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Exploring Predictive Variables of Burnout in Students Attending Eastern Caribbean Medical Schools

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Abstract

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by

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Proposal Submitted in Partial Fulfillment of the

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Abstract

The medical students of the Eastern Caribbean medical schools form a cohort of international students completing their clinical years of training on the Islands. They experience a degree of burnout though to a lesser extent than indicted in the literature. The Maslach Burnout Inventory General Survey Student (MBI-GS(S) and a structured questionnaire of sociodemographic qualities and the medical education process items, were used to assess the relationship between the predictive variables and burnout. An *N=96* was obtained from the student population. The data collected was analyzed using a series of multiple linear regression. The findings of the linear regression were statistically significant, F (3, 64) = 5.28, p = .003, and R^2 = .198, suggesting that there was a significant predictive relationship between previous diagnosis and presence of a mental disorder and overall burnout. The coefficient of determination, R^2, suggests that 19.8% of the variance in overall burnout can be explained by the previous diagnosis and presence of mental disorder variables. There was no significant predictive relationship between family support and overall burnout, and medical school and overall burnout. This study can inform the medical education community about the variables associated with burnout among the students and what preventive strategies and interventions are necessary to mitigate burnout and to encourage for further studies on burnout leading to positive social change.

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Dedication

I dedicate this dissertation to my husband and family for their support over the years. To my husband for his commitment, support and quiet strength that nurtured me and would not let me give up.

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This dissertation would not be possible without the help and support of the many people who have challenged and encouraged me to finish.

This dissertation is the result of years of incubation and labor and pushing through to the end. I take this opportunity to express to my heartfelt appreciation to my dissertation committee my Chair Dr. Rodney Ford, Dr. Stephen Burgess and Dr. Brian Ragsdale.

I express my gratitude to the Walden community of the Student Success Team and Mrs. Catherine Heck for their support in helping me to stay the course. I express my sincere gratitude to the four medical schools in the Eastern Caribbean who participated in the study. I am grateful to the respective registrars and deans; without their cooperation this dissertation would not have materialized.

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Last, but not least to my family and friends thank you again for your love and support through my dissertation journey.

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Chapter 1: Introduction to the Study

Introduction

The experience of burnout at the beginning of medical training is common among medical students in the preclinical years of training (Mazurkiewicz, Korenstein, Faller, & Ripp, 2012). It was previously thought that burnout occurred at the latter end of individuals' medical careers when the optimism and novelty gave way to the mundane; however, IsHak et al. (2013) indicated that burnout can occur as early as the preclinical stage. The experience of burnout is prevalent among medical students and continues, in some cases, into their fourth year of training and beyond (Cecil, McHale, & Laidlaw, 2014; Guthrie et al., 1998; IsHak et al., 2013). My goal for this study was to test the extent to which burnout is present in medical students in the Eastern Caribbean in their preclinical years, as measured by the Maslach Burnout Inventory-SS (MBI-GS(S)).

Over 30 medical schools have been established on the Eastern Caribbean islands, beginning in 1976 with St. George's University School of Medicine on Grenada and Ross University School of Medicine in 1978. Since then, over 30 medical schools have been established in the region, between 1976 and as recently as 2014. This educational and economic development was encouraged and fostered by the governments of the region as an implementation measure to bolster the quality of higher education and economic growth in this region (Brown & Shen, 2017). The students are drawn mostly from the Unites States and Canada for multiple reasons. These include geographic proximity to North America, a response to the unmet demands for tertiary medical training in the home states, and because English is the language of instruction in the Eastern Caribbean

countries (Boulet et al., 2012). These schools are referred to as offshore medical schools and the students are known as international medical graduates (IMGs; Boulet et al., 2012). Programs within these schools are designed in two segments: the first 2 years are spent on the islands to complete basic sciences (the preclinical years), which are then followed by 2 years of clinical training in American or Canadian hospitals (Brown & Shen, 2017; Morgan et al., 2017).

The Eastern Caribbean consists of 10 countries that are identified as member countries in the Organization of Eastern Caribbean states (OECS) to form an economic union and for trade policy making among member states (OECS.org, 2016). The countries that make up the Eastern Caribbean are Antigua and Barbuda, St. Kitts and Nevis, Dominica, Grenada, St. Lucia, St. Vincent, the Grenadines, Anguilla, the British Virgin Islands, and Martinique (Brown & Shen, 2017). One aspect of the development of the Eastern Caribbean that has been adversely affected by the economic territorializing has been the development in higher education (Ocampo, 2004). According to Morrison (2014), the region experiences difficulty in funding research and development; the Eastern Caribbean contributes 0.13% of its gross domestic product to research and innovation while other developed countries dedicate at least 3%. The establishing of the OESC and the attending economic state is the social context in which the medical schools were established across the Eastern Caribbean (OECS.org, 2018). The phenomenon of the rapid rise of medical schools on the Islands and the enrollment of foreign students mostly from Canada and the United States and others to a lesser extent from the Caribbean region. The medical students in their preclinical years of training experience

unique challenges that have not yet been scientifically investigated in comparison to the rate at which these schools have been growing (Browne & Shen, 2017; Desbiens & Vadaillet, 2010; van Zanten & Boulet, 2008).

Chapter 1 consists of an extensive background relating to the topic, the problem statement, purpose of the study, and the proposed research questions and hypotheses. Chapter 1 also contains the theoretical foundation that will underpin this study, the nature of the study, and a list of defined terms catered specifically to the field of study. The chapter will conclude with a transition to Chapter 2 and an overview of the remainder of the study.

Background

Burnout is defined as a psychological syndrome developed in response to chronic stress, which may be environmental, interpersonal, or a combination of the variables (Maslach, Schaufeli, & Leiter, 2001). The dimensions of psychological burnout, as identified within in the MBI-GS(S) are emotional exhaustion, depersonalization, and a diminished sense of accomplishment (Brazeau, Schroeder, Rovi & Boyd, 2010; Cecil et al., 2014; Shanafelt, Boone & Tan et. al., 2012). Burnout syndrome among medical professionals is prevalent, and affects their quality of life, the quality of patient care, and their ability to show empathy (Cecil et al., 2014).

Additionally, their performance at work is compromised by the experience of burnout (Weight et al., 2013). Dyrbye et al. (2014) found that medical students, residents, and early career physicians indicated a greater likelihood for experiencing burnout than individuals from the general population. Results show that at lEastern half of American

medical students in major institutions experienced a high level of distress due to burnout and that the students who experienced burnout were two to three times more likely to be indicated in the 11.2% respondents who have considered suicide in the past (IsHak et al., 2013). The information regarding the medical students' experiences of distress are indicative that burnout is prevalent during medical training and 49% of students in the United States may be affected by burnout at some point in their medical career (IsHak et al., 2013).

The prevalence of burnout among medical students in the preclinical years of training has been indicated within the preexisting literature. The MBI-GS(S) and other measures have been used to identify and measure burnout. As it stands, there are several related studies addressing the phenomena among medical students from United States and international medical schools (Dyrbe et al., 2006; Pagnin et al., 2013; Paro & Silveira, 2014; William et al., 2014). Dyrbe et al. (2006) completed a systematic review of several studies reporting the incidences of burnout, among other factors such as anxiety and depression, among medical students from the United States and Canada from the period between 1980 and 2005. Upon examining 40 peer reviewed articles reporting burnout, they found no studies of burnout, but a high rate of anxiety and depression (Dyrbe et al., 2006). As such, it has been concluded that psychological distress adversely affects students' lives and academic performances in terms of class attendance, exam scores, and hinders further help-seeking behaviors in medical students early in their training (Damant et al., 2016; Dyrbe et al., 2015). Consequently, burnout and

psychological distress may be higher among medical students than among their peers within the general population.

