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Relationship between Resilience and Mental Health of medical students

INTRODUCTION

The idea of a comparative study between Resilience and Anxiety/depression comes from the 2 main Mental Health Disorders notified by the World Health Organization (WHO) having a very high statistical rate among Brazilians, with the Brazilian population being considered the most anxious in the world and the 6th highest in rates of people suffering from depressive conditions or episodes; This reality can especially affect young people and students in the health field; in medical school the situation is challenging and educators have recognized that the stress of medical school can be significant [1]. Medical students appear to be particularly susceptible to common mental health problems, such as depression, compared to students in other courses [2]. Prior to medical school, these students report having lower symptoms of depression than their peers, suggesting that the training and environment of medical school may contribute to deteriorating mental health [3].

Burnout, a syndrome conceptualized as a result of chronic workplace stress, is common in the medical profession [4]. This extends to medical training, where symptoms attributable to college-related burnout have been widely reported in medical student populations [5]. Some of the predictors of burnout in medical students include lower levels of physical activity, gender, and year of study [6]. Furthermore, comorbid associations between depression and burnout have also been reported [7]. This growing evidence suggests that medical students are a high-risk population and failure to intervene on these issues may have a lasting impact on their mental well-being and career trajectory.

Anxiety and depression are becoming increasingly prevalent in many societies. It is well established that anxiety and depression are closely connected and can simultaneously affect adolescent and young adult populations, specifically college students [8]. Substance and alcohol abuse, along with challenges in academic, social, and family life, can worsen these conditions [9].

The years dedicated to training to become a doctor can be so exhausting and exhausting that it can be harmful to your health. Stress, which can also be defined as an unpleasant feeling of tension resulting from external demands, takes different forms during medical training [10]. Demands include heavy academic loads, sleep disruption, shift schedules, and exposure to life and death situations [11,12]. The transitions involved in the various stages of training are particularly stressful [13]. Consequently, mental health and life satisfaction often become compromised and significantly worsen during medical school. US and Canadian medical students have higher levels of distress compared to the general population, and among students, women are more distressed [14].

In particular, medical students face considerable challenges in their learning experiences and career development when transitioning from the classroom to clinical settings or advancing from the position of junior resident to attending physician. Whether before or after graduation, undergoing clinical training is more challenging than studying in school and can trigger many physical and mental health conditions (particularly mental disorders and emotional exhaustion) in medical students [15].

The demands and intensity of medical school pose a serious challenge to the psychological and physical well-being of medical students. The higher prevalence of mental health problems among medical students relative to their non-medical peers reflects the cumulative impact of stressors present during medical training and subsequent professional practice [16, 17].

The concept of resilience has several aspects, but from a psychological perspective, in general terms, it refers to people's ability to overcome obstacles or significant losses in life and reorganize themselves, be capable of ze to “get back up” when they face difficulties [18]. These difficulties can be the most varied, from material, social or emotional losses; they can range from adversities to traumas experienced, personal tragedies and threats suffered, problems directly linked to family or relationships, facing health problems whether serious illnesses or physical and emotional exhaustion linked to stressors experienced in routine work and financial problems [19]. Resilience is seen as a flexible and adaptive act performed in response to challenges or as an aggregate concept of multiple qualities, both indicating an ability to survive and deal with the likely consequences of facing pressure or adversity [20].

The challenge for medical students lies in the ability to adopt healthy coping strategies.

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lience amid an educational system in which the demand on medical students to endure stressful, competitive and intense environments is at an unprecedented level [21].

This systematic review aims to list the psychological symptoms of medical students who present different levels of resilience.

METHODOLOGY

From July to August 2023, the author reviewed articles through an electronic search in the electronic databases PubMed, Medline, Lilacs, CINAHL, Web of Science, Scopus and Cochrane. Language restrictions were applied for Portuguese, English and Spanish. Selected a time scope of 10 years from the search date. Studies that revealed mental health conditions related to studies in the health area were defined as the primary outcome. As a secondary outcome, the research improved on studies directly related to medical students nationally and worldwide. From these, articles with the same name were excluded, articles that were not relevant to the first pre-established sieve in the research.

The following descriptors in English were used for the primary research: “mental health”, “quality of life”, “resilience”, “depression”, “anxiety”, “medical students”.

As for the descriptors in Portuguese, “mental health”, “quality of life”, “resilience”, “depression”, “anxiety”, “medical students” were used, with the keywords being Anxiety in Medical Students; Resilience in Medical Students; Depression and Resilience

Only those articles that met the following inclusion criteria were implemented in the study: clinical trials, bibliographic reviews, systematized reviews and meta-analyses referring to the mental health of medical students during and immediately after the medical undergraduate period, presenting the ability to facing difficulties through resilience.

From this selection, 74 articles were listed that met the requirements. These articles were fully evaluated and reviewed by the researcher in order to verify similarities, disparities and data relevant to the scope of the study.

In the systematization, data relating to resilience were extracted and possible biases were assessed to exclude them. The reference lists of pre-selected articles were also examined in order to find studies of potential relevance for full reading.

