Burning the Candle for Both Degrees: A Comparison of Factors Influencing Medical Student Burnout among Undergraduate and Professional Students

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ABSTRACT

This project was intended to examine the factors influencing the three dimensions of burnout as described by Maslach’s Burnout Inventory (MBI) Student-Survey: emotional exhaustion, cynicism, and academic efficacy, in a dataset of 886 medical school students in Switzerland. Multiple regressions were performed on each of the three dimensions, separated into Bachelor’s (undergraduates) and Master’s (postgraduate) programs. Seven predictors from a pool of nine were found to be significantly predictive of burnout depending on the dimension measured and the group sampled, including depression, anxiety, and weekly study hours.

INTRODUCTION

Physician burnout has been a rising concern of recent research, as studies show that physicians and other healthcare workers experience significantly higher rates of burnout than other professions. Not only does burnout result in physicians leaving the profession entirely, but physicians experiencing a high degree of burnout are more likely to make major medical errors and receive negative patient feedback. Thus, it is in the interest of the healthcare field to mitigate physician burnout.

For many physicians, burnout can begin in medical school or earlier. While many medical schools integrate mental health initiatives in their programs, a targeted approach is necessary to avoid adding unnecessary burdens on students. The goal of this project was to assess factors that had the largest impact on student burnout, based on the data of Carrad et. al.’s (2022) study on 886 Swiss students’ burnout, mental health, and empathy. The dataset was divided into Bachelor’s students (undergraduates) and Master’s students (medical students).

Burnout was assessed in this study by Maslach’s Burnout Inventory (MBI), which divides burnout into three dimensions: emotional exhaustion, cynicism, and academic efficacy. Higher emotional exhaustion and cynicism scores, and lower academic efficacy scores, indicate a higher degree of burnout.

METHODS

Carrad et. al.’s original data was accessed via Kaggle. The binary qualitative variable degree was created from the variable year to group together all Bachelor’s and all Master’s students. Separate datasets were created with only either Bachelor’s (n = 523) or Master’s (n = 363) students for use in regression analyses.

Nine quantitative variables were entered as predictors in multiple regressions for each dimension of burnout, separated by degree program: CES-D Score, STAT-T Score, age, weekly study hours, JSPE score, QCAE Cognitive score, QCAE Affective score, AMSP score, and GERT mean correct score. Backwards selection was used to find the best model in each category with a stepwise criteria of p < 0.1. Model selection was verified by examination of adjusted R² and Mallows’ Cp values.

RESULTS

Understanding the factors that affect burnout among different groups is essential to developing targeted interventions to reduce burnout in medical students and physicians. Using this data, the following recommendations can be made:

- Depression and anxiety are risk factors for burnout across dimensions and degree programs. Clearly studying others’ overall mental health contributes significantly to burnout. However, as shown in Table 4, approximately 77% of students in both degree programs reported they had not consulted a psychologist for their mental health. Schools should encourage students to seek mental health care, even as a preventative.
- Age was protective against burnout, but only in master’s students. Medical schools should consider tailoring their burnout initiatives to different age groups.
- A higher number of weekly study hours was also protective against burnout. The ability of students to devote time to studying is often dependent on many other external factors, such as employment and parental status. Schools should examine what changes would allow their students to devote more time to studying.
- QCAE Cognitive score was protective against some dimensions of burnout in both degree programs. Individuals with better cognitive empathy can observe their emotions separately from their experiences, and this can help them respond better to stress. Schools should consider training their students on cognitive empathy for themselves in addition to empathy for others.

SAS CODE

SAS Code for Bachelor’s degree Emotional Exhaustion model:
proc reg data=work.medburnbach; *backwards selection; model mbi_ex = cesd_stat_t_age_stud_h_ipse qcae_cog qcae_affect amsp eerc_mean / selection=stellar=0.1; run;
proc reg data=work.medburnbach; *by adjsp; model mbi_ex = cesd_stat_t_age_stud_h_ipse qcae_cog qcae_affect amsp eerc_mean / selection=adjsp(best=20); run;
proc reg data=work.medburnbach; *by cp; model mbi_ex = cesd_stat_t_age_stud_h_ipse qcae_cog qcae_affect amsp eerc_mean / selection=cp(best=20); run;
proc reg data=work.medburnbach; *global stats; model mbi_ex = cesd_stat_t_ipse / cbb_adjsp; run;

REFERENCES