Mental Health

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Mental Health: Why Should it be Included in High School Biology?

An average of 1 in 4 adults' lives are directly or indirectly impacted by mental illness (National Institutes of Health). This necessitates a strong understanding of this topic; otherwise, people may not be able to comprehend many events and situations in their lives and the lives of others. If students in biology classes gain a basic understanding of mental health issues, they may be able to help others, protect themselves from potential harm, and take a proactive approach to their situations. Secondly, many mental illnesses may be evidence of how "cultural evolution is faster than biological evolution" (Perreault); various disorders such as panic anxiety may in fact have evolved to benefit primitive humans when the species existed as a hunter-gatherer society. Because of the extent of societal advancement, these mental phenomena are now regarded as a setback and a barrier to progress. Aside from this, another reason general biology classes should include a unit on mental health is that they are the subject of a crucial issue in modern society: many people make the incorrect assumption that mental illness is less significant than physical illness. Yet another societal connection is that many events in the news and in society arise due to mental health-related subjects; students should truly understand the reasons behind the headlines. Chemistry and metabolism also play a part; neurotransmitters contribute greatly to a person's mental state. Ultimately, mental health is a fundamental topic to be introduced to high school biology students because it relates to biology's themes of evolution and metabolic chemistry, illustrates the role of science in society, pertains to events in the news, and is relevant to life outside of school. Because of these reasons, mental health is an important topic to be implemented into the curriculum of general biology.

The chemistry of the human brain is strongly linked to mental disorders; neurotransmitters, the chemicals which aid in conveying electrical signals between neurons, play a major role in the chemical balance of the brain. Serotonin, for example, "helps control many functions, such as mood, appetite, and sleep," while glutamate helps neurons fire. Issues in the production or utilization of glutamate have been linked to several mental illnesses such as depression, obsessive-compulsive disorder, and schizophrenia (Brain Basics); serotonin and dopamine deficiencies have been linked to depression and anxiety (Heffner). Since neurotransmitters and mental illness are so inextricably linked, students need to understand them so that they can comprehend the underlying reasons behind mental disorders. An understanding of the chemistry of mental illness will make students more likely to adopt a scientific point of view on it; they would regard mental illness not as a fault of the patient, but as something biological and out of their control.

The subject of mental health invokes biology's major theme of evolution as it raises a question among many biologists. The theory of natural selection causes many people to wonder that if mental disorders are such a detriment to a productive existence, why natural selection has not removed them from the gene pool. Some experts, such as Jeffery P. Khan and Anderson Thomson Jr., M.D. hypothesize that they may have been valuable for survival when humanity was still in a more primitive evolutionary stage: "There is safety in numbers. Some instinct [tells] us when we stray too far from the fold… that ancient separation alarm may trouble us today as Panic Anxiety" (Khan, 27). Obsessive-compulsive behavior may have also aided the survival of early humans: "It is easy to imagine ancient societies (and more primitive species) in which mild OC traits were very helpful in maintaining hygiene, building things, saving supplies for future needs, and reducing risk of disruptive sexual or aggressive acts" (Khan, 75). Even major

depressive disorder may have also been evolutionarily helpful: "J. Anderson Thomson Jr., M.D… believes that, though it appears to be all cost and no benefit, major depressive disorder might be 'a psychological adaptation engineered by natural selection to help individuals resolve complex, socially-imposed stresses that could affect long-term fitness… [by] signaling need and compelling help from reluctant others'" (Collingwood). However, human society has advanced past its need for what are now considered to be disorders of the brain; some now look upon them as shortcomings or hindrances to progress when they may in fact have been beneficial or even necessary in the ancient past. This is significant evidence of humanity's ability to progress so quickly that evolution is too slow a process to keep up with the pace at which our society changes (Perreault). This can be regarded as a benefit in some ways; however, as we have changed, misconceptions about mental health have arisen. If biology students were taught about this subject in high school, these misconceptions would decrease greatly.

In modern society, mental health is often regarded as separate from and less significant than physical health; however, this is not true according to Theo Bennett: "Mental health is just as important as physical health. In fact, mental health is physical health; the two are inseparable" (Bennett). Often, the two can be linked; a mental illness may be rooted in a physical problem such as a deficiency in certain neurotransmitters, such as dopamine or serotonin, which affect mood. Mental illnesses can also produce somatic symptoms, like a headache or back pain, which can manifest themselves in the same way as a physical illness (Jensen). This means that patients may receive treatment for the physical symptom without affecting the root cause: mental illness. This can create an unhelpful cycle in the life of a person. The judgmental mindset of some people, dismissing a mental condition as less than a physical condition, can also cause a negative effect. One solution is to introduce the topic of mental health to students in general biology,

educating the masses about this issue so that they can comprehend the true gravity of these disorders. Armed with this knowledge, students could have a better understanding of how the human mind works, impacting the lives of students in a practical way outside of an academic setting.

Mental disorders are also pertinent to society as the source of many events in the news. For example, a schizophrenic man named Wayne Wilson recently set fire to a Bellevue mosque: "Wilson had told police he had schizophrenia, according to court documents. Imam Faizel stated during a community meeting on Jan. 15 that members of the mosque had tried to help Wilson and had offered to pay for his medications, as he was homeless" (DeAngelis, Murray). Schizophrenia can cause people to become delusional, performing actions considered irrational to a person with a neuro-typical brain; these actions are occasionally criminal and even significant enough to make headlines, like Wayne Wilson's arson (DeAngelis, Murray.) Modern high schoolers are so connected to their devices and the media that they see headlines like these almost every day. If they better understood the topics of the daily news, it might even help them to develop more empathy, which is a useful skill in a student's non-academic life.

Aside from the news, understanding mental health is important for students in making sense of their daily lives. Even though the majority of the population does not have a mental illness, 1 in 4 adults are influenced by one directly or indirectly; also, "an estimated two-thirds of all young people with mental health problems are not receiving the help they need" (National Institute of Health). Students would benefit from understanding this topic because that knowledge would give them a clearer picture of the internal workings of a mentally ill mind, possibly even that of a friend or a family member. If they comprehend the truth about mental health, they will be less likely to merely dismiss a person as crazy or believe the misconception

that mental illness is caused by a weak mind, not a true medical concern. If students were taught about mental health and its concerns in their general biology class, they might have a better understanding of the impact of these disorders. Many mental illnesses, such as anxiety and bipolar disorder, begin to make themselves evident around high-school age as adolescents' minds mature in puberty (Jensen, Nutt). If a person can spot a disorder in themselves or in others as soon as it emerges, they might seek help before it becomes a serious problem, making it all the more important for them to learn about mental illness in biology class.

In conclusion, mental health is a relevant and essential subject for high school students for many reasons. It pertains to major themes in biology, such as the way mental disorders relate to evolution; current mental illness may have served as a benefit to early humans before our species had advanced past the hunter-gatherer stage. Mental health illustrates the theme of science in society; our society views mental illness in a less-that-beneficial light. A wise tactic to remedy this ignorance would be to instruct students on the topic in school. Students would also benefit from this information because it is useful in their lives outside the classroom; students with this knowledge can become more compassionate than judgemental on the subject. Many people are affected directly or indirectly by mental illness in their lives, so it is critical for them to understand this topic as it relates to events in their personal lives or in the headlines they see every day. Finally, many mental disorders begin to manifest themselves during adolescence, approximately when students take general biology. For these reasons, mental health is a crucial and relevant subject to include in a general biology class.

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