severity, such as myelomeningocele, a type of spina bifida. In cases like these, a neurological malformation can occur known as an Arnold Chiari II malformation that causes the brain stem to protrude into the individual's neck, causing breathing and swallowing difficulties, as well as learning disabilities later in life ("Myelomeningocele"). However, one commonly known form of mental retardation that is most attributed to the afflictions of learning and developmental disabilities is autism. While it is a single disorder itself, it is also referred to as an

"Autism Spectrum Disorder", or an "ASD". The website AutismSpeaks.org defines them as, "[General] terms for a group of complex disorders of brain development", and states that they are "characterized, in varying degrees, by difficulties in social interaction, verbal and nonverbal communication and repetitive behaviors" ("What is Autism?"). This umbrella definition gives insight into the different types of autism, and can help us examine how we look at and deal with these various disorders.

Medicine seeks to treat the many kinds of mental disorders. However, along with these abnormalities comes the somewhat "darker" side of mental health: mental illness. *Webster's New World Medical Dictionary* defines "mental illness" as: "Any disease that affects the central nervous system, causing disturbances of thought or behavior" (Shiel and Stöppler). This includes the emotional shifts seen in bipolar disorder (also known as bipolar affective disorder), and the paranoia and hallucinations found in sufferers of schizophrenia ("Bipolar Disorder," "Schizophrenia"). While mental illnesses are not as politically debated and analyzed as autism and various mental disabilities, they are still studied as extensively by medical professionals. When we examine the treatment of these kinds of abnormalities, it is observed that, rather than medical attention, the suggested treatment method is medication. Another method of treatment that is considered is psychiatric therapy, which is *not* considered when treating patients with disabilities. This is interesting due to the fact that the use of medication is still very prominent in both treatment processes. Adderall is used to treat ADHD, an autism spectrum disorder (in other words, a form of mental retardation) ("Adderall"). In the same way, Fluoxetine – better known as Prozac – is used to treat depression, a mental illness ("Fluoxetine"). The fact that psychiatric therapy is selective to only treating mental illness illustrates the difference of the two conditions. However, the fact that the use of medication as a treatment method illustrates that they are

possibly one-in-the-same. This feasibility may give us insight into both mental retardation and illness, and clues to other treatment methods.

Psychology and Mental Abnormality

Medicine can only go so far as to provide information and healthy solutions to problems regarding mental abnormality. Though it is indeed very useful for the study of mental conditions, it sometimes cannot offer causes and various factors that can bring them about. Psychology, however, can help complete or fulfill the needed information on these topics.

The *APA Dictionary of Psychology* defines "mental illness" as: "[A mental disorder] characterized by psychological symptoms, abnormal behaviors, impaired functioning, or any combination of these", and continues with a summary that says, "Such disorders may cause clinically significant distress and impairment in a variety of domains of functioning and may be due to organic, social, genetic, chemical, or psychological factors" (VandenBos). If one looks closely, he can see a correlation between the medical definition and the psychological definition: behavior. Both fields recognize a change in behavior of a sufferer of mental illness. However, while the medical definition gives the cause of the problem, the psychological definition provides various *reasons* for why the problem at hand exists. This points out the apparent "leg-up" psychology may have in treating mental illness, rather than medicine; medicine provides the cause – psychology provides the reasons. What is important, now, is the solution.

Psychology focuses on behaviors, attitudes, and overall mental processes: all of these can be observed in mental illness. But when confronted with mental retardation, psychology approaches it differently. The *APA Dictionary of Psychology* defines "mental retardation" as: "A disorder characterized by intellectual function that is significantly below average"; now the focus has shifted from a study of mental process, to a study of mental *function*. The summary

afterwards is as follows: ". . . specifically that of an individual with a measured IQ of 70 or below on tests with a standard deviation of 15, whose adaptive behavior is impaired, and in whom the condition is manifested during the developmental period, defined variously as below the ages of 18 or 22" (VandenBos,). Interestingly enough, not even this psychological definition can provide reasons for certain causes of mental retardation. There is a plethora of causes of – and reasons for those causes – mental retardation. Along with this magnanimous number is the variety of psychological treatments that accompany the issue of mental retardation. In an editorial done by authors for the *British Journal of Psychiatry*, it said: "The psychotherapeutic approach in people with intellectual disabilities is controversial, and the evidence base for the effectiveness of psychological therapies is extremely limited" (Bhaumik, Gangadhara, Hiremath, and Russell 428). Though evidence of effectiveness may be scarce, the existence of that scarcity recognizes the fact that other psychological and psychiatric treatments are plausible – that there may be other treatment solutions.

