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Medical Academic Burnout: A US Problem or a Worldwide Problem?

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1 August 2023

Abstract:

Objective: As a result of the COVID-19 pandemic and the provider shortage, the United States has been conducting a lot of research into the factors that lead to burnout amongst healthcare providers. One such area of particular focus has been academic burnout correlating to the training of future medical providers. The aim of this study will be to explore whether medical academic burnout is only prevalent in the United States or if other countries around the world have recognized this problem in their population of healthcare students and have started to pursue ways to address this problem.

Methods: Through the use of a literature review methodology and design, this study analyzed 11 different peer-reviewed studies from 2 different educational databases (PubMed, Google Scholar) as well as qualitative data from personal testimonies of healthcare providers in Costa Rica. All of these studies were focused around whether medical academic burnout was present in these 16 different countries.

Results: Following a detailed and standardized review of each study, all 11 studies and 16 countries were found to have evidence of medical academic burnout within their healthcare student population.

Conclusion: Medical academic burnout is a worldwide phenomenon and is in urgent need of further research into preventative strategies in order to reduce its prevalence in the healthcare student population across the globe.

Introduction:

The word “burnout” is not a new term for most people. In fact, the term has been studied since 1974, when Herbert Freudenberger first described this concept and its potential impact on the working population and detailed out its major correlating symptoms. According to Nunn et al.¹, “affected people feel depersonalized: disconnected from those around them and not interested in things they know are important.” Just by this definition alone, you can imagine the type of damage that this concept could have on any population of people if left unaddressed. However, there has been one field in particular that has received the most attention regarding this topic and that is the medical field. Much of our research on burnout these days has been directed towards assisting working clinicians and medical professionals with the burnout symptoms they are currently experiencing. While this is a much-needed area of research, by just focusing on the burnout of working professionals, we are not focusing on the larger picture. The many growing challenges of the medical education pathway have led to the presence and growth of a new form of burnout that needs to be addressed: academic burnout. Our singular focus on workplace burnout has allowed us to exclude a major root cause for why burnout might be so prevalent in modern day careers in medicine. It is the belief of this research study that these burnout symptoms actually start in the training process of our medical professionals. Therefore, much like how new age medicine is focused on screening for concerns before they need to be treated, our research should be aimed at preventing burnout at its first presentation rather than trying to treat it at its worst stage. The following paragraphs and referenced articles will attempt to display how widespread academic burnout has become in modern day medicine and what ways we can work together to try and address this growing problem.

Methods:

The aim of this study will be to analyze existing peer-reviewed literature in order to investigate whether medical academic burnout is a worldwide problem, or just a US problem. Following this step, this study will then attempt to highlight some important studies that have focused on preventative strategies and have shown scientific evidence for a reduction in academic burnout. This study will be formatted in a classic literature review format with the components of analysis being the standardized identification of relevant studies, use of defined selection criteria, comprehensive analysis of the chosen study, and objective interpretation of the results.

1. Identification of relevant studies: Following a lengthy and detailed search of specific online databases which included PubMed & Google Scholar, a large variety of articles were found with a publish date from 2017 to 2023. Some of the important search words included were “Burnout + Educational,” “Burnout + Academic,” “Burnout + Medical.” “Burnout + COVID,” “Burnout + International”, “Burnout + Prevention,” “Burnout + Definition,” and “Burnout + Costa Rica”.

2. Selection criteria: Studies were selected using an assigned selection criterion. The inclusion criteria consisted of studies that were focused around the presence or treatment of burnout in the academic population, particularly the medical academic population. There was also a strong focus on selecting studies that were conducted no later than 2017. Since there are no age or gender limits regarding who can be a pre-health or medical student, no exclusion criteria was formed against those demographics. Additionally, since the main topic of this study was to discover whether medical academic burnout is a worldwide problem using existing studies and research, no articles were excluded due to location of study.