(Here it would be interesting to mention statistical data from the research, whether any data compilation tables were created or how the most important research findings were obtained)

RESULTS AND DISCUSSION

According to Tempski et al. [22] Medical education can affect medical students' physical and mental health, as well as their quality of life. The objective of the study carried out by the authors was to evaluate the perceptions of medical students about their quality of life and its relationship with medical education [22]. First to sixth year students from six Brazilian medical schools were interviewed in focus groups to explore what life is like for medical students, the factors related to the increase and decrease in their quality of life during medical school, and how they cope with the difficulties in their training. Students reported a variety of difficulties and crises during medical school. Factors that diminished their quality of life included competition, unprepared teachers, excessive activities and college schedules that required exclusive dedication. Contact with pain, death and suffering, in addition to harsh social realities, influenced their quality of life, as well as frustrations with the program and insecurity regarding their professional future. The lack of time to study, carry out leisure activities, maintain relationships and rest was considered the main influencing factor. Among the factors that quality of life are improved by good teachers, classes with good teaching approaches, active learning, contact with patients and efficient time management. Students also reported that meaningful relationships with family, friends, or teachers enhance their quality of life. The quality of teachers, curricula and healthy lifestyles related to eating habits, sleep and physical activity change the quality of life of medical students. Lack of time due to medical school obligations was a significant impact factor. Students state that their quality of life is influenced by their experiences at medical school, but they also reconfigure their difficulties, understanding their low quality of life as necessary and inherent to the process of becoming doctors.

The study Mayer et al. [23], aimed to evaluate personal and institutional factors related to

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prevalence of depression and anxiety among students at 22 medical schools in Brazil. Conducted between August 2011 and August 2012, the study examined personal (age, sex, housing, scholarship) and institutional (year of medical course, legal status of the school, location and support services) characteristics in association with scores of depression (using the Beck Depression Inventory - BDI) and anxiety (using the State-Trait Anxiety Inventory - STAI). Of the 1,650 students initially selected, 1,350 (81.8%) completed the study. The results showed that 41% of students had depressive symptoms, 81.7% state anxiety and 85.6% trait anxiety. There was a positive association between anxiety levels and depression scores. All three symptoms were more common in female students and in institutions located in capital cities. Furthermore, scholarship students had greater state anxiety, but no significant differences in depression or trait anxiety scores. Those with more severe symptoms of depression and anxiety also reported a lower perception of access to psychological support and adequate support systems to deal with stress.

A review study covering English-language peer-reviewed articles in MEDLINE between 1990 and 2015 revealed a prevalence of burnout among trainees, including medical students, residents, and interns, at levels much higher than those found in the general population [24] . Another study indicated that medical students should be equipped not only with medical knowledge but also with an awareness of how to properly care for themselves [15].

Approximately half of medical students experience symptoms of burnout and 10% have suicidal ideation to some extent [25, 26]. Students' mental health challenges potentially affect patient care, with personal distress likely lowering medical exam scores and empathy for patients.

Meta-analyses have indicated that the prevalence of depression among medical students ranges from 10.3% to 59% [27], with 28% of medical students meeting criteria for depression as assessed by a self-reported questionnaire [28].

Anxiety among medical students varies widely (6%–67%) [29], and one-third of medical students meet criteria for an anxiety disorder [30].

Two meta-analyses found that, globally, more than 1 in 4 students report symptoms of depression and up to 1 in 10 report suicidal ideation [31, 32]. Another global meta-analysis found that 1 in 3 medical students experience symptoms of anxiety [33]. Longitudinal studies have revealed that students enter medical education with comparable or even better psychological well-being than the general population. However, their rates of depression and anxiety increase during their time in medical school [34, 35].

These mental health problems include psychological stress, anxiety, depression, sleep pattern disturbances, burnout, eating disorders, and potentially harmful alcohol use [36]. When comparing with non-medical students, one study found that medical students had a higher prevalence of depression, while other studies reported a lower prevalence of depression among medical students [37]. Furthermore, stress levels have been found to be higher in medical students [38]. Medical students were found to be at a higher risk of physical and mental health problems than non-medical students due to greater exposure to academic stress [39].

One study found that the rate of suicidal ideation was higher in second-year students compared to first-year medical students; another, that students with depression were more likely to have thoughts of giving up compared to students without depression [40]. In terms of professional aspects, impaired academic performance, medical errors and impaired competence may occur [41].

In some countries, up to half of college students may experience moderate to extremely severe levels of depression, anxiety, and stress [42]. Furthermore, specific student populations, such as students at medical universities [43] or music academies [44], may be exposed to demands highly stressful situations related to their studies and suffer the consequences for their health. Depression and anxiety as well as indicators of burnout among college students have recently been significantly related to the newly suggested construct of study addiction, conceptualized as an early form of workaholism [45]. This is consistent with findings showing that studying itself is a major source of distress and psychopathology for young adults [46]. For these reasons, it is necessary to study the factors related to anxiety and depression among students and apply efficient instruments to measure these variables. Anxiety and depression are associated with a substantial decrease in an individual's overall well-being. The psychological difficulties they cause are accompanied by increased levels of stress [47], poor sleep quality [48], lower perceived support from family and friends [49] and lower sleep quality

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of life [50].

