The Prevalence of Depression and Suicidal Ideations in Graduate Medical Students
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Purpose of Research
To review the literature with respect to the prevalence of depression and suicidal ideations in graduate physical therapy students.

Background
Depression is defined as a period of two or more weeks in which there is either a depressed mood or loss of interest/pleasure, and at least four other symptoms that reflect a change in functioning: problems with sleep, eating, energy, concentration, self image, or recurrent thoughts of death and/or suicide. Symptoms of depression include an overbearing feeling of sadness, being distant in social situations, lack of personal hygiene, and thoughts of suicide [14]. There is universal agreement that health care professionals are more likely to experience higher levels of depression than students in other fields [17]. The rate of depression in medical students ranges from 2.9% to 38.2% [5]. Risk factors for depression among graduate students include gender (female), living alone, poor physical health, and poor economic status (incorporating credit card and student loan debt, work/life balance, predisposed stress, insomnia, and poor sleeping habits 12 [3].

The relatively recent transition to the Doctor of Physical Therapy (DPT) degree has resulted in an increase in coursework and academic requirements to fulfill new licensure standards along with an increase in financial burdens. While Doctor of Physical Therapy students are often selected for their compassion, resiliency, determination, and strong academic performance, the expectation to succeed to a high level and lack of self-care leads to an increase in mental health issues. Despite this, limited research has examined the prevalence of these conditions in DPT students.

Analysis
1. Coentre et al. found there was a high prevalence of depression and suicidal ideation among 4th and 5th year medical students.
2. Moreira et al. found that 1st, 2nd, and 5th year medical students had a higher rate of anxiety and depression.
3. Rossom et al. found that 72% of their participants scored a mild to severe rate of depression in healthcare providers with a 42% rate of suicidal ideation.
4. Ruz et al. found compared to non-depressed nursing students, depressed students have a higher rate of absenteeism as well as decreased grades.

STUDY | PARTICIPANTS | METHODS | RESULTS
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Coentre R, Faravelli C, Figueira ML, 2016 | - 456 native Portuguese medical students - Students in their 4th or 5th year at the University of Lisbon | Administered a self-reported survey about demographics and clinical variables related to depression. | - 6.1% prevalence of depression in medical students at the University
- 3.9% prevalence of suicidal behaviors
- Higher depression scores found in females, people who lived alone, people with poor health and economic status, people with high levels of anxiety, and people who have a history or family history of psychiatric disorders.

Moreira de Sousa J, Moreira CA, Telles-Correia D, 2018 | - 761 students at the University of Lisbon (Portugal) - 531 medical students - 240 non-medical students (86 economic majors, 81 finance majors, 73 management majors) | Administered the Hospital Anxiety and Depression Scale (HADS); split into sub-measurements of HADS-A (for anxiety) and HADS-D (for depression)
Evaluated academic performance self-reported about the number of classes failed and are retaking and the current approximate grade point average (on scale of 0 to 20) | - Medical students: 3.5% on HADS-D (p<0.034)
- Non-medical students: 4.4% on HADS-D
- Significantly higher anxiety and depression levels in 1st, 2nd, and 5th years of medical students (p<0.01)
- Not clinically relevant in non-medical students in any years on HADS-D (p=0.469).

Rossom RC, Coleman KJ, Ahmedani BK, et al, 2017 | - 267,290 participants 18 years or older at either Group Health Cooperative, HealthPartners, Kaiser Permanente Colorado, and Kaiser Permanente Southern California (part of the Mental Health Research Network [MHRN]) | PHQ-9 was administered to all patients at these health centers between 1/1/2010 and 12/31/2012.
Electronic health records, insurance claims, and other administrative systems were used for information
Documented both fatal and non-fatal suicide attempts | - 28% minimal severity (scores 0-4)
- 4% mild (5-9)
- 22% moderate (10-14)
- 5% with moderately-severe or severe (>15)
- Male-females suicidal ideations (23% vs. 19%)
- More frequent thoughts of self-harm resulting in greater suicide attempts and increased risk of death.

Ruz MEA, Al-Akash HY, Jarrah S, 2017 | - 170 students - Undergraduate and graduate programs at college of nursing at a private university in Amman, Jordan | HADS was administered 2 times at the beginning of the semester and 2 months later
Collected GPAs, gender, and number of absenteeism from the electronic system of the university. | Persistently depressed group has lower grade point average than consistently non-depressed group and higher absenteeism than compared to transiently depressed students.

Conclusion
Through the analysis of this research, we believe that there is a high prevalence of depression and suicidal ideation among medical students. The research demonstrated that medical students often suffer these mental illnesses due to high stress from a multitude of factors. Physical therapy graduate students are seldom researched, but we believe that they would have the same or similar prevalence rates compared to other medical professional students.

Future Research
Research studies show that depression and suicidal ideations are present in students in medical programs. There are many studies that demonstrate a prevalence of depression in medical students or nursing students, however, there is a lack of information on the prevalence of this mental condition in students in graduate physical therapy programs. Future research should first establish if there is a notable presence of depression in this sub-group of students. From there, further research can be conducted to identify potential risk factors of depression for this sub-population and potential interventions for this condition in these graduate programs.

References