3. Data extraction and analysis: With each chosen study, there was a detailed and complete review of all of the methods and data involved in that study. Particular attention was given to location, sample size, and overall study design. Data analysis for this study will be utilizing a qualitative approach of the reported findings, and the results of each article involved in this study will be referenced individually depending on the region of the study.

4. Interpretation of results: Interpretation of the findings will be focused on determining whether medical academic burnout is a worldwide problem in contrast to it just being a US problem. Additional focus was also placed on identifying and emphasizing preventative strategies in order to set the stage for future research. The summative results were then presented in a comprehensive report which lists out the major conclusions from this study, the limitations of this study, as well as emphasizing areas of future research.

Limitations: The methodology of this study relies on the data and conclusions from other studies. Therefore, this study is prone to publication bias and the potentiality of faulty methodology and data collection from other studies. Additionally, this study is attempting to compare research from multiple countries across the globe in order to form an answer to a binary question. This means that cultural difference in terminology and research design may also play a factor in the validity of this study.

Literature Review:

In this literature review, we hypothesize that medical academic burnout is a worldwide phenomenon. However, before we can properly analyze multiple countries on an individual basis, it's essential to reference a few studies that have already looked at medical academic burnout on a worldwide scale. These studies serve as the inspiration for this literature review and are intended to set the groundwork for the present-day severity of this problem and why further worldwide identification and preventative research is needed. Additionally, these articles will act as the main comparison studies in the discussion section following the display of the individual results from each country.

In October of 2018, Fajerman et al.² conducted a study that was aimed at estimating the prevalence of burnout in medical students worldwide. They performed a systematic search of Medline for “English-language articles published between January 1, 2010 and December 31, 2017” where they then “selected all the original studies about the prevalence of burnout in medical students before residency, using validated questionnaires for burnout.” After the review of 24 studies which included 17,431 medical students, they concluded that 8,060 suffered from burnout and they estimated the prevalence of academic burnout to be 44.2% (33.4 – 55.0%). In other words, one out of two students suffered from burnout, even before they entered their residency. They indicated this as a high level of distress in the medical population and encouraged the development of preventative strategies. According to this study, nearly half of all future doctors are experiencing genuine symptoms of burnout before they have even started their medical practice, yet our scientific community still remains focused on symptom management in our medical professionals. What we need to realize is that these symptoms of burnout were

already present and were unaddressed, thereby worsening the symptoms and severity of the condition in their future practice.

In July of 2021, Kilic et al.³ conducted a study with the intention of determining the respective important of academic burnout risk among medical students as well as the need for protective factors. They hypothesized that there was an increase in academic burnout during medical education and they wanted to confirm this to be the case. Through the use of an online and anonymous survey, they “recruited medical students (N = 342) from four education year-groups (i.e., Bachelor 1 and 3; Master 1 and 3). All participants voluntarily responded to an anonymous study and filled in four questionnaires assessing academic burnout, perceived stress, empathy, and perceived social support.” Following their multivariate analysis, they found that “two academic burnout domains (i.e., emotional exhaustion and cynicism) significantly changed according to the study year. Cynicism increased as the academic years progressed and emotional exhaustion was highest at critical graduation moments during the academic curriculum (i.e., Bachelor 3 and Master 3.)” The results of this study show evidence that unaddressed burnout does worsen through an academic education. Therefore, it provides support for why preventative strategies should be researched and employed if academic burnout is identified within a student population.

Now that the foundational studies for this literature review have been presented, it's time to look at the presence of medical academic burnout on a country-to-country basis in order to potentially answer the question: Is medical academic burnout just a US problem or is it a worldwide problem? The following format will list the country of focus and then provide an article

pertaining to the presence of medical academic burnout within that country as well as what that study concludes about the need for further research.

United States

With the overarching question of this literature review being whether medical academic burnout is a worldwide problem or just a US problem, it is pivotal that this study lays out a foundation for why medical academic burnout is, in fact, already an established US problem using the following studies. The first study will show how prevalent academic burnout is within a US undergraduate education and the second study will provide context for how prominent its severity is perceived to be within our scientific community.