Gade, Chari, and Gupta (2014) examined perceived stress among Indian medical students in the first year of medical school with the intent to identify students who may be vulnerable and provide support through relevant interventions. This cross-sectional study used surveys to assess the stress levels and coping strategies of the students. Differences were found between men and women in their perceptions of stress (Gade et al., 2014). Women who perceived themselves to be stressed were 17.19% in comparison to 14.93% of men who perceived themselves to be stressed (Gade et al., 2014). It was noted that Indian medical students adopted active coping strategies such as finding emotional support as opposed to avoidant strategies like alcohol and drug use. Additionally, the students perceived academically related problems were greater stressors. Interventions suggested included a review of the academics and scheduling and counseling services for students (Gade et al., 2014).

Ugwu, Onyishi, and Tyoyima (2013) studied burnout and student engagement in 200 undergraduate Nigerian students using the MBI-GS(S), the General Self-Efficacy Scale, and the Utrecht Work Engagement Scale for Students (UWES-S). Burnout was negatively correlated with academic engagement, whereas self-efficacy was positively correlated with academic burnout and engagement (Ugwu et al., 2013). The findings were similar to those of Zhang, Gan, and Cham (2007), who studied the association between perfectionism, academic burnout, and engagement in 482 Chinese undergraduate students, in which burnout was assessed by the Chinese version of the MBI-GS(S).

Burnout was positively correlated with maladaptive aspects of perfectionism, while engagement was positively correlated with positive aspects of perfectionism (Zhang et al., 2007). The dual-process model was upheld where maladaptive perfectionism predicted burnout and adaptive perfectionism predicted engagement (Zhang et al., 2007).

Pagnin et al. (2013) conducted a cross-sectional study on the correlation between burnout and career choice motivation, hypothesizing that a personal motivation for choosing medicine as a career can modulate the distress of the academic demands. The participants were 277 medical students in the first, second, fourth, and sixth year of training. The students completed the MBI-GS(S), the Student Readjustment Rating Scale, and a survey developed by the authors to identify reasons for career choice (Pagnin et al., 2013). The students who had illnesses and death experiences as motivation for the choice of medicine as a career were more likely to experience burnout. Additionally, those students revealed significantly greater emotional exhaustion when compared to students with other motivations (Pagnin et al., 2013). The most common reasons for career choices included intellectual curiosity, professional autonomy, altruism, and interest in human relationships (Pagnin et al., 2013). The results of the study provided insight into the prevention of burnout in students at an earlier stage of their program of studies.

Cecil et al. (2014) investigated the behaviors of medical students that might be associated with burnout in two universities in the United Kingdom: The University of St. Andrews and the University of Manchester. Additionally, Cecil et al. (2014) investigated whether health behaviors predicted burnout in medical students. A total of 356 participants were surveyed online wherein they assessed emotional exhaustion,

depersonalization, personal accomplishment, alcohol use, physical activity, and diet (Cecil et al., 2014). Fifty-five percent of students were found to have high levels of emotional exhaustion, 34% had high depersonalization, and 46.6% reported low levels of personal accomplishment (Cecil et al., 2014). A linear regression analysis was used, indicating that year of study, physical activity, and smoking significantly predicted emotional exhaustion. The gender, year of study, and institution significantly predicted depersonalization and personal accomplishment was significantly the alcohol binge scores (Cecil et al., 2014).

Weight et al. (2013) investigated the effects of an exercise program on physical activity, quality of life (QOL), and burnout among medical residents and fellows (RFs). The intervention activity was a 12-week incentivized exercise team-based program. Six hundred and twenty-eight RFs completed a baseline survey and a three-month follow up assessment of their physical activity, QOL, and burnout indicators (Weight et al., 2013). Both participants and nonparticipants had equal access to the facilities. Thirty-one percent met the U.S. Department of Health and Human Services recommendations for physical activity (Weight et al., 2013). The median report of quality of life was 70 on a scale of 1–100, and 29% reported weekly burnout symptoms. It was noted that participants were more likely to meet the criteria recommendations for physical activity, with participant scores at 48% versus nonparticipant scores of 23% (Weight et al., 2013). The scores for QOL were higher for participants, 75 in comparison to 68 for nonparticipants. Burnout rates were lower for participants, though not statistically significant (Weight et al., 2013).

Paro and Silveira (2014) researched medical students' empathy and its association with gender, stage of medical training, QOL, and burnout. This was a cross-sectional study of 22 medical schools with the goal of investigating the association between empathy, burnout, and the well-being of medical students. The participants were a national representative sample of the Brazilian medical students. The investigators used online self-report questionnaires to assess the students (Paro & Silveira, 2014). The questionnaires were the Interpersonal Reactivity Index (IRI) to assess the levels of empathy; QOL was assessed with the World Health Organization Quality of Life Assessment and the MBI (Paro & Silveira, 2014). Gender differences were noted as women scored moderately higher on empathic concerns than their male counterparts, and lower on personal distress than men. When compared with, men female students had lower scores on the physical and psychological domains of quality of life. Higher scores were noted for emotional exhaustion for women and higher scores for depersonalization noted among men (Paro & Silveira, 2014).

In terms of studies conducted within the greater Caribbean, Youssef (2016) addressed the issue of burnout and depression among medical students in Trinidad and Tobago, highlighting the fact that the incidence of burnout was less documented in the less developed regions. Youssef's (2016) study revealed that there was a 52% prevalence of burnout and 40% rate of depression among final year students at the University of the West Indies in Trinidad and Tobago. Youssef (2016) also indicated that the associated risk factors for burnout and depression among these medical students included lack of emotional support from the school and family, and little opportunity for relaxation and

exercise because of the demanding schedule (Youssef, 2016). Similar to Youssef (2016), Lashley, Campbell, and Emmanuel (2014) conducted a study on the University of the West Indies campus, Barbados to determine the prevalence of burnout across the five years of medical school training. A comparison was made between the basic science students and those in the clinical years. The study results indicated significant differences in emotional exhaustion (t = -2.916, df = 104, p = 0.004) and personal accomplishment (t = -2.567, df = 91, p = 0.012). Among other things, Lashley et al. (2014) supported the notion that medical students experience increased burnout as they progress further in their medical training.

Additionally, the challenges of the medical education process and the academic and social responsibilities inherent in the medical education were addressed by Abdalla (2014), who asserted that the "obligation of the medical schools to direct their education, research, and service activities towards addressing the priority health concerns of the community, region in which they operate, and/or nation they have a mandate to serve." In the Eastern Caribbean, the two main universities that are involved in research and new educational innovations are the University of the West Indies and the St. George's University (Brown & Shen, 2017). St. George's University is identified as an offshore private medical schools listed below, while the University of the West Indies (UWI) is the main educational institution of the Caribbean and is operational in three locations funded by the countries and governments in the region (Brown & Shen, 2014; Morgan et al., 2017).

Offshore medical schools are often synonymous with American medical schools, suggesting that these schools are funded and operated for profit by private corporations from North America. The enterprise of medical education in the OECS region is influenced by several factors including the socioeconomic growth agenda of the OECS states and the increasing demand for placement of qualifying medical students with limited capacity in the United States (Brown & Shen, 2014; Morgan et al, 2017). The medical schools in the region are helping to shape the health care industry and, by extension, shaping the social sectors of our society.