According to Paro et al. [51], the multicenter study that the authors carried out nationwide, revealed that female students had worse quality of life scores in the domains of time use, physical and psychological. In the more advanced years of the medical course, scores in the teaching environment domain were worse, especially among women. This can be explained by factors such as the persistence of gender inequalities in medical schools, which lead women to feel greater pressure to prove their capabilities. The so-called “middle crisis” of the medical course, observed in previous studies, was not confirmed in this study. Instead, a recent trend has been observed in the academic community to value positive mental health as a strategy to train more human professionals. Educational institutions have implemented actions to improve student well-being, such as support services,mindfulness and curricular changes. The study has limitations as it is cross-sectional, but the randomization of the sample allowed the generalization of the results.

Resilience has been suggested as a protective factor against adversity [52]. Resilient individuals are able to function in the face of painful feelings, failures, and illness. No psychometric instrument is accepted as a gold standard measure of resilience [53]. Its presence is inferred from the ability to resist trauma and adverse events. A longitudinal study of medical students in Norway found that resilient students were characterized by stable levels of life satisfaction [14]. A consistently high level of life satisfaction, in turn, was predicted by adequate social and leisure activities. A study with a large sample (n = 2,000) of Chinese medical students reported that resilience buffered negative life events, while social support protected against mental health problems [54].

Resilience is also considered a measure of the ability to cope with stress and, as such, can be used by clinical professionals to evaluate the treatment of anxiety and depression [55]. Among the commonly used resilience measures, the most popular are*Brief Resilience Scale*(BRS) [56], derived from the work of Carver [57], and the*Brief Resilient Coping Scale*(BRCS) [58], theoretically based on Polk [59], are concise, with only six and four items, respectively [60,61]. Other renowned resilience scales are much longer, ranging from the 10-item Connor–Davidson Resilience Scale [62] to the 102-item EGO Resilience Scale [63]. However, the application of these extensive scales may be limited due to the time-consuming data collection process, which may result in high non-response rates or missing data [61].

Vieira et al. [64] carried out a study to investigate the relationship between the level of academic stress and resilience in health students. A cross-sectional quantitative study was conducted with 34 students from a private college in Goiás, using Google Forms, between November and December 2021. Participants responded to a sociodemographic and academic questionnaire, in addition to the Instrument for Assessing Stress in Nursing Students and the Wagnild & Young Resilience Scale. Data analysis was performed using the Statistical Package for Social Sciences (SPSS), version 20.0. The majority of students presented a high level of general stress (52.9%) and moderate resilience (41.2%). They reported low levels of stress in practical activities, professional communication, time management, relationships with the academic environment, professional training and theoretical activities. There was a significant relationship between the level of stress related to professional training and resilience. The results confirm the relationship between resilience and academic stress, suggesting that resilience can act as a protective factor for students' health, strengthening their ability to adapt to adversities in life and the academic context.

The review by Vanderbilt-Adriance and Shaw [65] notes that the proportions found to be resilient ranged from 25% to 84%. This creates difficulties in comparing prevalence across studies, even if the populations studied experience similar adversities. This diversity also raises questions about the extent to which resilience researchers are measuring resilience or a completely different experience.

In a methodological review of resilience measurement scales, 15 measures were identified that were intended to measure resilience [62]. All of these measures had some information missing about their psychometric properties, and the authors did not find a current 'gold standard' among the 15 resilience measures. This has led to limitations in comparing the prevalence of resilience across studies, even though the populations studied experience similar conditions.

A recent article described an interactive student-led workshop that introduced students to practical, skills-based resilience tools. Their pilot study showed that first-year medical students are eager for resilience training and value practical, easy-to-use, skills-based tools to help them cope with and prevent burnout [21]. This study highlighted that older students are well-positioned to understand the stressors they face in the environment

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of learning; Involving them in delivery can be an innovative approach to combating burnout.

Resilient students can perceive problems as opportunities for growth, recognize available resources, organize themselves, and show creativity, optimism, and humor [66]. Furthermore, these two factors are of special interest to medical educators as they are relatively susceptible to psychological interventions to promote students' mental health compared to the rigid structure of medical curriculum and training [67, 68].

CONCLUSION

It is concluded that factors associated with increased symptoms of depression and anxiety among medical students include female gender, school location, and scholarship status. It is interesting to note that scholarship students showed more state anxiety, but did not show significant differences in symptoms of depression and trait anxiety.

Early identification of medical students at risk for depression, anxiety, or stress is important to prevent the possible effects of mental health problems such as chronic disorders and suicide, and to help them maintain good psychological health during stressful periods of your medical program.

Furthermore, there are concerns that untreated mental health problems in medical students are the underlying cause of poor mental health in doctors [69]. Ultimately, the mental health of today's medical students will shape, through multiple pathways, the healthcare system of the future.

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