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Prevalence of Clinical Depression among Medical Students and Medical Professionals: A Systematic Review Study

Maureen Onyishi¹, Debjyoti Talukdar¹, Rapheal Sanchez¹, Ayoola Omowunmi Olaleye² and Srinivas Medavarapu^{3*}

¹Basic Sciences, All Saints University School of Medicine, Roseau, Dominica

²Clinical Sciences, All Saints University School of Medicine, Roseau, Dominica

³All Saints University School of Medicine, Roseau, Dominica

*Corresponding author: Srinivas Medavarapu, Assistant Professor, All Saints University School of Medicine, Roseau, Dominica, Tel: 18483915130; E-mail: srinivasmedavarapu@yahoo.co.in

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Abstract

Objectives: To examine relevant data on clinical depression among medical students and professionals and thus improve practices in the field.

Methods: Detailed analysis of 15 peer reviewed articles published between 1980-2016, the following electronic databases such as MEDLINE, EMBASE, CINAHL, PsycINFO, ERIC and PubMed. Important articles were included after reviewing retrieved articles from various reference lists.

Results: The studies review therefore shows a higher trend of prevalence of depression. It is observed that it's quite common among most of the medical students. It involves increased levels of burnout and suicidal ideation which is not inevitable among resident and consultants. Level of psychological distress it quite common among medical students and professionals. It has consistently increased higher as compared to the regional general population. In general, the studies show that the psychological suffering is higher for female physicians and medical students as compared to males.

Conclusion: Prevalence due to psychological distress among medical student and resident professionals around parts of the world is substantial. Future research should seek to identify and possibly eradicate unnecessary stressors.

Keywords: Depression; Anxiety; Medical students; Suicidal; Distress

Introduction

According to the WHO, Depression occurs across the globe and affects an estimated 350 million people [1]. It may become a serious health issue especially in severe and chronic cases and is responsible for about 800,000 suicides per year.

Suicide, the worst complication of depression, is the second most common cause of death among individuals aged 15 years to 29 years [1]. According to Association of American Medical Colleges (AAMC), it was recorded that the average age suicide is 24 years old applicants in medical school [2].

This encourages a thought that the 2nd leading cause of death in medical schools and colleges in general is suicide secondary to depression. The morbidities pertaining to psychological and physical effects has attributed to depression, stimulating feeling of fear, lack of confidence, ability anger and resentment as seen in many medical students [3].

A review suggests that the increased levels of apprehension and depression may cause effect medical and nursing schools negatively resulting to deteriorating of clinical practice and patient care services [4]. Symptoms of clinical depression have been found in practicing qualified physicians in view of the gender differences between men and women, reflecting epidemiological studies that show depression to be more in women. Certainty with many review studies carried out among medical students, using various determining instruments, proved a similar result [5].

Significant psychological distress was also attributed to hours and years spent in medical school and other studies shows higher rate of prevalence of depression among medical students compared to other field of study in the general population [3].

Another article suggests that the quality of medical education received is linked to depressive symptoms in physicians [6].

Materials and Methods

This research project was conducted as a literature review. The following databases were searched, chosen to provide a wide range of research: CINAHL, EMBASE, Medline, PsycINFO, ERIC and PubMed. These databases were searched using the keywords; symptoms, depression, residents, medical students. Other symptoms like anxiety, confusion and sadness were also

included. The search was conducted looking for articles in English language, and the title and abstract of articles identified by the above strategy were then screened. Articles finally included, adequately described evidences of depression among members of the medical field and utilized relevant guidelines in establishing a clinical diagnosis of depression. A total of 27 articles were initially shortlisted, however, upon application of full inclusion and exclusion criteria, 15 were selected for full analysis.