The challenge presented with this growing industry is the impact of the medical education process and how the students are responding to the demands. The demands include the need for quality education to matriculate into the clinical programs in American hospitals as their American counterparts. Hence, the accreditation of medical schools is a critical exercise that is intended to review the process design for the purposes of testing the educational quality of new and established medical schools. (Abdalla, 2014). International medical education is a phenomenon that is becoming an important consideration in the development of the medical task force in the United States and Canada. Physicians from other parts of the world are making important contributions to meeting the healthcare needs in North America. The demand for medical education continues to increase with fewer placements and training opportunities for qualified applicants in the home countries, resulting in the development of offshore medical schools (Brown & Shen, 2017).

Problem Statement

The problem that I addressed in this study was that the factors related to burnout, such as distance from home, financial resources, satisfaction with medical school, and emotional and psychological variables, and the extent to which burnout is present in medical students in the Eastern Caribbean in their preclinical years, as measured by the Maslach Burnout Inventory-SS (MBI-GS(S)), is unknown in terms of their predictive capacity individually or in combination. While the extant literature consistently highlights the prevalence of burnout among medical students in institutions within the United States, little research has been conducted on the prevalence of burnout in medical students in the Eastern Caribbean or the factors that predict them. (Lashley et al., 2014; Youssef, 2016). The little research that has been conducted was done in Trinidad and Tobago and Barbados, wherein the researchers found that burnout and depression were prevalent in medical students; however, the results were not generalizable to the greater Eastern Caribbean (Lashley et al., 2014; Youssef, 2016).

There are important concerns for students attending school in the Eastern Caribbean that may be noted as unique challenges of the medical education process, including longer distances from home and family, less support from teachers and administrators for their academic programs due to larger class sizes, and a letter grade system of evaluation, rather than a pass/fail grading method (Bloodgood, Short, Jackson, & Martindale, 2009; Rohe et al., 2006). Additionally, most of the medical schools in the Eastern Caribbean are recently established between 1998 and the present. Consequently, data from their psychiatric services regarding burnout may not be made available,

creating a gap in the literature. My goal was to address the gap in the current research literature regarding the predictive variables associated on burnout in Eastern Caribbean medical schools with the focus on mediating factors and interventions for prevention.

Purpose of the Study

The purpose this study was to examine the factors predicting burnout and the extent to which it is present in medical students within the Eastern Caribbean in their preclinical years, as determined by family support, satisfaction with medical school, and a diagnosis of a mental health condition. I examined whether personal characteristics such as age, year in school, gender, marital status, as well as support services and environmental factors guard against burnout. The findings of this study may be used to inform curriculum development and policy and to suggest relevant interventions and increase in support programs and services where necessary.

Research Questions and Hypotheses

I used the following research questions to guide this study:

Research Question 1 (RQ1): Does family support predict levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Null Hypothesis *(H_{01})*: Family support is not predictive of level of burnout in students attending Eastern Caribbean medical schools in their preclinical years of training.

Alternative Hypothesis (H_a1): Family support is predictive of level of burnout in students attending Eastern Caribbean medical schools in their preclinical years of training.

Research Question 2 (RQ 2): Is satisfaction with medical school predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Null Hypothesis (H_0 *2*): Satisfaction with medical school is not predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training.

Alternative Hypothesis (H_A2): Satisfaction with medical school is predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training.

Research Question 3 (RQ 3): Is a previous diagnosis or presence of a mental health disorder predictive of levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Null Hypothesis (H_0 *3):* A previous diagnosis or presence of a mental disorder is not predictive of burnout in medical students attending medical school in the Eastern Caribbean during their preclinical years of training.

Alternative Hypothesis *(H_A 3):* A previous diagnosis or presence of a mental disorder is predictive of burnout in medical students attending medical school in the Eastern Caribbean during their preclinical years of training.

Theoretical Framework

The theoretical underpinning of this study is Maslach and Jackson's (1981) three factor structure of burnout. The concept of burnout originated with Freudenberger, who purported that the central thesis of the burnout concept is its development in the social context of the work life (Schaufeli, Maslach, & Marek, 1993). The concept has since been extended to include all professions, occupational groups, and education (Maslach, Schaufeli, & Leiter, 2001).

Within Maslach and Jackson's (1981) three factor structure of burnout, the three factors include emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach, Schaufeli, & Leiter, 2001). Emotional exhaustion is an indicator of job stress, which creates a sense of being under pressure and the depletion of emotional resources (Maslach & Jackson, 1981; Maslach & Rostami, 2013). Depersonalization is a detached and cynical response to others in the work environment or colleagues (Maslach & Jackson, 1981; Schaufeli, Maslach, & Marek, 1993). The final component, reduced personal accomplishment, is noted as a decline in competence and productivity in response to the situation (Enoch et al., 2013; Maslach & Jackson, 1981; Rostami et al., 2013). I used Maslach and Jackson's (1981) three factor structure of burnout as the theoretical framework for this study in order to address the lived experiences of the medical students in the Eastern Caribbean medical schools. The psychometric measures have been validated internationally and have proven internal consistency scales, factorial, and construct validity when applied cross-culturally (Maslach et al., 2001; Schindler & Slavin, 2013).

Nature of the Study

I used a quantitative, cross sectional approach for this study. The sample for this study included medical students in the preclinical years of study enrolled in an institution in the Eastern Caribbean. The preclinical years are the first 2 years of the medical education program. I collected data using the Maslach Burnout Inventory – General Survey for Students (MBI-GS(S)), which was adapted and modified from the Maslach Burnout Inventory – General Survey (MBI-GS) for administration student contexts (Maslach et al., 2016). The MBI-GS(S) is used to classify respondents into low, moderate, and high burnout categories. The instrument may be used to classify participants into distinct profiles based upon levels of exhaustion, cynicism, and efficacy (Maslach et al., 2016). However, in this study, I focused on level of burnout and not the profiles; therefore, I did not use these categorizations within this research. Participants completed the survey electronically using SurveyMonkey. The survey included a demographic data section that provided descriptive information of the population and their characteristics, including nationality, gender, age, year in training, the presence of a steady partner and family income (Costa et al., 2012).

Definitions

Burnout: Burnout consists of the internal and psychological experiences of emotional exhaustion, depersonalization or cynicism, and reduced sense of personal accomplishment (Maslach, Leiter, & Schaufeli, 2008).

Depersonalization: Depersonalization consists of feelings of reduced personal efficacy and a detached response to others (Schaufeli et al., 1993).

Exhaustion: Exhaustion is defined as depleted energy, "wearing out," and "debilitation and fatigue" (Maslach, Leiter, & Schaufeli, 2008, p. 4).

Assumptions

I assumed that the students in the first two years of medical training will be represented in the Eastern Caribbean medical school campuses. It is also assumed that the sample surveyed are representative of the student population and that the results can be generalized to that population. Another assumption is that participants in the study will respond to the survey questions truthfully and understand clearly what will be asked. Additionally, it is assumed that the survey instruments selected for the study are valid and reliable measures of the variables studied.

Scope and Delimitations

The participants of the study are recruited from the pool of medical students presently enrolled. The survey is an online program selected for ease of administration. Participation is open to all enrolled students.

Limitations

Limitations to this study may be a consequence of the location in that the participants are located in the Eastern Caribbean, which might limit the generalizability of the study to all medical students. The heterogeneous nature of the international student population in the Eastern Caribbean requires an equivalent international comparison group. This inherent challenge may impede the generalizability of the study outside the

Eastern Caribbean. There may be variability in the selection process, the curriculum, differences in the combination of students as well as different admission standards. There is also a concern that the sampling method may impact the reliability because the small population size. Finally, the response rate may be a limitation due to the sample method and size since the school populations are smaller in the Eastern Caribbean. The use of an online survey may reduce the likelihood of a guarantee regarding the truthfulness of the information.