In March of 2022, March-Amengual et al.⁴ conducted a study with the intention of investigating “the prevalence of psychological symptoms and burnout reported by first-year students, the relationship between these variables and their academic performance, and the differences between health and non-health sciences students.” They performed an observational study with a cross-sectional design. “Students of health sciences (medicine, nursing, physiotherapy, psychology), and non-health sciences (biology, social sciences, business management, and engineering) undergraduate programs completed the Brief Symptoms Inventory (BSI-18) and the Maslach Burnout Inventory – Student Survey (MBI-SS).” After receiving a sample of 506 students, they found that psychological distress was 27.1% and burnout was 7.3%. They concluded that there was evidence for a high prevalence of psychological distress in the first year of college and that even when burnout prevalence was low, these results show that there is still a need to introduce prevention programs to improve general wellbeing of students. The

conclusions of this article show that not only is academic burnout present in the US academic world, but it is present very early. The results show that 1 in 4 students in their first year of study will already be showing signs of distress and that 1 in 14 will already be showing signs of burnout. These findings strongly clarify the need for early preventative measures in this specific US population.

Now that the strong presence of medical academic burnout in the US has been established, it's important to draw attention to the general awareness of the problem in this country to set the tone for the rest of this literature review. Since the US has been aware of the severity of this problem in its population for a while, US researchers have started to conduct targeted studies in order to discover which specific medical population is the most at risk of the serious complications associated with academic burnout. In November of 2018, Rodrigues et al.⁵ conducted a study with a meta-analysis that evaluated 3,575 studies from multiple reputable databases with the aim of estimating burnout among different medical residency specialties. These studies included 4,664 medical residents and they discovered that "the prevalence of burnout syndrome was significantly higher among surgical/urgency residences than in clinical specialties." While the information about which specialty experiences the highest prevalence of academic burnout can be valuable information, the point that should be pulled from this study is that the US has reached an awareness and action level where it is focusing on targeted research studies in order to gather more nuanced information. It can be assumed that if the US was not aware of the strong presence and severity of medical academic burnout in its healthcare student population, they would not be running studies like this one.

With these two studies referenced, it's now reasonable to believe that the US recognizes a problem regarding academic burnout within its medical student population. With this statement clarified, it's now time to address the overarching question of this literature review and discover if this same dilemma is present in other countries around the world.

Nepal

In June of 2021, Shrestha et al.⁶ conducted a study with the purpose of determining the prevalence of burnout among medical students of a medical college in Kathmandu, Nepal, and find its association with age, gender, and year of study. They did this through a cross-sectional study with stratified sampling followed by simple random sampling. Their data was then collected “through self-administered questionnaire using the English version of the Oldenburg Burnout Inventory adapted for students (OLBI-S) and analyzed in STATA version 15.” They discovered that the prevalence of burnout was 65.9% in this college and that, of the remaining students, 12.7% were exhausted, 11.4% were disengaged, and 10.0% were neither exhausted or disengaged. Their conclusion was that this study shows an alarming presence of burnout in almost two-thirds of medical students in this college. The analysis of this study shows that not only is medical academic burnout present in at least one university in Nepal, it is extensively present. Further research would be required to confirm and expand upon the findings of this study.

China

In June of 2019, Wang et al.⁷ conducted a study with the hopes of assessing the academic burnout of nursing students as well as evaluating the impact of professional self-concept on

academic burnout among nursing students. The survey was run at a 3-year vocational medical college and a 4-year undergraduate medical college in the Anhui province, which is a college in east-central China. The details of this study were that, “from March to May 2018, a total of 1139 full-time nursing students were investigated by convenient sampling, and 1083 valid questionnaires were recovered in this study. The Academic Burnout Scale (ABS) and the Nurses’ Self-Concept Instrument (NSCI) were used to evaluate students’ academic burnout and professional self-concept.” Their results showed that the average overall score of the Academic Burnout Scale was 2.77 +/- 0.53, which was close to the median of the scale (median = 3). With this, they concluded that “it is meaningful for nursing educators to take measures to decrease nursing students’ academic burnout and enhance their professional self-concept.” The analysis of this study shows that nursing academic burnout is present in China and that their educators are being recommended to take steps to reduce this prevalence. Further research would be required to confirm and expand upon the findings of this study.

