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RESEARCH ARTICLE

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## PREVALENCE, EFFECTS AND ASSOCIATED RISK FACTORS OF BURNOUT AMONG MEDICAL STUDENTS IN GUYANA

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### ABSTRACT

**Objectives:** To determine the rate of burnout among medical students of Guyana and to identify the causes and effects of burnout among those medical students affected. **Design & Methods:** This cross-sectional, quantitative study surveyed 238 medical students from all five medical schools in Guyana. The Burnout Inventory Student Survey (MBI-SS) score was used to determine the risk of burnout among the surveyed students. A piloted, online, de novo questionnaire was used to evaluate the variables recorded on the questionnaire including age, gender, year of study, employment status, causes, effects of burnout inter alia. All quantitative data were analyzed using SPSS v. 26.0 with the chi square and independent samples t-test being used to assess the association between variables. ( $p=0.05$ ). **Results:** Data on 238 medical students were analysed ( $F=152$ ,  $M=86$ ), 51.3% of surveyed medical students showed signs of high burnout. ( $M=48.3\%$ ,  $F=61.8\%$ ,  $p<0.000$ ,  $OR=3.4$ ). While there was no significant difference between burnout rates of students in the 1st and 5th years ( $p=0.07$ ), the 5th years were 3.7 times more at risk for burnout than their first years. Majority of the respondents attributed the cause of burnout to 'poorly designed curriculum' and 'high tuition fees.' Consequently, 36.1% of the respondents have 'thoughts of suicide', 25.4% engage in 'safe/unsafe sexual gratifications', and others use alcohol/ 'hard' drugs to cope with burnout. **Conclusions:** Medical students are at a high risk of burnout. Medical schools need to design programmes to address the mental health of its populace and reduce the prevalence and effects of burnout.

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## INTRODUCTION

Burn-out, according to ICD-11 [11th Revision of the International Classification of Diseases], is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: emotional exhaustion, depersonalization, and reduced professional efficacy. Emotional exhaustion entails feelings of energy depletion or feeling drained. Depersonalization refers to increased mental distance from one's job, or feelings of negativism or cynicism related to one's job. This can lead to callous treatment of patients and coworkers. Reduced professional efficacy means the health worker feels ineffective in completing their job and values results less and less (West, 2018). This also translates to the medical student's world in which high stress levels at home, school and work; an extremely competitive working environment and difficult working schedules (for employed students) may result in burnout (Salgado, 2021). The prevalence of burnout has been increasing worldwide, even before the onset of the COVID-19 pandemic. Burnout rates are especially higher in physicians than in those of other careers<sup>3</sup>.

Many factors are responsible for this, most of which are attributable to healthcare organizations and healthcare systems. These include excessive workloads, inefficient work processes, leadership culture and work-home conflicts, to name a few. Individual risk factors for burnout include being a young, female physician (West, 2018). These workers may have already been subjected to burnout as a student, having been subjected to long periods of work, study and stress (Salgado, 2021). However, burnout only becomes important when the consequences are evident. These are not limited only to physicians in practice but also physicians in training. Such consequences are seen in patient care (e.g., lower care quality), the healthcare system (increased patient turnover), and physician health (depression and suicidal ideation) (West, 2018). The wellbeing of students is threatened and they have an increased risk of abandoning their studies (Salgado, 2021). To curb the increasing prevalence and consequences of burnout, research has indicated that both the health care system and individual physicians should share this responsibility by implementing organizational modifications to increase support for high workloads and mindfulness-based stress reduction and small group programmes (West, 2018). It is important that we tackle the social, cultural and technological burdens of this profession as early

as possible, beginning in the student (Launer, 2022). As such, this research aims to reveal the prevalence and effects of burnout among local medical students in Guyana. This should present the information needed to formulate strategies to alleviate and prevent burnout with urgency.

## METHODOLOGY

This was a cross-sectional, quantitative study that surveyed 238 medical students from all five medical schools in Guyana. There were about 540 medical students in the five medical schools in Guyana, therefore for the sample size calculation, for a 95% confidence level, 225 medical students needed to be surveyed. The following research questions (RQs) were investigated comparing *medical students (independent variable)* in Guyana. The dependent variables are in bold.

1. Is there a significant difference between the *gender of medical students* and rate of burnout?
2. Is there a significant difference between the *stages of medical study and* the rate of burnout?
3. Is there a significant difference between the *age of medical students* and the rate of burnout?
4. Is there a high burnout rate among medical students of Guyana?
5. What are the causes and effects of burnout among students with a high Maslach Burnout Inventory Student Survey (MBI-SS) score?

A piloted, self-administered, *de novo* questionnaire was used to evaluate the variables recorded on the questionnaire including age, gender, year of study, employment status, causes, effects of burnout inter alia.