Significance

This study is a pertinent and timely response to the need for documentation to fill the gap in the literature regarding burnout among a studied demographic of medical students, and to draw attention to the development of medical education and training in the Eastern Caribbean. More importantly, this study has the potential to shed light on the unique circumstances in which medical education is blossoming in this part of the world. Since studies have confirmed the prevalence of medical students' distress manifested in burnout among students in North America, Europe, and other parts of the world, it is compelling to bring this inquiry to the Eastern Caribbean. A scientific investigation can inform future medical curriculum in this region of the world and inform policies related to medical education. Additionally, the investments of such inquiry into the wellness and support of students to prevent burnout or to mitigate against its debilitating impact has serious implications for the students' professional trajectories and social change impact.

Summary

In this dissertation I will examine the aspects of burnout as experienced by Eastern Caribbean medical students in the preclinical stage of medical school. This chapter included an overview of the background of the problem and statement of the problem as well as the nature of the study, the research questions, and significance of the study. Chapter 2 is a review of the literature that is relevant to this study. In Chapter 3, I will discuss the methodology that will be used in this study. I will include the research design, the population and sampling measures, and a discussion on the instrument selection and development process. I will also review the validity and reliability aspects of the methods that will be used and data collection and data analysis procedures. In Chapter 4 I will present the results of the research that will be organized by research questions followed by a discussion on what the results indicate. The chapter concludes with findings based on the results. I will summarize the findings introduced in chapter four and tie these findings to the previous literature in Chapter 2.

Chapter 2: Literature Review

Introduction

The purpose of this study is to determine the extent to which burnout is present in medical students within the Eastern Caribbean in their preclinical years, as measured by the Maslach Burnout Inventory- General Survey for Students (MBI-GS(S) (Hu & Schaufeli, 2009; Maslach, Jackson & Leiter, 1997). Previous researchers have consistently highlighted the prevalence of burnout and depression among medical students in the United States, but little research has been conducted on the prevalence of burnout in medical students in the Eastern Caribbean. There are important concerns for students attending school in the Eastern Caribbean that may be noted as unique challenges. These challenges consist of longer distances from home and family, less social support, larger class sizes, financial constraints, the stress and anxiety of adjusting to the new cultural environment, and the academic demands of their medical education (Costa et al., 2012; Dyrbe & Thomas, 2006, 2009).

In this chapter I will explore the historical development of the concept of burnout, which was originally applied to human services in the 1970s, to the present and its application to industry and education. Additionally, I will highlight the development of the instruments measuring burnout in various contexts to the point of the development of the MBI-GS(S) and its application to medical students' burnout. I will discuss the overlap of depression and burnout to show a distinction between the concepts. Additionally, I will include a review of the structure, dimensions, and theoretical framework of burnout.

More importantly I will highlight the incidence of burnout among medical students in the Eastern Caribbean medical schools.

Literature Search Strategy

I obtained the literature compiled for this review through comprehensive online library search methods. A librarian also assisted in determining the best search methodology and helped generate ideas regarding keywords to search. Among the journal databases searched, those which generated the most applicable results were SAGE, JSTOR, EBSCO, Wiley, and Elsevier. I accessed a multitude of other databases in the search process as well. Prior to generating the returns, I selected the peer-reviewed feature to ensure that all the literature generated would fit this designation.

The empirical literature I reviewed were current, relevant and appeared in a wide range of publications. I have identified articles through searches conducted through Google Scholar with a preference for peer-reviewed journals; and through internet search engines such as Google and Scirus, with a filter applied for peer-reviewed journals. Additionally, through the internet searches I identified key authors in this way and reviewed the corpus of their work. Other relevant research, and other works cited by those authors were similarly reviewed. I will include a journal search to identify specifically themed issues, and other relevant work.

Theoretical Foundation

The theoretical underpinning of the proposed study is Maslach and Jackson's (1981) three factor structure of burnout. The concept of burnout originated with Freudenberger (1975), who purported that the central thesis of the burnout concept is its

development in the social context of the work life (Schaufeli, Maslach, & Marek, 1993). The concept has since been extended to include all professions, occupational groups, and education (Maslach, Schaufeli, & Leiter, 2001).

Within Maslach and Jackson's (1981) three factor structure of burnout, the three factors include emotional exhaustion, depersonalization, and reduced personal accomplishment. Emotional exhaustion is an indicator of job stress which creates a sense of being under pressure and the depletion of emotional resources (Maslach & Jackson, 1981; Rostami, 2013). Emotional exhaustion is presented as central element of the syndrome in that most measures of burnout report on and analyze this quality in their attempts to identify the occurrence of burnout. However, emotional exhaustion on its own cannot provide the depth and extent of the phenomenon. Other critical elements that are impacted by the interactions between the person, the relationships between the work environment and responses such as emotional and cognitive distancing and self-protective behaviors lead to other elements of burn out (De Silva, Hewage, & Fonseka, 2009; Maslach, Schaufeli, & Leiter, 2001).

Depersonalization is a detached and cynical response to others in the work environment or colleagues (Maslach & Jackson, 1981; Schaufeli, Maslach, & Marek, 1993). Cynicism reflects a cognitive distancing and sense of indifference toward work when there is discouragement or exhaustion. Depersonalization was used in the earlier versions of the original MBI in relation to human service work. Cynicism was used to indicate the state of indifference in workers or students in general (Galan, Sanmartin,

Polo & Giner, 2011; Maslach, Schaufeli, & Leiter, 2001; Reis, Xanthopoulou, & Tsaousis, 2014).

The final component, reduced personal accomplishment, is noted as a decline in competence and productivity in response to the situation (Enoch et al., 2013; Maslach & Jackson, 1981; Rostami et al., 2013). Inefficacy is a reduced or diminished sense of personal accomplishment in an environment of chronic overwhelming demands and limited resources. Inefficacy may be influenced by exhaustion or cynicism. It is less of a core component of burnout and is viewed in some studies as aspects of engagement indicating that a lack thereof may indicate the presence of burnout.

I used the Maslach and Jackson's (1981) three factor structure of burnout because it can be used to address the lived experiences of the medical students in the Eastern Caribbean medical schools. The psychometric measures have been validated internationally and have proven internal consistency scales, factorial, and construct validity when applied cross-culturally (Hu & Schaufeli, 2009; Maslach et al., 2001; Schindler & Slavin, 2013). The findings in the literature are consistent with Maslach and Jackson's (1981) theoretical framework, as indicated by the effect of sets of variables on students' burnout. The sociodemographic variables of gender, age, year in training, steady partner, and family income have been associated with levels of burnout rates in medical students (Costa et al., 2012; Dyrbe, Thomas, & Shanafelt, 2005; Guthrie, 1998; Paro & Silveira, 2014). Another set of variables identified that are noted to be associated with emotional exhaustion and cynicism in the burn out dimension include the medical education process. The related variables include thoughts of dropping out of the course,

dissatisfaction with the course, academic problems, lack of leisure time, and lack of professional experience (Costa et al., 2012; Darcy, Shanafelt, & Satele, 2011). The variables associated with high levels of professional efficacy include good academic performance, satisfaction with the program, motive for career choice, personal characteristics, and expectations of success (Costa et al., 2012; Pagnin et al., 2013; Zhang, Gan, & Chan, 2007).

