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A Review on Medical Students Mental Health Problems and Proposed Solutions

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Abstract

Medical curriculum can exposed the medical students to a significant levels of mental pressure. Therefore, the prevalence and incidence of psychiatric disorders including abnormal value of stress, depression and anxiety are higher in the schools of medicine. There are two major types of sources that can lead to stress and further mental problems in the medical students: 1. stresses related to the university and 2. individual features of the students themselves. This high level of mental pressure has various consequences which may lead to further problems including drug abuse, smoking, alcohol drinking, academic failure, sleep disorders and suicide. Thus, it is important to manage stress and its consequences in medical schools. In this paper, we review the prevalence, manifestations, causes, consequences and proposed approaches to decrease student distress.

Keywords: General Health; Predictive factors; University students

Introduction

Medicine is a basic science to maintain and promote the general health of populations. Thus, medical students who are being trained in this era, should be well prepared to assume the task (1). Since the procedure of teaching medical professionalism is a determinant factor in the levels of knowledge and skills of future physicans, intensive curriculum is common in medical schools which can lead to the several side effects in the students lifestyles and also exposed them to a significant levels of mental pressure (2, 3). Therefore, the importance of high quality education in medical students and its negative effects has been highlighted in many studies. These negative consequences are mainly responsible for the high incidence of mental disorders and also other related problems in medical students (4-6). Based on the previous reports, the frequency of psychiatric disorders including depression, anxiety and stress are considerably higher in the schools of medicine (4, 5). On the other hand, psychological distress may lead to unintended failure in academic performance among students (7) and also contribute to alcohol and substance abuse which are in contrast with the mentioned targets of medical education (8, 9). Thus, several methods were recently suggested for prevention and treatment of mental disorders in the medical students (10, 11). In the present study, majority of areas associated with mental health of medical students are reviewed and the following questions are described: 1. What is the prevalence of mental health disorders in medical students? 2. What curricular factors are associated with student health problems? 3. What personal parameters are related to student disorders? 4. What are the consequences of mental disorders among medical students? 5. What are the proposed solutions to solve this problem?

Manifestations of Students Mental Health Disorders

More than 200 forms of mental illness were identified in psychological studies (12-14). The more prevalent and better known disorders are depression, stress and anxiety (15, 16). Several studies indicated that medical students are more vulnerable in relation to mental disorders and stress is often reported in medical students (17). In fact,

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medical education establishes stressful conditions which can lead to anxiety and depression (18). Thus, stress is the main manifestation of mental distress in medical students and anxiety and depression are the consequences of it (19). Interestingly, few studies in this issue showed a positive effect of normal degree of stress in the medical students academic achievements. The advantageous influences can be due to the motivator role of stress (20, 21). Indeed, It can be defined as "a normal physiological reaction of the body in relation to mental suspense and pressure" and help individuals to be more active and creative (22). However, majority of studies referred to the destructive effects and symptoms which include a wide range of negative changes in the personality, sleep patterns and mood of the patients (23, 24). Therefore It is mainly known as a concussive factor that threatens both of the mental and physical health of individuals (25). What determines the advantageous or adverse consequences of stress? based on the previous reports, several strategies can be used to control the stress, whereas differnces in personality, source of stress and mental pressure and also gender are the main factors to determine the mechanism used by each person (26-29). Three major sources of stress are can be classified into academic pressures, financial problems and social issues, however further investigations are required to clarify the definite consequences of each source (30, 31). The selected mechanism in relation to deal with stress, may also specify whether stress has a positive or negative effect (32, 33). Some of the students find it hard to cope with the stress and usually use the mechanisms depending on isolation or emotion-focused coping strategies including sleeping, problem avoidance, music, wishful thinking, smoking and self criticism (34, 35). These strategies lead to negative consequences and cause unmanageable and prolonged stress which is responsible for the adverse effects and other manifestations such as anxiety and depression (36). On the other hand, successful people consider the stress as a challenge to work harder and use problem-focused mechanisms that can lead to the success in their education (5, 37). Majority of studies in developed countries demonstrated that medical students choose alcohol and drugs as the major coping strategies to overcome the stresses of education (38-40). In contrast, a study from Pakistan illustrated that problem focused methods are more common as a coping strategies among medical students (41). In conclusion, although the prevalence of mental disorders are higher in developing populations, the patients in these communities choose the better coping strategies than developed countries (42). Cultural differences and religious beliefs should be considered to justify this contradiction (43). Indeed, low knowledge of developing countries is responsible for the high prevalence of mental disorders, while religious beliefs that prohibit many abnormal behaviors, is responsible for the suitable managment (41).