Prevalence of Mental Abnormality

In a report done by *Science News* columnist Bruce Bower in 2012, he said that "New federal data indicate that 1 in 88 U.S. children had autism or other autism spectrum disorders in 2008, up from 1 in 110 kids in 2006 and 1 in 150 in 2002" (Bower 14). These are staggering changes. In our extremely scholarly, fact-based world today, that kind of deficit does not go unnoticed. These particular statistics originate purely from the U.S., however. There is also an occurrence of autism around the world. This is explained in the article "Multicultural Issues in Autism", which appeared in the *Journal of Autism and Developmental Disorders*. Referring to the Autism Society of America, it stated, "Autism . . . knows no racial, ethnic, or social boundaries. Family, income, lifestyle, and educational levels do not affect the chance of autism's

occurrence" (Dyches, Wilder, Sudweeks, Obiakor, and Algozzine 212). While this is a reference, the authors do make a case for this overlying principle of prevalence located in many cultures – not limited to a single culture. In one section of the article, the research of Èric Fombonne (French psychiatrist and epidemiologist) is utilized. It states: "A meta-analysis of 19 epidemiological surveys conducted in 10 countries over 30 years (from the first such study in 1966 until 1997) indicated prevalence rates of autism ranging from 0.7 to 15 per 10,000, with a median rate at 4.8" (214). While it offers some useful information, it also provides some problems: 1.) it was not recent (1997), meaning that those numbers can be tracked, and have likely had a drastic change; 2.) it was done in 10 countries, meaning that this study was "centralized" in a way – in other words, it could have been performed in a greater number of the ca. 194 nations. But even though these questions have arisen, the information remains to be seen, and it remains to give insight into the prevalence of mental retardation, such as autism.

In terms of newer research, Dr. Tony Charman presented statistics for autism spectrum disorder prevalence in 2002; the data said this: "Three studies published in the past two years found prevalence rates for autism between 1.7/1,000 and 4.0/1,000 and rates for all ASD between 5.8/1,000 and 6.7/1,000" (Charman 250). More recent studies published in 2011 by Charles Zaroff and Soo Uhm offer even greater information; various statistics the studies include are the 80-100/10,000 prevalence of the United States (2011), as well as the rates of 157/10,000 in the United Kingdom (2011) and 27.2/10,000 in Japan (2005) (397). This information represents the prevalence in European countries, and again illustrates the increase in rates of prevalence worldwide.

However, mental illness has an equally powerful hold on society as Mental retardation and mental disabilities. In the article "Prevalence, correlates, and disability of personality

disorders in the United States", the findings of the occurrence of personality disorders were listed as follows: "14.79% of adult Americans, or 30.8 million, had at least 1 personality disorder. The most prevalent personality disorder in the general population was obsessive-compulsive personality disorder, 7.88%, followed by paranoid personality disorder 4.41%, antisocial personality disorder 3.63%, schizoid personality disorder 3.13%, avoidant personality disorder 2.36%, histrionic personality disorder 1.84%, and dependent personality disorder 0.49%" (Grant, Hasin, Stinson, Dawson, Chou, Ruan, and Pickering 948). While the percentages may be small, the numbers are drastic, especially in terms of our population. And while this was the case in 2004, the locality of time is still very staggering. And in 2007, Tanja Michael [et. al.], in the book the *Epidemiology of Anxiety Disorders*, stated the results found after studies conducted in various "general Western countries" were these: "Lifetime prevalence rates range from 13.6% to 28.8% . . . The 12-month prevalence rates, ranging from 5.6% to 19.3%, [were] somewhat lower". This was conducted in a number of Western countries, including the United States, Germany, Canada, Norway, and the Netherlands (Michael 137). These statistics alone portray the immense effect mental illness has on our world today.

But why should these areas of mental health and abnormal psychology be examined and studied? It is in our nature as inquisitive people to observe the world around us – that is the basis of our sciences. And one addendum to our learning processes is the drive to find answers; the search for solutions. In the case of these mental abnormalities, treatment is the next step. While many treatment solutions have been discovered and are currently being implemented, there are still others that can be utilized: this is where music can come into the picture.

Music in Society

It is no doubt that music has made an enormous impact on society, culture, and humanity over the centuries. In her article "Coda: Psychoanalysis and Music in the Psyche and Society", Julie Nagel and Samuel Bradshaw said, "Psychoanalytic and musical knowledge can contribute to many areas that impact human motivation, critical thinking, decision-making, and our quality of life while probing beneath external events and simplistic solutions to thorny and complex questions" (147). Music affects every single individual, from all walks of life. Not only that, music has affected and even *changed* society – from the Middle Ages to the 2000s: it is indeed clear that music is deeply planted in everyone. As Donald Vroon commented, "Any person from any culture can discover and acknowledge the greatness of classical music" (Vroon 80). His accusation is correct, but not only limited to classical music. Society, culture, and humanity in general appreciates all music. But this statement merely presents an obvious fact; an important, underlying question is this: since humanity is so tightly interwoven with music, both in environment and in individuality, what are the effects and implications it has on our brains? What can our "undying" love for music offer in the study and treatment of mental health? The answer is surprising.