Review of the Literature

Measuring Burnout: The Development of Maslach Burnout Inventories

Maslach and Jackson (1981) and later Maslach, Leiter and Schaufeli (2008) concurred that the Maslach Burnout Inventory (MBI) was the only instrument that measures all three dimensions of burnout. The earliest form of the MBI was a 47-item document administered to persons in the health services industry to measure areas of burnout on three subscales of emotional exhaustion, depersonalization, and personal accomplishment.

The developers later modified the instrument to facilitate a more general application that extends beyond the service industry. These include the MBI-Educators Survey (MBI-ES) for people in education, the MBI General Survey (MBI- GS) and the MBI-Student Survey (Desilva, et al., 2009; Schaufeli et al., 1996). Throughout the modifications, the three-dimensional structure was maintained. Kristensen, Borritz, Villadsen, and Christensen (2005) presented an alternative instrument for measuring burnout, which they called the Copenhagen Burnout Inventory (CBI); unlike the MBI, the CBI measure focuses on burnout in the human services sector. Three scales are used for measuring

burnout on a personal level, work-related level, and client-related level. The results of the study indicate the validity and reliability of the CBI with high internal reliability purported with acceptable correlations with other measures of fatigue and psychological wellbeing. Additionally, the CBI is said to have a small rate of non-responsiveness.

Halbessleben and Demerouti (2005) identified the Oldenburg Burnout Inventory (OLBI) as an alternative measure based on its internal consistency and discriminant validity. Halbessleben and Demerouti (2005) argued that the items on the measure captured the elements of exhaustion and disengagement, which are noted to be the opposite to the experience of burnout. Halbessleben and Demerouti (2005) further argued that the OLBI better conceptualized the burnout phenomenon. These alternative measures of burnout differ from the MBI in that they are one-dimensional, focusing mainly on the work-related exhaustion element of burnout, or two dimensional, addressing the work-related elements of exhaustion and disengagement (Bikkers et al., 2005; Halbessleben & Demerouti, 2005; Schaufeli et al., 2007).

The importance of an effective measure of burnout is important for several reasons. An effective instrument must have adequate psychometric properties, support a conceptualization of the phenomenon, and help to delineate the distinctive of burnout from other conditions such as depression or psychological concerns (Wilmar & Schaufeli, 2007). As such, Bakker, Demerouti, and Schaufeli (2002) set out to examine the factorial validity of the MBI in eight different occupational groups of employees who were recruited through the internet. Bakker et al. (2002) found that the multigroup confirmatory factor analyses favored the three-factor model over the alternative one- and

two-factor models. Additionally, Bakker et al. (2002) discovered that exhaustion, cynicism, and professional efficacy were identified as separate burnout dimensions for the sample, as well as for each separate occupational group. This means that the factor structure of the MBI-GS is similar across a wide variety of occupations (including human services and technical professions), although there are differences between occupations regarding factor loadings, path coefficients, and error variances. Across occupations, women reported higher levels of burnout than men, particularly when they were relatively young or had relatively little working experience (Bakker et al., 2002).

Taris, Schreurs, and Schaufeli (1999) similarly examined the construct validity of the MBI-GS. Whereas burnout is traditionally defined and measured in terms of phenomena occurring among workers who work with people, the MBI-GS is intended for use outside the human services (Taris et al., 1999). Taris et al. (1999) first addressed the internal validity of the MBI-GS using data from two Dutch samples. Confirmatory factor analysis revealed that the distinction among the three subscales of the MBI-GS was retained (Taris et al., 1999). To examine external validity, these subscales were then related to selected work characteristics. Based on conservation of resources theory, differential patterns of effects were predicted among the correlates and the three burnout subscales (Taris et al., 1999). Expectations were largely supported, suggesting that the meaning of the three subscales is quite different. These results largely replicate findings obtained in similar studies on the validity of the contractual version of the MBI (Taris et al., 1999). Further, higher levels of depersonalization led to higher levels of emotional exhaustion and lower levels of personal accomplishment.

History and Development of Burnout

The experience of burnout has become an enduring concept in the experience of personnel in various occupational environments. The term surfaced in the United States in the 1970s in the writings of Freudenberg (1975) and Maslach (1976), working with persons in the human service industry. They attempted to describe the relationship between the individual, the work environment that has gone awry, and its impact on the workers. Freudenberger's (1975) use of the term *burnout* reflected a colloquial use, as the term was also used to describe the effect of illicit drug use on the individual (Maslach, Schaufeli, & Leiter, 2001; Maslach, Leiter, & Schaufeli, 2008). The subsequent emergence of research and empirical studies have created the interest and environment for the development of burnout from pioneering in the 1970s to the empirical phase in the 1980s and the development and articulation of the concept, a theoretical framework and subsequent expansion of its application from human services to include industries, education institutions, organizations, and students (Maslach, Jackson, & Leiter, 1998; Maslach & Schaufeli, 1993).

The pioneering phase. The pioneering phase of the burnout phenomenon between the 1950s and the 1970s was greatly influenced by the social and cultural milieu of that era, reflecting a sense of both idealism and disillusionment (Schaufeli, Leiter, & Maslach, 2009). The economic, social, and historical antecedents that resulted in a dissatisfied and disconnected work force from the community they serve and an ironic yearning for personal fulfillment from the work (Marek, Maslach, & Schaufeli, 1993; Schaufeli, Leiter, & Maslach, 2009). The phenomenon of burnout was blamed on the

government's interference in the work and calling of human services, wherein what the ideological communities, such as monasteries, Montessori schools, and religious centers, termed *a worthy calling* was now contaminated by government's bureaucracy and professionalization (Schaufeli, Maslach, & Marek, 1993). The ideological communities contended that burnout was unknown among them, by virtue of their strong values and sense of identity within the community (Faber, 1983; Schaufeli, Leiter, & Maslack, 2009). The cultural milieu of demoralized professionals, lacking the professional prestige that was afforded to them before the World War II, and lack of reciprocity gave rise to burnout. Additionally, the increasing demands for services intensified as the social and community networks and support eroded over time. The changing social norms and consequently, the erosion of character, the rise of individualism, and narcissism fostered the environment for burnout to flourish (Marek, Maslach, & Schaufeli,1993; Schaufeli, Leiter, & Maslasch, 2009).

The resulting social and cultural environment prepared the community to address and respond to the phenomenon of burnout. The initial discussions and literature on burnout during this pioneering phase offered broad and varying definitions that were all encompassing and pragmatic. Secondly, the conceptualization of burnout was also broad and included all personal problems and personal issues such as over-commitment, idealism, and perfectionism. A third concern with the writings during this initial phase was the lack of empirical data for the most part; the published articles were anecdotal, based on interviews, case studies, and observations (Schaufeli & Buunk, 1996; Schaufeli,

Maslach, & Marek, 1993). The literature produced was more social/cognitive and clinical in focus and the writings were informed by their clinical work with individuals in the social service industry, criminal justice system, health care, and education (Maslach, Schaufeli, & Leiter, 2001).

The period of the 1980s was marked by a period of systematic and empirical studies of the burnout phenomenon. New emerging trends expanded the burnout experience from the human service industry and broaden its application to other occupations and areas of life. However, much of the research focused on job-related concerns, which presented limitations in terms of the representative samples and the data collected initially from mostly correlational studies (Maslach & Shaufeli, 1993; Maslach, Schaufeli, & Leiter, 2001). However, more recent works have progressed into greater conceptualization and definitions of burnout and the development of a theoretical framework. This progress was facilitated by the development of instruments to measure the burnout phenomenon beginning with the Maslach Burnout Inventory (MBI; Maslach et al., 1996). The empirical phase was marked by the development of instruments to measure, helped to define and conceptualize burnout more precisely.