Austria

In September of 2020, Thun-Hohenstein et al.⁸ conducted a study with the hopes of examining the relationship between medical students and burnout syndrome at Paracelsus Private Medical University (PMU) in Salzburg, Austria. They utilized three surveys, each distributed at varying times of the academic year and assessed burnout by the combined measures of three components: the Maslach Burnout Inventory, the Six Factors Theory of Burnout, and Austrian norms developed by Unterholzer. Their results “showed a significant difference from the norm means in emotional exhaustion, depersonalization/cynicism, and low personal accomplishment”. They concluded that “burnout in medical students is frequent and significantly related to heavy

workload and other factors of work life, necessitating changes of academic and organizational settings of medical curricula.” The analysis of this study shows that medical academic burnout is present in Austria and recommendations are needed to address the workload of their students to address the frequency of this problem. Further research would be required to confirm and expand upon the findings of this study.

Spain

In April of 2021, Gil-Calderon et al.⁹ conducted a study with the intention of exploring the growing impact of burnout syndrome on medical students in Spain after noticing an increase in burnout syndrome amongst licensed medical professionals in the field. The aim of their study was to analyze the influential factors that could be contributing to the occurrence of this syndrome. Through the use of web-based questionnaires that were divided into two parts. They received results that showed that “family support for studying medicine is associated with lower burnout levels in all three scales of the Maslach Burnout Inventory.” They also found that “the number of years spent in the degree show the opposite trend: the more years in the degree, the higher score in all burnout scales.” They concluded that “burnout syndrome is a problem amongst medical students in Spain that increases with the number of years studying medicine.” The analysis of this study shows that medical academic burnout is present in Spain and that their levels of burnout increase as their academic education continues, thereby emphasizing the need to not let these symptoms go unaddressed in their country. Further research would be required to confirm and expand upon the findings of this study.

England

In December of 2019, Farrell et al.¹⁰ conducted a study that was designed to spotlight the wellbeing of doctors in training and understand the factors that were at play regarding the increase in mental health issues among this population. In their study, they had medical students from England complete an online survey that pertained to wellbeing. 84 students responded to this survey. Their results show that “29% of respondents were given a mental health diagnosis whilst at medical school, and 82% could be classified as ‘disengaged’ and 85% ‘exhausted’ using the Oldenburg Burnout Scale.” They concluded that this data “demonstrates the need for further surveys with an increased number of respondents in order to gather more evidence surrounding these high rates of mental health issues.” They also stated that support and preventative measures are required for their medical students. The analysis of this study shows that medical academic burnout is present in England and that the need for preventative measures has passed the level of recommendation. It is now a need within their country. Further research would be required to confirm and expand upon the findings of this study.

Canada, Denmark, India, Indonesia, Iran, Nepal, Nigeria, Russia, Sri Lanka

In a study conducted in May of 2022 by Kadhum et al.¹¹, 9 different countries were evaluated simultaneously with the main objective being the analysis and comparison of wellbeing, burnout and substance use amongst medical students in each country. Large groups of medical students in each country were sampled with the same methodology. Following the participation of 4,942 medical students from these countries, the results showed that “around 68% of respondents screened positive for mild psychiatric illness using the General Health Questionnaire-12. Around 81% and 78% of respondents were found to be disengaged or exhausted respectively using the

Oldenburg Inventory. Around 10% were found to be CAGE positive and 14% reported Cannabis use.” The analysis of this study shows that medical academic burnout is present in all 9 of these countries. The additional connection to an increase in substance use further clarifies the need for early intervention and preventative measures in the student population of each of these countries. Further research would be required to confirm and expand upon the findings of this study.