Music on the Human Brain

When it comes to music and the mind, music has absolutely astounding, powerful, and positive effects. When we talk about a matter of functionality when it comes to music, regions of the frontal and parietal lobes are involved in a sort of radiating pattern of cortical activation that moves outward as harmony, melody, and rhythm are perceived; forward, behind, and to the sides of these sound processing areas lie "associative regions" that "put together" the experience of a sound (Brynie 151). This shows how acute and almost mechanical the human brain is. And while

the technologic, scientific reactions and cycles the brain performs is important to examine, the effects of those reactions and cycles are just as paramount – especially in terms of mental health. In her book *The Music between Us*, Kathleen Higgins says, "Musical experience incites us to respond as if to a whole perceptual world. In transporting us beyond the streams of auditory and tactile input to an impression of the larger sensorium, music effects a kind of synesthesia. This tendency of music to elicit the listener's imaginative projection of a full sensory "world" in connection with music is one of the common bases for the human experience of music" (Higgins 106). This "synesthesia" or pathway between senses Higgins references has a magnanimous amount of effect on, not only the brain, but the "mind", if you will.

But this "synesthesia", paired with reminiscence and memory, needs to be spurred in order to work. In other words, it needs an activation element: that element can be music. In his book *This Is Your Brain on Music*, Daniel Levitin explains this mental repercussion in terms of the neural pathways of the brain and examples of his personal experiences: "To some extent, if the room is vibrating with the deep sounds of the double bass, some of those same neurons that fired when I stubbed my toe may fire now – neurons sensitive to tactile input. If [a] car horn has a pitch of A440, neurons that are set to fire when that frequency is encountered will most probably fire, and they'll fire again when an A440 occurs in Rachmaninoff." These memory "jogs" and relapses occur with every frequency that enters the annals of the brain. But, as Levitin explains further, there are different circumstances and contexts that produce different effects: "My experience with oboes and violins is different, and the particular way that Rachmaninoff uses them may cause me to have the opposite reaction to his concerto than I have to the car horn; rather than feeling startled, I feel relaxed. The same neurons that fire when I feel calm and safe in my environment may be triggered by the calm parts of the concerto" (Levitin 90). So what

information can we glean from this system of input frequencies that cause brain activity? We can observe positive effects on the brain. In fact, this kind of "music therapy" has evidence of functionality.

Evidence and Examples

Various accounts suggest that this use of music as a treatment has quite a potential in the fields of both medicine and psychology. This gives hope in terms of treatment, seeing as the evidence appears to be limited, as was denoted earlier (Bhaumik, Gangadhara, Hiremath, and Russell 428). It gives the assumption that it can be utilized, and it gives a kind of incentive.

In a report done by Sarah Maslin in Milwaukee, Wisconsin, she referred to these effects seen in the local nursing home the Lasata Care Center. About Irene Wade, a resident with a severe case of dementia, she said, "[The] 99-year-old sang the opening lines to "Let Me Call You Sweetheart" as if she were Ethel Merman." This was surprising, considering the fact that she had a hard time remembering her birthday, her children's faces, or even her own name (Maslin 1C). This illustrates the effects of frequencies re-engaging the brain's ability to function. Maslin continues on, and reports that, "Caregivers rave about the music's ability to calm residents, lower their reliance on anti-anxiety and anti-depression medication and establish long-lost communication with friends and relatives" (Maslin 1C). That alone portrays the immense potential that music has – the lowering of reliance on medication and the recovery of memory. While this is observed in dementia and Alzheimer's, it could possibly be observed in other mental illnesses and retardation.

In terms of retardation, music can, and certainly has been, an accurate treatment. In his book *Case Examples of Music Therapy for Autism and Rett Syndrome*, Kenneth Bruscia explained in detail his case-work with a young autistic boy, Mark. He said, "This case involved a

young boy diagnosed with autism who presented with behaviors, reactions, and problems typical of that diagnosis. . . For Mark, music was the motivation for participation in music therapy experiences, was a direct sensory stimulation for the central nervous system, and became the transitional object allowing the development of therapeutic relationship" (Bruscia 44-45). According to Bruscia, Mark's transformation began from his absolute inability to interact with others, to Mark's graduation from high school, his holding a steady job, and basic overall turn-around due to this case (44). This is quite an argument, if not a starting point, for music as therapy.

Conclusion

Music is a powerful art form; it changes with the times, and it affects every single one of us. In the same way, mental retardation and illness are just as forceful, if not rampant in our world today. Since they exist as widely as they do, they should have a solid treatment solution. In his article "Music and Autism", Gordon Graham said, "[Does] it not imply that [this] therapeutic [technique is] ill-conceived and of little use? This inference is in fact invalid – nothing that has been said undermines the value of music therapy" (45). And that statement is correct. While we may not be able to focus on the basis of cause of mental abnormalities, and try to prevent them, we *can* shift our attention to treating existing disabilities. Evidence illustrates music's effects on both society and the brain; evidence also illustrates the positive effects it has on mental abnormalities. If the case is that we can treat these things (mental retardation and mental illness), then I say: why not? If the case is that it can benefit our research and our patients, then I say: why not? If the case is that music is an effective treatment, then I say that we should utilize it as such.

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