Global Prevalence of Medical Students Health Problems

Almost all studies documented that the prevalence of psychiatric disorders are higher than general populations, however this value among medical students differ between studies, due to the differences in characteristics of individuals and also the various cut off values and data collection instruments (44, 45). The cut off value is selected based on the purpose of each study and the relative importance of specificity and sensitivity (46). In the recent years, the majority of these studies were conducted in Asian countries and the Pacific Island, since this issue was considered in the europe and america in the 1980s and 1990s and they relatively solved the problem among medical students (47). They reform this type of traditional curriculum and obligate many medical schools to institute modern strategies such as problem-based learning (PBL) in an attempt to assess the best in medical teaching (48). On the other hand, African countries not considered this problem so far and no valid study was performed in this regards (49).

Two similar studies among medical students in south and southwest of Asia indicated the high prevalence of students felt stressed at least one time during the education period (41, 50). Sreeramareddy et al

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measured the prevalence of psychiatry disorders among undergraduate medical students of Nepal by 12-item GHQ questionnaire and found that the overall prevalence of psychological morbidity in Nepalese medical students was lower (20.9%) than It's neighbor, india (51). Another similar survey was performed in South East Asia, Thai Medical School by Thai Stress Test and reported that 61.4% of students had some degree of stress. However, only 2.4% of Thai medical students had a high level of stress. This apparent discrepancy is mainly due to the optimal management of stress by problem solving coping strategies as mentioned above (52). An investigation in the United Kingdom (UK) demonstrated that, 39.1% of medical students can be considered as mentally ill individuals (5). In addition, Willcock et al conducted a similar research by GHQ-28 in the Continent of Australia and the Pacific Islands. Based on their findings, about 70% of the medical educators had psychological disorders (53). Therefore we can provide a map to show the prevalences of mental disorders among mentioned regions. Differences in the various populations can be due to the variations in the sociocultural contexts and the curricula of medical schools where such investigations were conducted. Finally, we can conclude that unfavorable educating proccess and lower levels of knowledge in developing countries may cause the higher prevalence of mental disorders among medical students (49).

Potential Causes and Factors Associated with Mental Disorders

According to the previous published studies, causes of stress in medical schools vary by several factors. These factors have been classified into two groups: stresses related to the university and individual features of the students themselves (54). First of all, university is a new and unfamiliar place for the students stay away from their home and family and characterized by quite a bit of change in students lifestyles which is stress inducing (55). Several researchers reported that mental problems vary according to the year in educating. They determined that students in higher terms showed the larger adverse effects of mental disorders, since new students have not yet been experienced curricular influences and the difficulty of medical training (5, 56). Thus, increased academic workload and little time for personal activities may cause emotional disorders among the high-terms medical students (57). On the other hand, transition to the clinical courses in higher terms can lead to the intense emotional experiences involving stress and anxiety (58). In this regards, a study in Australia indicated high rates of emotional exhaustion among interns. The authors believed that interns had heroic images of themselves at the end of their educating period and while the internship year progresses, the ability to assess these aims may be threatened. Thus, they usually experience psychological distress in the internship course (53). On the other hand, some other studies illustrated high prevalence of mental health problems in first year medical students. They believed that personal problems; financial, new relationships and academic grade may majorly cause this negative effects (4). In addition, The decrease in prevalence of psychological morbidity in the next years of education can be explained by a gradual adaptation of students to the new situations (51). Indeed, prevalence of mental illness in first year students majorly depends on the personal characteristics while this value in next years depends on the suitability of medical schools curriculum (59). In conclusion, based on the literature, the majority of mental disorder incidents are mainly contributed to medical training rather than to personal problems (5). However, we review some of the major personal factors here. Gender is one the personal determinants to measure the probability in the incidence of mental disorders. In the most of surveys, female medical students indicated more susceptibility to experience mental problems during their training period (60). Age also seems to be an effective factor in the management of stress and prevention in the consequences. Younger students have the ability to use more social techniques including sports and outings with friends, while older individuals usually choose isolation based mechanisms such as smoking and drinking alcohol (61, 62). Several studies also reported that students