The key concepts of burnout—characterized by the three-dimensional elements of emotional exhaustion, depersonalization, and decreased personal accomplishment—are examined in the context of several key variables that have considerable implications for the student's life, academic functioning, and professional trajectory. The concern is that problems that are not addressed or recognized may persist beyond medical school and

adversely impact patient care and personal lives (Dyrbe, Thomas, & Shanafelt, 2005; IsHak et al., 2013).

Demographic variables such as sex, having a steady partner, religion, family income, and professional choice were identified in most of the studies on burnout in medical students. IsHak et al. (2013) conducted a literature review using key terms such as "burnout," "wellbeing," "stress," "self-care," "psychiatry," and "medical students." The conclusions of the study affirmed that burnout is prevalent among medical students and is multi-institutional. Additionally, burnout is associated with psychiatric morbidity, personal life factors, minority/non-minority status, workplace learning, and learning environment (Adam, Nistor, Nistor & Hazag, 2014; Tsai et al. 2014). Oliva Costa (2012) identified variables related to burnout based on categories such as the educational process that focused on students' professional choice, self-satisfaction with career choice, thoughts about dropping out of school, satisfaction with the teaching strategies, feelings about course activities, course work, and source of pleasure. Related to Oliva Costa's educational process is Ishak et al.'s (2013) variables highlighting the learning environment, which indicated the student's perception of the level of support from faculty and staff and later the student's perception of the level of organization of their clerkship programs. Oliva Costa (2012) also highlighted the excessive workload, high educational demands, and lack of leisure time and friends. Both Oliva Costa (2012) and IsHak et al. (2013) noted previous mental health diagnosis and psychiatric morbidity respectively as important variables associated with burnout in medical students. Additional factors include personal factors such as obsessiveness, perfectionism, and self-

exigency, and the impact of life events such as a major illness or a positive life events (IsHak et al., 2013; Oliva Costa, 2012). Combinations of longitudinal and cross-sectional studies done of medical students in Manchester and Sweden have identified related variables associated with burnout in students in Europe. The measures of the level of distress and related burnout in medical students (Dahlin, 2007).

The Incidents of Burnout among Medical Students outside the United States

The experience of burnout is noted to be an inappropriate coping response to the emotional demands and interpersonal stressors of the workplace. However, the term is fittingly applied to medical students who are engaged in activities that evoke similar psychological responses. In their study assessing the influence of burnout and sleep difficulties on medical students in their preclinical phase, Pagnin and de Queiroz (2015) found evidence of the dimensions of burnout in students who experienced a reduced quality of life, diminished health, and reduced psychological well-being. The demands of the educational process and the challenges of the course work were found to be less enjoyable to some than hands-on clinical practice; additionally, lack of confidence in their acquired skills, excessive work load, and fear of failure fueled thoughts of dropping out (Pagnin & de Queiroz, 2015). The symptoms are early indicators of burnout among medical students, often beginning in their preclinical years of training (Fareset al., 2016; Oliva Costa, 2012). Many students have not yet developed adequate coping skills or practiced help-seeking behaviors, which lead to further feelings of burnout. Consequently, work overload, indifference, and apathy towards academic activities reflect a growing cynicism and a sense of incompetence. As such, these behaviors

indicated by the medical students are identical to the dimensions of burnout (Oliva Costa, 2012; Pagnin & de Queiroz, 2015).

Burnout among medical students in the Caribbean. The prevalence of burnout is well documented among medical students and health care workers in the developed world, but less is documented regarding the phenomenon among medical professionals in the regions of the Caribbean and other developing countries. Youssef (2016), in one of the rare studies exploring the prevalence of stress, burnout, and depressive symptoms among medical students in Trinidad and Tobago, concluded that a large proportion of medical students in Trinidad and Tobago are experiencing burnout and symptoms of depression. Youssef (2016) utilized a cross sectional design using the Maslach Burnout Inventory - Human Services Screening (MBI-HSS), wherein participants responded to questions regarding their feelings about their medical school training. Additionally, participants completed the Perceived Medical School Stress Scale (PMSS), which assesses stress during medical school training, and the Patient Health Questionnaire (PHQ-9), which is a depression screening instrument (Youssef, 2016). Of the total respondents, 59% of students indicated that they were in the preclinical years of training. Other variables included age, marital status, gender, religious practice, and ethnicity. The respondents' scores on the three burnout subscales of emotional exhaustion, depersonalization, and reduced personal accomplishment indicated burnout symptomology at 53% (Youssef, 2016).

Youssef (2016) asserted that differences were found between the demographic variables related to year in school. Final year students in their fifth year demonstrated

higher levels of burnout than students identified in the preclinical years between their first and third years. Scores on emotional exhaustion (EE) were highest in year 5, and significantly different from years two through four ($p < 0.05$). On depersonalization (DP), students in their fifth year had significantly higher scores than students who were in their third year ($p < 0.05$). There was no significant difference for scores on Personal accomplishment (PA). Variables related to lack of emotional support, the medical education process, lack of control over daily schedule, and minimal opportunities for relaxation and exercise all indicated higher levels of burnout in students (Youssef, 2016). Demographic variables, such as the practice of a religious faith, indicated its importance scored lower levels of burnout as well as students who indicated access to emotional support scored lower burnout rates (Youssef, 2016).

A similar study was done on the University of the West Indies, Barbados campus by Lashley et al. (2014), who determined that burnout was prevalent among the students across all five years of the medical program. Students were surveyed using a modified version of the MBI. HSS students were measured on the three subscales of burnout and the variables measured included year of study, age, experience of financial constraints, ethnicity, educational history, marital status, and the presence of a serious illness on self or a family member (Lashley et al., 2014). The results of the studies done on these small Caribbean campuses do indicate burnout among medical students in the preclinical years of study. A comparison was made between the basic science students and those in the clinical years. The study results indicated significant differences in emotional exhaustion ($t = -2.916$, $df = 104$, $p = 0.004$) and personal accomplishment ($t = -2.567$, $df = 91$, $p =$

0.012). Among other things, Lashley et al. (2014) supported the notion that medical students experience increased burnout as they progress further in their medical training.

Unique Characteristics of Eastern Caribbean Medical Schools

The medical students of the Eastern Caribbean are a unique sub group of students among the international medical schools. The schools have been established over 40 years in various Caribbean Islands in response to the increasing need for highly trained medical professionals to meet the demands of the health care system, while providing high quality medical education in some low- and middle-income countries (Aboshady et al., 2016; Boulet et al. 2009; Mullan, 2005). The demand for the increase in medical education in the region created a concern for standardization of the quality of education and standardization accreditation.

Accreditation. The more established schools of the Eastern Caribbean are accredited by the Caribbean Accreditation Authority for Education in Medicine and other Health Professions (CAAM-HP). The schools established include Dominica, St. Lucia, St. Vincent, Grenada, Antigua, and Barbuda. Additionally, most of the schools are also listed in the International Medical Education Directory, partners with the World Directory of Medical Schools. The medical schools' listing in the directories are not necessarily endorsements of accreditation by the World Federation for Medical education (IMED, 2015).

The process of accreditation by the CAAM-HP is indicated in their revised standards for accreditation of medical education in the CARICOM member states. They assess the medical schools based on national and international standards of education.

The collaborative effort included regional liaison as well as consultations with relevant international bodies such as the standards identified by General Medical Council of Great Britain (GMC), the Liaison Committee on Medical Education (LCME) of the United States and Canada, and the Caribbean Association of Medical Councils (CAMC; CAAM-PH, 2017). This comprehensive approach of the CAAMP-HP in developing their accreditation standards considers elements of competency for graduates who wish to practice in CARICOM countries as well as other regions of the world (CAAM-PH 2017, p. 2).