Results and Discussion

Study characteristics

Seven cross-sectional studies, one longitudinal study, four prospective cohort studies, two surveys and one study which had both cross-sectional and longitudinal aspects involving a total number of 20,452 individuals were included also in this study. Five took place in the United States, three in China, four in the United Kingdom, one in Canada, one in Egypt and one in India. Relevant study characteristics are summarized in **Table 1**. This literature review of 15 studies involving 20,452 medical students, residents, physicians, pharmaceutical students, nurses and health managers, demonstrated that there is a higher

prevalence of anxiety, burnout, depression and suicidal ideation in the aforementioned group than in the general population. This may affect the long-term health of medical students and professionals because instances of severe depression have been linked to a higher risk of future depressive episodes and greater long-term morbidity [22,23]. Already established for some time is the paradigm that medical school involves numerous stressors that affect the well-being of its students [24]. Several studies have reported the effects these stressors have on the mind and health of students in different parts of the world [13-21]. However, some studies found little or lacking evidence of stress among medical students [25,26].

Our review revealed differences in depressive symptoms between genders. The prevalence of symptoms was higher in females. This can be because

- Females are more likely to seek help when depressed.
- Females are more emotionally inclined to discuss about stressful conditions.
- Female physicians experience strains when they try to balance a spouse and children with their career.

However, a study we reviewed showed a higher prevalence of depression in males [27].

Table 1 Summary of study characteristics of included studies describing clinical depression in medical students and professionals.

SNo.	Study	Methodology	Participants	Result/Conclusion
1	Dahlin et al. [7]	Cross-sectional study	Year 1, 3 and 6 medical students, (n=342) 90.40% response rate	From studies, first year medical students indicated the highest levels of pressure. Gender differences were also noted, as to women experiencing higher levels of stress than men. Medical students showed much higher levels of depression than the student women resulted in higher levels.
2	Dyrbye et al. [8]	Cross-sectional 2007 and longitudinal from 2006 to 2007 study	4287 medical students from 7 different medical schools, including students from 5 institutions studied longitudinally.	From studies, approximately 10% of medical student's experience suicidal thoughts, and 50% of medical student's experience burnout. Suicidal thoughts and burnout have been cross linked with in medical students, and have also shown to decrease in levels together.
3	Rosen et al. [9]	Prospective cohort study	47 medical student interns from the University of Pennsylvania resident program	Moderate depression and anxiety showed an increase from 4.3% to 29.8%. Only 4.3% had reported increasing levels of burnout compared to the 55.3% of students at the end of the year that had reported the same experience studies resulted in a large association of sleep deprivation with depression.
4	Goebert et al. [10]	From 2003 to 2004, authors surveyed students from a total of 6 different sites	Around 2,475 surveys with approximately 2,193 (89%) completion. This estimated rate of response was higher with in medical students than with residents. (95%) response rate from medical students.	Results showed that depression is a significant issue both in medical students and residents. Total response rate was (21.2%), suggesting that the rate of depression is higher than in graduate students and other young adults in the public (8%-15%).
5	Chang et al. [11]	Cross sectional study using PRIME-MD depression screening tool, modified Maslach Burnout Inventory Human Services Survey (MBI- HSS)	A survey was administered to 526 students in the first 3 years of medical school (336 responders; response rate: 70%) at one institution	The prevalence of burnout, depression, and stress were higher in this sample of first through third-year medical students when compared with other medical students from previous studies.
6	Sobowale et al. [12]	Cross-sectional study was conducted at a medical school in mainland China in 2012	A total of 348 students responded to the survey, with a response rate of 99%	Rates of depression and suicidal ideation are high in medical students in mainland China. Mental health services are deficient and unlikely to address distress in students.