Ecuador

In January of 2022, Rosales-Ricardo & Ferreira¹² conducted a study with the main objective of evaluating how effective physical exercise was at reducing burnout levels in university students at a Technical University in Ambato, Ecuador. “Students were in different career tracks, randomly selected, and were assigned to three different groups (aerobic and strength exercise) and one control group (no exercise.) The evaluation instrument was the Maslach Burnout Inventory-Student Survey, whose dimensions are exhaustion, cynicism and academic inefficacy.” Their results showed that the aerobic exercise group reduced cynicism by 21.1%, inefficacy by 13.1%, and exhaustion by 31%. Their strength exercise group reduced cynicism by 27.4%, inefficacy by 21.7%, and exhaustion by 19.6%. In comparison, their control group showed an increase in exhaustion and inefficacy by 10.1% and 4.4% respectively and a reduction in cynicism by 7.3%. They concluded that “physical exercise (both aerobic and strength) were effective in reducing burnout levels in university students.” The analysis of this study shows that Ecuador was already aware of the presence of medical academic burnout in their population and have been making a strong effort to search for a solution. The identification of exercise as a potential preventative strategy should now be studied in various populations and regions to

confirm its efficacy. Further research would be required to confirm and expand upon the findings of this study.

Costa Rica

From July 7th to July 18th, the collaborators of this study got the opportunity to travel to Costa Rica to learn about its unique healthcare system directly from the first-hand experiences of those working within it. On this trip, the contributors of this paper were given the opportunity to speak with a Costa Rican Medical School, a former Nicaraguan doctor, and an active ICU nurse living in Costa Rica. Through the recordings of each of these personal accounts, the contributors of this paper were able to draw upon information that might be suggestive of some level of academic burnout in this country.

While speaking with the Costa Rican Medical School, it was stated that a primary healthcare goal of Costa Rica is so that “everybody receives the same health service at all levels. Metro and rural receive the same medical attention from a cold to cancer”. While the morality of this statement has its merits, the potential stress on healthcare providers and their education can certainly be envisioned. In order to provide a country-wide service like this, that means that the training for medical providers within this country would have to be incredibly diverse and extensive between multiple vastly different healthcare settings, thereby applying extra training requirements and a higher potentiality for burnout symptoms to become present during this time. Additionally, it was stated that “all people pursuing a specialty have to do a test. Around 2000 students attempt, only 250 pass.” With a 12% pass expectance rate for an exam that is incredibly important for the future of a clinician and their practice in this country, the presence of symptoms

like stress and anxiety that tend to be precursors to burnout syndrome can certainly be expected. These two quotes provide a little background for some specific ways that cultural differences in the healthcare system and its training design could play a significant role in academic burnout prevalence between countries. This has been identified as a potential area for further research.

Following a conversation with a former Nicaraguan doctor that was forced to leave her home country and immigrate to Costa Rica following political controversy, the contributors of this study were enlightened to some of the extra challenges that refugees face in Costa Rica and how these challenges could potentially increase the prevalence of academic burnout in this specific population. It was stated that even though she was a fully trained and experienced doctor in her home country, she had been given so many unrealistic requirements to transfer her certification to this new country to the point that it became nearly impossible for her to re-train or work in Costa Rica. “Just give me the opportunity to work and be free” was a statement she mentioned repeatedly. While this account is a testimony of an individual who was already certified and past her training meaning it might not be the most direct evidence of medical academic burnout within Costa Rica, statements like these provide some context into some of the hidden factors that might be a part of the larger picture. If this sort of cultural bias is present in the working world in Costa Rica, its realistic to believe it is likely present in the academic world. Further research would be required to investigate this possible correlation.

The final testimony pulled for the people of Costa Rica was from the stories of a geriatric ICU nurse working in the primarily immigrant city of La Carpio. While listing out the many challenges that nurses had to face from 2020 to 2023, she stated that she was lucky in her

medical career to have lived in Costa Rica for 30 years as well as receive her training within the country. With comments similar to the former Nicaraguan doctor, she stated that “they would block her from working and make her take and pass a test that is intentionally hard so that people fail. Exam is \$300 but people spend up to \$1000 on average.” Statements like this one provide further proof that there is more to the story when it comes to some forms of academic burnout. While burnout doesn’t have a particular face or culture, it doesn’t mean that prevalence, rate, and severity can’t change between people from different backgrounds. Regardless, it’s reasonable to assume that when you combine the results of each of the studies from the other countries with the personal testimonies of the additional challenges and unfortunate obstacles that Costa Rican medical students might have to face in their medical training, that it’s likely that some form of academic burnout exists within this country as well.