Medical education process challenges for Eastern Caribbean medical students.

Eastern Caribbean students can experience additional challenges inherent in the process of adjusting to a different culture. They are being trained in and must operate in a medical system in a developing country that may not hold the advantages and facilities of schools in the North American or European context, since most of the students educated in the Eastern Caribbean medical schools are U.S. citizens (Cole & Carlin, 2009; Youssef, 2014). Youssef (2016) asserted that the medical education context of the Caribbean is one of inadequate resources and ill-funded health care systems, which is the status quo in many developing countries. The training conditions may be less than ideal in some contexts. Distress sets in when the students' expectations and the demands of the medical education process are not met in the face of limited resources, wherein burnout becomes a reality. The context of the medical education also creates a gap between the ideal

standard necessary for medical education and the inherent limitations. This gap is identified in the study as a “cognitive dissonance,” which can be related to a characteristic of burnout or disillusionment and lack of confidence (Cole & Carlin, 2009; Youssef et al., 2014).

Another adaptation challenge comes at the beginning of course work and is related to the medical education process. There is much competition related to the entrance exam, and freshmen are often frustrated and disillusioned due to delays regarding patient contact experience (Oliva Costa, 2012). The transition from the basic science cycle to the clinical cycle means another change of residence and country for Eastern Caribbean students, since most of them are international students and must obtain Visas to enter another country. This stress is compounded during the clinical cycle for those who may experience other immigration implications due to their international status. Yet the Non-U.S. students pursue their medical education at the clinical levels in the United States with the hopes that will meet the health care system needs in developing countries as well as in the underserved areas in the United States (Aboshady et al., 2016; Mullan, 2005). While the transitions to clinical and clerkship stages are not yet relevant to the preclinical medical students, many become chronically anxious about the competition to matriculate into U.S. schools and the rigorous process of qualifying and meeting the standard of the USMLE STEP I becomes a daunting process (Norcini, Boulet, Dauphinee, Opalek, Krantz, & Anderson, 2010). Finally, there is intense anxiety, and fears triggered by feelings of inadequacy regarding their scientific knowledge, their limitations, and reality of having to interact with seriously ill persons (Oliva Costa,

2012). Additionally, the students of Eastern Caribbean medical schools must overcome the bias influenced by questions raised concerning the standardization or quality of their medical education (Boulet, Bede, McKinley, & Norcini, 2009). These experiences of the students are relatable to the burnout dimensions of cynicism and low professional efficacy, since some of the students may perceive themselves as incompetent students.

Summary and Conclusions

The three-dimensional elements of burnout have been used as indicators of the presence of burnout and are measured using the Maslach burnout inventory. The development of the MBI has evolved from a measure of burnout mainly for human service providers to a boarder appeal of usage that include students. The MBI-GS(S) is now used to measure burnout in students. The phenomenon of burnout among medical students is well documented in the U.S. medical institutions but less so in the developing countries particularly in the Eastern Caribbean.

The medical students in the preclinical years of training (the first 2 years of medical school), in medical schools in the Eastern Caribbean experience a unique set of challenges in the process of their medical education, by virtue of their location, in terms of the students distance away from home and their main support systems; the process and prospects of completing their medical training in the U.S. institutions for clinical training and residencies and other challenges such as International medical graduates (IMG) that add to their stress and predispose them to burnout.

Examination of the incidence of burnout this group of students is useful for informing the wider global picture of burnout among medical students, to prevent and

reduce the escalation of psychiatric morbidity among this group of students. The information will fill the gap in providing information about the contribution of medical schools in the Eastern Caribbean to the global health care need and the development of health care and medical training in these parts.

Chapter 3: Research Method

Introduction

In the study I examined the factors predicting burnout and the extent to which the phenomenon was present in medical students within the Eastern Caribbean in their preclinical years. The presence of burnout was determined by distance from home, financial resources, satisfaction with medical school, and emotional and psychological variables. The MBI-GS(S) was adapted from the earlier Maslach Burnout Inventory-General Survey by Schaufeli, Leiter, Maslach and Jackson (2016). They used the earlier model in the job-related context to measure workers' burnout. I surveyed students using the MBI-GS(S) and a sociodemographic questionnaire to measure the variables related to students' burnout. IsHak (2013); Oliva Costa et al. (2012) ; Reed, Shanafelt, et al. (2011) have identified these variables that were related to burnout. They include feelings of exhaustion associated with the demands of their studies and the educational process, a lack of confidence in the acquisition of skills, feelings of discomfort with academic activities and a lack of pleasure from course work.

Additionally, I used the close closed- formatted questionnaire developed by Oliva Costa et al. (2012) to identify personal characteristics such as age, year in school or gender to investigate if there are any relationships to the students' level of burnout.

The findings are intended to be used to inform curriculum development and policy makers, and to suggest relevant interventions and increase in support programs and services where necessary to inoculate students against burnout. Multiple studies by Dyrbe (2015), Mc Duff et al. (2015) and Rohe et al. (2006) have confirmed the

prevalence of burnout among medical students; however there are also indications that social support, appropriate and timely accommodations, personal skills and preventative measures can mitigate against students' burnout.

Research Design and Rationale

In the study I chose a quantitative, cross sectional survey design to explore the variables of burnout in medical students in the Eastern Caribbean. The surveys were administered electronically to the sample of students in the preclinical years of medical school. The participants completed the (MBI-GS(S) and a questionnaire on sociodemographic characteristics developed by Costa, Santos, Santos, Melo, and Andrade (2012). The MBI-GS(S) was adapted and modified from the Maslach Burnout Inventory – General Survey (MBI-GS) to be administered in educational contexts.

The Maslach Burnout Inventory (MBI) is a three-dimensional instrument was the earliest form of the MBI. It was a 47-item document administered to persons in the health services industry to measure areas of burnout on three subscales of Emotional Exhaustion, Depersonalization and Personal Accomplishment. (Maslach & Jackson, 1981; Maslach, Leiter & Schaufeli, 2008). Later modifications were done to facilitate wider applications than the service industry. The MBI-Educators Survey (MBI-ES) for persons in education and the MBI General Survey (MBI- GS) (Desilva et al., 2009; Schaufeli et al., 1996). Throughout the modifications, the three-dimensional structure was maintained. The MBI-GS was slightly modified for use with students and was referred to as the MBI-Student Survey SS.

The survey is used to assess burnout factors that apply within educational contexts such as students' experiences, learning environment, personal factors, demands of study, and the education process. While burnout is not due only to educational factors, the elements common to burnout in other contexts are experienced by students in the educational context. These common elements include the predominance of mental and emotional fatigue, atypical distress symptoms, and a manifestation of burnout symptoms in normal persons who had no previous symptoms of psychopathology (Schaufeli et al. 2001; Maslach & Schaufeli, 1993).

Previous studies have applied burnout measures in the context of education. Yavuz and Dogan (2013) studied Turkish high school students to test for validity and reliability of the measure MBI-SS. They used the Velicer's MAP test a parallel analysis, and factor analyses to measure and ascertain the construct validity. Shaufeli (2002) posited that the various versions of the Maslach Burnout Inventory exhibited adequate factorial validity and internal consistency in assessing burnout syndrome.

Studies conducted among non-U.S. medical students in preclinical training in Lebanon found 75% suffered from burnout; another study from Spain found 14.8% experienced burnout (Fares et al. 2016; Dyrbye, et al. 2009; Galan, Sanmartin, Polo, & Giner, 2011). IsHak et al. (2009) investigated the occurrence of burnout among medical students in their preclinical years. The results indicated the presence of burnout between two to 53% depending on the criteria used or the samples studied (IsHak et al., 2009).