- To assess RQ1 & 2, the researchers used the chi square test to determine if there was an association between the two variables with a p-value of < 0.05 indicating statistical significance.
- To assess RQ3, an independent samples t-test was used to determine if there was an association between the two variables with a p-value of < 0.05 indicating statistical significance.
- The MBI-SS score was used to determine if there was a risk of burnout among medical students and the piloted questionnaire determined the causes and effects of burnout once present. All data were analyzed using SPSS v. 26.0.

## RESULTS

A total of 238 medical students participated in this study (F=152, M=86). The mean age of the respondents was 22.12 (SD ±2.91). This study found that 122 (51.3%) students had a high risk of burnout as determined by the BMI-SS score (Table 1). Furthermore, it was found that females were 3.4 times more likely to be burnout than males. This represented a statistically significant value of p=0.000. (Table1). The study found that the first year of pre-clinical studies had the highest burnout rate, first year medical students were 8.3 times likely (p=0.001) to be burned out than their second-year counterparts. Similarly, the final year (Year 5) of the clinical study stage had the greatest burnout when compared to their 4<sup>th</sup> Year colleagues (OR 8.2, p=0.001) (Table 1). Additionally, the study found that while there was no significant difference between burnout rates of students in the 1<sup>st</sup> and 5<sup>th</sup> years (p=0.07), the 5<sup>th</sup> year students were 3.7 times more at risk for burn out than their first-year colleagues. The 122 students with a high burnout rate attributed the cause to 'poorly designed curriculum' (49.2%); high tuition fees (28.6%); 'too much content' (7.4%); 'Personal problems compounded by school work' (5.7%); Imposter Syndrome (4.9%) inter alia (Table 2).

**Table 1. Comparison of participants with characteristics of Gender, Stage of Study and age**

Characteristic		No. Meeting the MBI-SS Criteria for Burnout (At Risk for Burnout)		Total	P-value	Odds Ratio (OR)	
		Yes	No				
Gender	Female	94 (62.7%)	58 (37.3%)	152	0.000	3.4	
	Male	28 (32.9%)	58 (67.1%)	86			
	Total	122 (51.3%)	116 (48.7%)	238			
Stage of Study	Pre-Clinical Year	Year 1	23 (82.1%)	5 (17.9%)	28	0.0001	8.3
		Year 2	15 (35.7%)	27 (64%)	42		
	Clinical Year	Year 4	19 (67.9%)	9 (32.1%)	28	0.001	8.2
		Year 5	52 (94.5%)	3 (5.5%)	55		
		Age	μ= 22.12(SD±2.91)	-	-		

<sup>b</sup> An independent t-test was used to assess the significance of age and risk of burnout and the results with a p-value of 0.05 indicating statistical significance.

**Table 2. Cause, Effects of Burnout and Methods schools can use to improve the psychological health of students**

Variable	Item Responses	Number of respondents (total 122)	Percentage
Causes of burnout	Poorly designed curriculum	60	49.2%
	High tuition fees	35	28.6%
	Too much content	9	7.4%
	Personal problems added to school work	7	5.7%
	Imposter syndrome	6	4.9%
	Too many classes	5	4.2%
Effects of Burnout	Thoughts of suicide	44	36.1%
	Safe/unsafe sexual gratification	31	25.4%
	Becoming depressed	18	14.8%
	Use of alcohol	12	9.8%
	Thoughts of quitting	9	7.4%
	Use of drugs to cope	6	4.9%
	Zoning out and taking breaks	2	1.6%
	Better curriculum design	46	37.7%
Ways schools can help improve psychological health of respondents	Widespread counselling services	38	31.1%
	Workshop for stress, anxiety management	19	15.6%
	Lower tuition fees	10	8.2%
	Reduction in classes	9	7.4%

Consequently, 36.1% of the respondents confessed they have 'thoughts of suicide', 25.4% engage in 'safe/unsafe sexual gratifications', 14.8% 'become depressed', 9.8% 'use alcohol to cope', while 7.4% 'use hard drugs to cope' with stress of burnout (Table 2). Finally, this study found that respondents thought that the psychological health of medical students can be improved by the school administration if a 'better curriculum is designed' (37.7%); 'widespread counselling services are available' 31.1%; 'workshop for stress and anxiety' 15.6% *inter alia*. (Table 2)