Results:

This literature review covered 11 different peer reviewed studies as well as 3 first-hand experiential testimonies. The studies referenced above represent quantitative and qualitative research findings on the potential presence of medical academic burnout in 16 different countries. In nearly every study in each country, it was determined that a large percentage of the sample population had a minimum of some form of mental health exhaustion. It was also shown that nearly every study in each country mentioned the need for further research to confirm their findings as well as a strong push to research potential preventative strategies. Finally, it was directly concluded in nearly every study in each country that the presence of academic burnout or mental health exhaustion is worrisome and needs to be addressed by our scientific community to prevent future problems. Overall, these results show a confirmation of medical academic

burnout on a worldwide scale as well as emphasize the need for further research and preventative strategies. Some areas that lack adequate research are worldwide comparison studies between countries to determine the degree and severity of burnout as well as what preventative strategies would be universal and the most effective within this unique population.

Discussion:

The results of this literature review confidently show that medical academic burnout is a worldwide problem. In the findings of the study conducted by Fajerman et al., it was concluded that one in every two medical students is experiencing symptoms of academic burnout. This number was then directly supported in Nepal with a 65.9% burnout rate; in England with a 29% mental illness diagnosis and 82% disengagement rate; and in the study that covered 9 countries with a 68% screen for mild psychiatric illness and an approximately 80% rate of disengagement. On top of nearly every study confirming the presence of medical academic burnout within their country, 4 studies directly stated that the prevalence of burnout that they discovered was “alarming” and 6 studies mentioned the “urgent” need for preventative measures to address this growing problem. The aim of this literature review was to discover whether medical academic burnout was a worldwide problem or not. However, what was actually discovered was that medical academic burnout is not only a worldwide problem, but it’s an urgent and growing worldwide problem. It was discussed in the study by Kilic et al. that medical academic burnout worsens as the education progresses toward more critical time periods. Comparing this finding with the results of this literature review that show confirming evidence that nearly half of all medical students across the globe will experience real symptoms of academic burnout shows a potentially terrifying reality for the future of medical practice and its professionals. If our future

medical providers are already experiencing unaddressed symptoms of burnout in their training, what is going to stop them from progressing in those symptoms once they enter their career. In a study conducted by Lacy & Chan¹³ in March of 2018, it was stated that “physician burnout is associated with increased rates of depression, alcohol and drug abuse, divorce, suicide, medical errors, difficult relationships with coworkers, and patient dissatisfaction, as well as physician attrition.” In a time where we are still recovering from the COVID-19 pandemic and attempting to address the growing provider shortage present in multiple countries across the globe, we need our physicians and healthcare providers to be healthy and motivated now more than ever. We need to address this problem.

However, now that we can factually recognize the presence of a worldwide dilemma, we can start to work together towards a solution. Since we have examined and displayed current and trustworthy information pointing towards the existence of a worldwide problem, there can now be a stronger effort towards research into preventative strategies for this specific population of students rather than just the professional population of medical providers. It’s time for us to recognize the problem and work together to find its solution through a stronger emphasis from our scientific community. The studies in this literature review were just the magnifying glass that will allow us to hone in on the bigger picture. Let’s stop only looking at the end result of burnout and start addressing the problem at one of its main root causes.

