

Mandatory physical exercise for the prevention of mental illness in medical students

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Abstract

Medical students experience higher rates of mental illness than the general population. With competition rising for success in medical school, and residency, increasing incidence of distress are leading this population to experience higher rates of thoughts of dropping out of school, and even suicide. Since many stigmas deter medical students from receiving mental health counseling, such as the perceived inability to handle the stresses of medical school, and the potential lack of competitiveness for residencies if reported, prevention of mental illness may be a better course to take in reducing prevalence in this population. Regular exercise has demonstrated a positive effect on not only promoting physical health, but also mental health. Exercise encourages a healthy mood, positive self esteem, and better cognition, while decreasing the chances of depression, anxiety, and burnout. Implementing exercise time into medical school curriculums, just like the basic sciences, albeit for less time in the day, could provide a feasible way to ensure that all students are taking time to partake in this important activity for their well being. Though medical schools are rigid with attempts to make changes in their curriculum, thirty minutes a day, three to five times a week of exercise of the students' choice not only is more cost effective than counseling, but it also reduces the chances that they will experience burnout, which if left untreated could transcend into a compromised training experience.

Introduction

According to the 2010 National Survey on Drug Use and Health, 20 percent of US adult population (45.9 million) were estimated to have mental illness in 2010:¹ 3.8 percent had suicidal ideation (8.7 million); 20 percent of the general population (9.2 million) with mental illness met criteria for substance abuse or

dependence, and 13.7 percent of population utilized mental health services in the past year. One study has found that the prevalence of mental illness in medical students is 21.2 percent, compared to the general rate in other graduate students or young adults being 8-15 percent.² 69.1 percent of those who had depression admitted to receiving treatment in the past, and 7 percent of those with mental illness were receiving treatment at the time. Not only do medical students experience higher rates of mental illness, but the relevant sequelae to mental illness is also higher. Medical students experience higher rates of burnout, higher risk of suicide, and lower quality of life than an age-matched population.³ To reiterate the issue, medical students experience depression and mental illness at higher levels than the general population.^{3,4}

In addition, medical students are less likely to receive treatment due to the stigma of mental illness.³ The obvious reason is that they do not want to appear weak, or unable to handle the rigors of training, either to their friends, family, or superiors. Also, despite legal efforts to protect those applying for jobs from discrimination for having a prior or ongoing mental illness, they feel it will make themselves less competitive for residency due to documentation of any mental illness in any record. Thirty percent of first and second year students were found to be reluctant to receive treatment. Furthermore, a Mayo Clinic found in a recent study that the majority of medical students experience at least one event of distress, such as depression, decreased mental quality of life, etc.⁵ Those who experience distress were more likely to contemplate suicide and dropping out of medical school, with more episodes of distress equating to a higher risk of thoughts of suicide and dropping out.

Discussion

Physical activity should be a part of every able bodied person's daily lives, but especially so for those in stressful situations. For one, exercise improves vigor and decreases depression and anxiety.⁶ Acute exercise leads to release of neurotransmitters that promotes adherence to an exercise regimen, which is important for students to continue to reap the benefits of exercise, and activation of cortical areas that improve mood.⁷ Regular exercise also promotes mental health through angiogenesis and neurogenesis, showing that there is some actual scientific evidence to back the empirical notions of prescribing exercise as a means for mental illness prevention and health improvement. Neurogenesis is enhanced in animal models, particularly in the hippocampus, which not only gives rise to bet-

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ter mental health in humans, it also gives an added benefit of possible improved memory through exploiting the plasticity of the hippocampus. Exercise improves self esteem and encourages positive self viewing,^{8,9} which is commonly compromised in medical students with or without depressive symptoms.^{2,3} Exercise has been correlated with psychological well being and life satisfaction, whereas physical inactivity is associated with psychological disorder development.¹⁰ There is a general consensus that physical activity is beneficial to preventing or treating mental illness, as exercise promotes overall general well being.¹¹

Allotted time for exercise in students' schedules should be implemented into curriculums as a therapeutic preventative measure for mental illness. Exercise is a therapeutic lifestyle change that has been shown to have positive effects on the treatment and prevention of mental illness.¹² Thirty minutes allotted at least three times per week, built into students' schedules, is more cost effective than eventual counseling, and more pragmatic as it attempts to prevent mental health issues. Mental health problems are easier to deal with before they exist. Thus, prevention is a key component of improving the overall mental health status of this population. We argue that integrating exercise time into the curriculum as a block of time will be more effective than simply encouraging students to stay active. It has been shown that very few adults actually meet minimum exercise time guidelines,¹³ and given that medical students are constantly pushed for time, they fall into a vulnerable group to repeat this trend of the general adult population. Placing exercise into the curricu-

lum enforces the concept that exercise is vital to the students' well being, and it also implies that the students' studies, while important, cannot be the sole focus and that time for maintenance of health is equally important. Physician heal thyself (Luke 4:23).¹⁴

Proposal

Academia is resistant to curriculum changes for many reasons, particularly in health professional education.^{15,16} Some of these reasons are long held traditions, lack of data to back claims, fear of the loss of accreditation, protection of curricular time, and lack of perceived change. While our recommendation is certainly not traditional, there is plenty of data to support that regular physical activity will benefit medical students. The time suggested, 90 minutes total a week, will not interfere with the rest of the curriculum, and there is no reason to fear loss of accreditation. As for lack of perceived need to change, this has been debunked with the growing number of professionals admitting that medical school stresses are negatively affecting students mentally and emotionally. In particular, the authors foresee resistance to the ideas presented due to a lack of time to place in the curriculum/students' schedules. The prescription of 30 minutes a day, three days a week, is a fair compromise since it is hard to argue that time cannot be made for such an important activity as exercise for this relatively short amount of time with regards to the whole week. We believe this compromise to be satisfactory, balancing between enough exercise frequency to elicit benefits, and the crammed schedules medical students have. Medical schools have been attempting to increase material retention rates via new learning strategies, such as problem based learning.¹⁷ Given the obvious interest in improving test scores and material comprehension, exercise can play a role in promoting mental well being beyond illness prevention and into the realm of performance enhancement.¹⁸ Not only does exercise promote improved memory, it also decreases the likelihood of burnout and depression. Burnout and depression are not consistent with improved memory, or a successful medical school curriculum.

Conclusions

As shown from the research cited, along with prodigious scientific research touting the benefits of exercise with regards to mental health, there is plenty of evidence to support the claims of a need for a more prevention based approach to mental illness, especially in this population. The medical student population, while not usually viewed as such, is actually a more vulnerable population with regards to the susceptibility of developing mental illness. There is empirical and neuroscience evidence to support the claims that exercise helps more by physical means and can transcend into the mental and emotional realm of public health. Time for exercise implemented into the curriculum addresses key concerns in public health, while also balancing the opposing forces to its implementation. Not only will it assist in preventing mental illness, but it will also improve the general health of the medical student population, which is important for them but also for the health and well-being of the general population with regards to health-care.

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