## DISCUSSION

The prevalence of burnout in this study was 51% (122 of 238 respondents), this was quite similar to other studies (Frajermana, 2018; Shabbir, 2018). This current study first investigated the sociodemographic variables (gender and age) and their potential relationship to burnout. These results showed that there was no statistically significant difference ( $p = 0.0324$ ) between the age of respondents and the risk of burnout. This finding is supported by multiple similar studies such as those conducted by Salgado *et al*, 2021 and Shabbir *et al*, 2018. Furthermore, the study at hand did find a statistically significant difference between gender and risk of burnout ( $p= 0.000$ ), this finding mirrors what was observed in the previously mentioned studies. This study found that there were more females at higher risk of burnout than males. While a more extensive study is needed to find the root cause of this statistically significant difference, current literature point to the fact that women are also faced with the burdens of raising a family against a ticking biological clock. (Norlund, 2010) Additionally, the literature points to the various reasons being unco-operative workplace, having children and an unsupportive partner. There was a statistically significant difference between the year of study and the risk of burnout for both preclinical (0.0001) and clinical (0.001) years. This is in contrast to studies by Salgado *et al* and Shrestha *et al* who found no correlation between the two variables. Several reasons may be responsible for this finding such as a hectic schedule, competitiveness, a stressful work environment (e.g. being surrounding by illness), sleep deprivation, and peer pressure. Similar to Shrestha *et al*, the prevalence of (and in this study, correlation between burnout) and year of study was stronger in the preclinical years. This can be attributed to the high stress levels regarding admission to medical schools, adjusting to a new environment, lack of recreational time, joining under parental or peer pressure, competitiveness, etc. The weaker relationship for clinical years may be due to their adjustment to the high-stress environment and to anxiety over exams; of course, this is unexpected with their heavier curriculum and upcoming exams (Frajermana, 2018). To add, Cecil *et al* and Dyrbye *et al* found an association between the specific parameter of burnout and year of study, i.e., increase in depersonalization and personal achievement but decrease in emotional exhaustion with year of study. This relationship is a point for potential investigation in this study as an increase in depersonalization can negatively affect communication with patients and patient outcomes.

This study also examined the professional and financial situation of medical students. The majority of respondents were unemployed (81.1%), were financed by their parents (63%), and there was no statistically significant relationship between employment and risk of burnout. This is similar to Salgado *et al* who also found that unemployed students have higher levels of burnout and attributed this to the possibility of employed students developing higher emotional intelligence and adapting better coping mechanisms for stress. Respondents were asked to list possible causes for their burnout. Most cited a poorly designed curriculum, in addition to an expensive tuition, too many classes, and personal issues. These reasons were echoed in the study by Salgado *et al* in which students felt that a reduction in class hours, restructuring teaching methods and widening the range of curricular options would improve their psychological wellbeing and thus decrease burnout level. Moreover, students were also aware of the consequences of their burnout; the most popular (and alarming) response was thoughts of suicide (34%), with sexual

gratification, depression, alcohol consumption, quitting school, drugs, and zoning out also listed. It goes without saying that urgent mental health care is necessary for medical students to curb these effects. Salgado *et al* also alluded to the urgency of this matter by pointing out that students with a recent diagnosis of depression had higher levels of burnout. Frajerman *et al* noted that mental health care should zero in on the student's working and studying environment, in addition to the culture of competitiveness, in order to mitigate the comorbidity between depression or suicidal thoughts in medical students. Other factors responsible for this worrying consequence are the young age of students, daily surroundings of suffering, work overload, and the conflict between responsibility and autonomy. Moreover, taking medication and the type of medication (especially antidepressants, anxiolytics and multivitamins) increased the risk of burnout. Drugs could have been justified as a coping mechanism for emotional exhaustion, improving academic performance, and for dealing with personal and societal pressures. Another bad habit possibly cultivated by burnout is smoking, which was scarce among respondents and not of statistically significance for burnout risk (possibly due to a small sample size for smokers), similar to Shrestha *et al*. This is in contrast to Cecil *et al* who found that being an ex-smoker was significantly associated with higher emotional exhaustion scores, and recommended that further study is necessary to understand this relationship given that stress increases cigarette cravings.

The final important consequence of burnout is alcohol consumption or binge drinking. While there was no statistically significant correlation between alcohol consumption and burnout risk in this study, it remains a point for action in the battle against burnout. Cecil *et al* noted that alcohol bingeing was predictive of higher personal accomplishment scores. Szmigin *et al* noted that alcohol may be used as a coping mechanism for stress and burnout and for pleasure. Keeping these consequences in mind, implementation of prevention measures such as safe sex education, mental health care, curriculum redesign, lifestyle interventions are urgent. The final aspect of this study investigated methods for curbing burnout and improving the psychological well-being of medical students. The most popular measure suggested was amendments to the curriculum, a measure supported by Salgado *et al* and Shrestha *et al*. This serves to curtail reports of work overload and lengthy classes, in the hopes that students will have more time for a healthy lifestyle, recreation, self-care, and better management of their academic tasks. Sleep and exercise are an important part of a healthy lifestyle and are both associated with the presence of burnout according to a study by Lee *et al*. Both studies by Salgado *et al* and Cecil *et al* have validated the relationship between exercise and preventing burnout. Mental health workshops, support groups, and better access to counselling services were also suggested by both the respondents of this study and Salgado *et al*, which are obviously necessary to fix the climbing suicide rate in Guyana, and more specifically suicidal thoughts and depression among the medical students. This was also echoed by Cecil *et al*, who noted that physical activity has been shown to improve mental health, and thus these two points for action go hand in hand. Hence, an environment free of mental health stigma with encouragement to access therapy when in need is strongly urged. (Lee, 2022) Overall, with effective strategies like these, we expect that burnout will be at an all-time low for students.

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