Now that the overarching question of this literature review has been answered, it’s important to identify some factors to consider when interpreting the results of this study. To start off, it’s very challenging to discuss any form of modern-day burnout without mentioning the effects of the

COVID-19 pandemic on the healthcare system. A large amount of the articles discussed in this literature review pre-date the pandemic by a couple of years, and current day research shows a trend where the pandemic generally increased all forms of burnout, especially in the medical population. In a study conducted by Lisa Lenertz-Lindemer¹⁴ of the University of Wisconsin – Stout in 2022, there was an interest in finding out the type of impact that the COVID-19 pandemic had on the motivations of pre-health undergraduates and their attitudes and concerns about working in health care. In this study, twenty pre-health undergraduates that were interested and have remained interested in a career in biomedical research following the start of the COVID-19 pandemic participated in semi-structured interviews. They were asked about their motivation level and it was found that “a few students noted some hesitancy about working in health care in the future but that the hesitancy was not strong enough to persuade them to choose a different career path.” This study concluded that “the COVID-19 pandemic was not a significantly inspiring event nor a deterrent for pre-health students and has provided reassurance for some students that they are pursuing the right career path for them.” The relevancy of this article provides support for why neither a pre- or post-COVID designation were listed as an exclusionary factor in this particular literature review, but the presence of perceived “hesitancy” to work in healthcare shows some evidence for the potential impact that the COVID-19 pandemic might have on the larger picture of burnout. Therefore, it is an important factor to consider when analyzing the results of this study and might even be an area of future research.

Other important factors to consider are the cultural differences prevalent between countries around the world. This literature review was primarily focused around identifying the presence of any medical academic burnout in different countries across the globe in order to answer the

binary question of whether medical academic burnout was a worldwide problem or not. This means that this literature review did not focus on any factors that detailed the differences in the level or degree of academic burnout in each country. While the binary question was answered using the assigned methodology, it didn't allow for the opportunity to go into depth about the variation in medical culture and the how the inherent individualism of each country plays a role in the degree or severity of academic burnout that may or may not be present in that country. This is an important factor to consider and can be seen as a potential limitation of this study design.

Medical academic burnout has now been established as a worldwide problem, but that should not be the end of our work in this particular field. In fact, the work in this field has just started. It is now up to the scientific community to recognize the severity of the problem that has been identified and make a strong effort to discover new information and new solutions. The next section of this study will offer some areas of potential further research and investigation that should be pursued in the upcoming years in order to start the process of addressing this worldwide phenomenon.

Research Proposal:

The articles analyzed in this study have provided objective evidence of medical academic burnout in varying levels across the globe. Therefore, the primary focus of further research should now be on the discovery or advancement of preventative strategies to battle the newfound knowledge detailed out in this literature review. Continuation and evolution of studies like the one done in Ecuador regarding the benefits of exercise on academic burnout could be a very

beneficial approach. However, since studies in academic burnout aren't currently available in as high a quantity compared to the work done around professional burnout, it also might be incredibly beneficial to run studies that attempt to use strategies that are designed for professional burnout on the academic population in order to discover their efficacy. The last area of proposed research would be on the discovery of new preventative strategies, particularly targeting the time period before burnout starts to develop in the medical student population. For example, Mahtab Jafari¹⁵ of the University of California conducted a study November of 2017 that had the intention of analyzing the impact of a course specifically designed to help students develop "effective tools to promote well-being and help them recognize and manage their stress." Through the use of a pre- and post-course survey from the students of this course, they found that this course had a positive impact that may suggest that offering more courses like this one to undergraduate students can "serve to improve students' mental and physical health." Regardless of the pathway or focus of the research, each of the options regarding further research that were previously mentioned would only benefit the worldwide growing problem of medical academic burnout.

Conclusion:

Medical academic burnout is a worldwide problem that needs urgent support and further research into preventative strategies in order to address its growing prevalence across the globe. If our scientific community would be as concerned about medical academic burnout as they are about the professional burnout of our physicians, we would already be making great steps towards finding its solution. But the unfortunate truth is that academic burnout still remains a disregarded and misunderstood subject in the eyes of many. It's time for us all to realize that both these

problems are the same fight. If we work together to find solutions that work for students and providers, then we might be able to make an influential and lasting impact on the future of our healthcare system.

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