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who did not have desirable sociability with their friends or classmates or good relationship with their siblings and parents are more prone for mental disorders (57). On the other hand, high dependence on family also can lead to various adverse influences. In fact when this support is disrupted, those students feel weakness (63). The upbringing of children in the family is significantly associated with employment of parents. In this regard, some authors illustrated that parents working more than usual, especially physicans, are unable to properly take care their children (63, 64). On the other hand, students who have parents with low income, experience more stress to solve their financial problems during educating. In conclusion, upbringing of children and employment of parents should be balanced in all aspects to reduce the incidence of mental problems in future (64). High parental expectation is also suggested hypothesis in relation to high rates of stress in doctor's children (51). Sleep-awake cycle in medical students is another factor that is attributed to both of the personal and curriculum aspects of determinants. A recent epidemiological study on 103,650 subjects reported that mental health of individuals whose sleep time was less than 7 hours, and those who slept 9 hours or more, was poorer than others (65). The medical students should be awake to do their duty in hospital or study for their exams (associated with curriculum) or also some of the student usually go to bed late at night, mainly due to their personal habits (associated with personal characteristics). Therefore they are more prone to sleep deprivation which is stress inducing and is responsible for further mental disorders (66, 67). As the last factor under consideration in this part of present review, religion have a negative relationship with students harmful behaviors including smoking, alcohol and drug usage and also a positive association with optimal behaviors. Thus, it is predictable that religious students have better quality of mental health and also higher academic scores compared with religionless individuals (68).

Consequences of Mental Disorders in Medical Students

Based on the literature, medical students have been the most distressed society of students, especially due to their academic demands. This high level of stress has serious consequences which may cause several problems in the lifestyle. Therefore, failure to detect this problem in the first steps may lead to the unintended destructive effects. However, the extent of the consequences and symptoms of mental illness is very widespread and we can not consider all of them in this study (19). Thus we mainly evaluate the major consequences reported by the national research of counseling centers, including illicit drug use, alcohol drinking, learning disabilities, self-injury incidents and sleep problems (69). Most of the mentioned items are associated with each other and established a complex network. For example, alcohol drinking can facilitate drug abuse or cause eating problems, learning disabilities and sleep disorders. Thus, due to this correlations, we cannot examine each of them completely separate from each other (70). Anyway, mental distress in medical students can lead to negative impacts on their cognitive and learning abilities (31). In the other words, medical students require alertness and cognition abilities (to do their duties) that are impeded by mental health problems (71). Students with higher levels of health problems were characterized by lower academic self-efficacy and thus they can not persist against difficulties during educating. In fact they are unable to choose the appropriate method to solve the problems (72). As mentioned in previous parts, sleep disorders can cause stress and further health problems. However a number of recent studies indicated a U-shaped association between mental health status and sleep. Indeed, sleep patterns may be a reflection of the mental health quality of individuals and in the other words, sleep is a marker of mental health (65, 73-75). On the other hand, in response to increasing demands of the medical stress inducing curriculum, a considerable part of the students would turned to Tobacco, alcohol and illicit drug consumers. Indeed, the transient influences of these matters might be used by some students to