7	Fahrenkopf et al. [13]	Prospective cohort study	Three residents from three different pediatric residency programs	Non depressed residents were found to be less likely to make medical errors compared to the depressed residents. However burnout was not found to be correlated with an increased level of medical errors.
8	Caplan [14]	Postal survey study	It has been selected from a (322) general practitioners total of (524), (121) senior hospital managers (56) (80) (81) hospital consultants (80) replied	The managers and consultants have showed less signs of suicidal thoughts than general practitioners. Levels of stress, depression, and anxiety seemed to be high with in managers and doctors in the NHS. Seniors doctors showed more stress in general than other medical staff members.
9	Dahlin and Runeson [15]	Survey and three year interview based analysis	127 medical students who Were evaluated and later re-evaluated in their third year of medical school [7]	To avoid burnout, it showed that students with better experienced less burnout effects than others. Psychiatric morbidity is known to be common in medical students but many times it is avoided to seek counseling.
10	Frank and Dingle [16]	Cohort study	Women Physicians' Health Study. (n=4,501 respondents, 716 questions)	1.5% (N=61) of women physicians reported having attempted suicide, and 19.5% (N=808) reported having a history of depression.
11	Hsu and Marshall [17]	Cross-sectional study-measuring prevalence of symptoms of depression on the (CESD) depression scale	1,805 fellows, residents, and interns from Ontario, Canada.	Men had lower depression scores than women. Married house staff scored with lower depression than of the single house staff members as seen in community studies. Women had higher depression scores than men. The proportion of unmarried house staff with moderate or severe depression scores was higher than that of married house staff. Considerable differences were found by specialty, and depression was most prevalent in the first year of postgraduate training.
12	Shi et al. [18]	Exploratory cross-sectional study Conducted June of 2014	2925 medical students had become the final subjects for testing	Medical students were 66.8%, which resulted being higher than Chinese university students which were 44.2%. 5 th year students had the highest prevalence of depression. 44.2% Prevalence of depression among Chinese university students. Older students, male students and students in 5-year programs had a higher prevalence of depressive symptoms relative to their counterparts.
13	Sharma et al. [19]	Cross-sectional study conducted in Peoples University (India) using Theoretical Depressive Experiences Questionnaire (TDEQ)	440 students participated in the study; response rate was 90% (396 students). 440 Students participated in the study; response rate was 90%. Average age of participants was 22 years and more than half 62%. 246 students were male. 246 students) were male.	The prevalence of depression among students was 31%. Symptoms of moderate severity were predominant among students with the illnesses. Depression prevalence among students was 31%. Many students were found to have psychiatric problems, associated with multiple social, behavioral and educational factors.
14	Quince et al. [20]	Longitudinal study including questionnaires, surveys, and a depression scale of hospital anxiety and depressions (HADS-D) scale	From 2007 to 2010, 1112 medical Students entering first year and 542 Entering clinical fourth year from the University of Cambridge (UK)	Among groups between male and female students results of depression carried from 2.2% to 14.8%.
15	Ibrahim and Abdelreheem [21]	Cross-sectional study conducted in Faculty of Medicine and pharmacy in the Alexandria University of Egypt	164 medical students and 164 pharmaceutical students.	Studies concluded that significant depression and anxiety was found in both medical and pharmaceutical students Faculty of medicine were concluded to have higher levels of symptoms. Moreover, it was concluded that the prevalence of anxiety and depression in faculty of medicine was found higher than that in faculty of pharmacy. Furthermore, it was noticed that the prevalence of symptoms was higher among females.

Limitations

While searching for relevant studies to include in this literature review, we discovered that efficient comparison between relevant studies is highly difficult due to the wide variety of instruments used to assess depression.

The most commonly employed tools to evaluate depression were the Beck Depression Inventory (BDI) [28-30] and the Center for Epidemiological Studies Depression Scale (CES-D) [31-33], followed by the depression subscale of the Hopkins Symptom Checklist (HSCL) [34], the depression subscale of the

SCL-90 [35], and the Zung Self-Rating Depression Scale (SDS) [36].

Recommendation and Conclusion

Analysis of the 15 articles revealed a high prevalence of depressive symptoms among medical students, residents and professionals.

Overall, a large patient to physician ratio, multiple on-call hours, insufficient sleep, grueling hours of lectures, financial

burdens in form of student loans, environmental inadequacies another societal factors may explain why depressive symptoms are more prevalent in the medical field.

Efforts directed to create more positive settings for learning and clinical care changing the educational and clinical environments are also needed to reduce unnecessary stressors.

This calls for other members of society especially university and hospital authorities, parents and government officials to invest in strategies that focuses on enhancing resilience, hope and optimism. These strategies can take the form of preventing depressive symptoms and setting structures to cater to those already affected.

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