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soothe their symptoms of health poblems including stress and anxiety (76). Lots of researches have indicated the social consequences of consuming drug and also drinking alcohol, including involving into fights and arguments, missing school and many other risky operations (77). Some of the factors contributing to this trend are the social level of their friends and family and also history of smoking, drug abuse or drinking alcohol before university (76, 78). Also, alcohol and drug use are higher in men than women students and white students compared with black and Hispanic students (79). At the extreme end of the spectrum of stress and mental disorders, suicide can be the other consequence of mental problems (80). A nationwide study also reported that the level of suicidal thoughts in medical school was significantly associated with mental distress. The authors showed the higher prevalence of this ideation among medical students (81). In addition to ideation, suicidal planning and attempts are also more than age-matched males and females of general population (82). Based on a multi-institutional study, approximately 1 of 9 medical students having thoughts of suicide at least one time during their educating course and 34% of individuals with suicidal ideation develop a suicide plan. On the other hand, an estimated 8 to 25 attempted suicides occur for each suicide death. Thus, the stats is significantly more than individuals of similar age in the general population (33, 83). Although the factors that prompt medical students to planning have not been identified completely, suicide attempts are more probable among females, especially due to their lower tolerance ability (84). The examined side effects are responsible for the fact that individuals with mental disorders are dying 25 years younger than healthy people (85).

Proposed Solutions for Medical Educators to Reduce Mental Problems

Although each of the described reasons of mental disorders suggests particular solution, some treatment methods are more general and useful to solve a wider ranges of problems. In this regards, counseling centers were established in most of the universities and colleges. The centers usually learn stress management skills to students to cope with stress and its harmful effects (86). Here are some of the most beneficial control techniques: 1- Regular physical activity or exercise can improve the self-confidence, alertness, concentration, cognitive ability and sleep quality which are often disrupted by mental problems. These works usually carried out by producing endorphine which is a natural painkiller in the brain (87). 2- In addition, given that sleep deprivation can lead to stress and further mental problems, practice an appropriate sleep habits is another way to conrol the stress (88). 3- Lots of students are also ordered to share the disorders with their classmates, freinds or family. In fact, social engagement had lower the prevalence and incidence of further problems (57, 89). 4- A balance between study and not studying is another mechanism to manage stress. Considering the difficulty of the curriculum in medical schools, some of the students spend all their time and energy to study. These students usually feel stress and guilty about the study at their relaxing time. Therefore, creating an appropriate schedule to assign a time for each subject can assist the students to do their daily activities (90, 91). 5- On the other hand, setting up a proper diet without alcohol, cigarettes, drugs and any stimulator such as caffeine will help the mind and body to cope with stress (92-94). 6- Practicing relaxation methods including meditation, deep breathing, yoga and rhythmic exercise can be used to reduce the stress and pressures. These techniques brings the mind and nervous system of individuals back into a state of balance (95, 96). 7- There is another age-old strategy without any side effects or drug interactions, called religion and worship. Faith in religion can eliminate mental health disorders due to the feeling of belonging to the grand source. For this reason, most of the medical schools, put spirituality and religion into their training curriculum (97, 98).

Conclusions

Educating curriculum of medical schools is perceived as being stressful. Based on the selected coping

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techniques, this stress can be solved or turned to further mental disorders. High prevalence of medical students experience mental health problems during their training periods due to their inappropriate coping mechanism. Stress can manifest in various types, such as depression and anxiety. Depending on the severity of the mental disorders, it can lead to several difficulties including illicit drug use, alcohol drinking, learning disabilities, self-injury incidents and sleep disorders. If these problems are not controlled, the primary disorders may lead to suicide. There are several ways to manage stress and its further consequences, including regular exercise, appropriate sleep habits, social engagement, balance in study and other activities, relaxation methods and religiosity. Medical schools should consider these items to develop their curriculum in accordance with mental state of students. However, further analysis are required to identify the trends in the prevalence of mental problems to evaluate the success of medical schools in reducing stress among the students.

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Conflict of Interest

The authors declare that they have no conflict of interests.

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