Methodology

The Statistical Package for Social Sciences version 26.0 for Windows was used to analyze the numerical data. A series of multiple linear regression analyses was used to determine how the multiple predictor variables are related to the categorical dependent variable. The analysis is intended to predict the unknown values of the outcome variables (Burhanzade, 2013). A multiple linear regression analysis was used to test the hypotheses related to the predictor variables (Garson, 2009; Tabachnick & Fidell, 2012; Uyanik & Guler, 2013). An ordinal logistic regression analysis would have been appropriate when the researcher intends to assess the predictive relationship between a categorical outcome variable with more than two levels and categorical or continuous predictor variables (Field, 2013; Tabachnick & Fidell, 2012)). However, in this study an overall burnout score was used to measure the presence of burnout using a series of multiple regression analyses.

Population

Sampling and Sampling Procedures

The target population for this study was the term 1-5 medical students attending schools in the Eastern Caribbean. A total of 98 participants responded to the survey, however only a total of 68 responses were analyzed since 28 participants did not complete significant portions of did the survey. An apriori power analysis was conducted to determine the sample size needed to achieve desired level of power. The sample size was based on the Population - Proportion Sample formula with a 5% margin of error and a 95% confidence interval level: N= (Z2 x P(1-P))/e2 (Select Statistics.co.uk).

Instrumentation

The Maslach Burnout Inventory-General Survey for Students (MBI-GS(S)

The MBI-GS(S) (Schaufeli et al., 2016) was used to assess the frequency of burnout indicators in students. The quantitative data identified the occurrences of burnout in students in the education context. Schaufeli, Leiter, Maslach and Jackson (2016) developed the instrument from the earlier MBI -General Survey. The MBI-GS(S) was validated and used internationally to measure burnout in medical students in China and Brazil (Costa et al. 2012; Schaufeli & Hu, 2009). The instrument is a 16-item self-report measure that assesses the frequency of the three dimensions of burnout. The scales that measure the dimensions of burnout are Cynicism, Emotional Exhaustion, and Professional Efficacy. The items are assessed using a Likert scale from 0 (never) to 6 (every day) (Mas

lach, Jackson & Leiter, 2016; Costa et al., 2012; Rostami, et al., 2013; Schaufeli & Hu, 2009). The adaptation of this questionnaire is well suited to the experience of students as they respond to the demands of the medical education process. The items allow the students to reflect on their feelings about their students and how they are being impacted. The combination of information regarding burn out levels determined by the scores from the three dimensions of burnout and the variables related to the contexts of the students' lives can provide valuable information of what might be predictive of burnout in medical students of the Eastern Caribbean medical schools.

Sociodemographic Questionnaire

The participants responded to a second questionnaire that was adapted from an instrument used by Costa et al. (2012) to assess the frequency of variables related to sociodemographic and economic content that impacted medical students' experiences. Costa et al. (2012) developed the questionnaire that was used in a study on burnout among medical students in Brazil. Costa et al. piloted and refined the instrument to assess students' receptiveness and to ascertain the time required to complete the survey. The instrument was a self-administered, closed -formatted set of 35 pre-coded questions that required a completion time of 15 minutes.

The questionnaire included demographic and socioeconomic variables such as age, gender, living with a steady partner, religion and family income. Studies on medical student's burnout done by Costa, 2012; IsHak et al., 2013; Sivav et al., 2015 and Almeida et al., 2016 have identified these variables related to the educational process and the relationship to burnout. The listings include satisfaction with career choice, thoughts about dropping out of school and acquisition of skills. Additionally, the students responded to questions related to psychological and emotional experiences, previous psychiatric diagnosis, and expectations for the future. Costa et al., 2012) noted that the sociodemographic and economic variables are potential predictors of burnout in medical students.

Restatement of Research Questions and Hypotheses

I used the following research questions to guide this study:

Research Question 1 (RQ1): Does family support predict levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Null Hypothesis *(H_01)*: Family support is not predictive of level of burnout in students attending Eastern Caribbean medical schools in their preclinical years of training.

Alternative Hypothesis (*H_a1*): Family support is predictive of level of burnout in students attending Eastern Caribbean medical schools in their preclinical years of training.

Research Question 2 (RQ 2): Is satisfaction with medical school predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Null Hypothesis (*H_0 2*): Satisfaction with medical school is not predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training.

Alternative Hypothesis (*H_A2*): Satisfaction with medical school is predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training.

Research Question 3 (RQ 3): Is a previous diagnosis or presence of a mental health disorder predictive of levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Null Hypothesis (H_0 *3):* A previous diagnosis or presence of a mental disorder is not predictive of burnout in medical students attending medical school in the Eastern Caribbean during their preclinical years of training.

Alternative Hypothesis *(*H_A *3):* A previous diagnosis or presence of a mental disorder is predictive of burnout in medical students attending medical school in the Eastern Caribbean during their preclinical years of training.

A multiple linear regression was used for each research question and the related variables.

Burnout is the Independent variable.

The criterion variables: Emotional exhaustion, depersonalization and personal accomplishment.

The predictor variables: Family support, satisfaction with the medical school, the medical education process, a previous diagnosis or the presence of a mental health condition.

Procedures for Recruitment, Participation, and Data Collection

Walden University Institutional Review Board (IRB) granted approval to conduct the study. The requirements for the approval included a proposal and signed letters of cooperation from the participating schools. I scheduled meetings and flew to each Island to meet with the respective Deans of the schools following up several email correspondences, requesting their participation. Two of the 4 school's requested additional ethical reviews from their review boards before initiating the study.

IRB requirements were met. with 4 medical schools in the Eastern Caribbean. I initiated correspondence with the schools through emails letters from my Walden University email account. The schools stipulated that their names not be made public. The schools agreed to have the survey sent to the schools' registrar who distributed the surveys to the student's email addresses. An invitation to participate in the study was emailed to the medical schools' Deans or designated representative. The Schools responded with a signed letter of collaboration, agreeing to participate in the study.

A Survey Monkey Link was emailed to the schools' registrar or Dean as was predetermined by the schools' administrators.

The link included a preamble about the study and the voluntary role of the participant, and the option to refuse to participate any point and the informed consent. The survey included the MBI-GS(S) and the sociodemographic survey Their submission of the online survey was their anonymous consent to participate.

The informed consent included the following information:

- The purpose of the study

- Participants procedure
- The voluntary nature of the study
- Risks
- Compensation
- Confidentiality
- Conflict of interest
- Contact information
- Statement of consent

Participants were provided with my contact information and the Chair of the research committee. Additionally, participants were provided with the telephone and email addresses of psychologists and counselors in their community in the event of the need to be debriefed.at the end of the survey.

Summary

Several studies support the concerns that the medical education process is having a negative impact on the psychological health and wellbeing of students. Inherent in the process of the medical education is the potential to cause distress and feelings of being overwhelmed in otherwise capable individuals (Brazeau et al., 2014; Dyrbye, Thomas & Shanafelt, 1980; Dyrbye et al., 2014). The research method of this study included a cross-sectional design with a convenient sample population of students from 4 Eastern Caribbean medical schools. The design of the study has been supported by Costa et al.

(2012) as an appropriate fit that allowed for the analysis of the variables presented in the MBI-GS(S) Likert scale questionnaire (Maslach, Jackson & Leiter,1997). Additionally, the accompanying socio-economic demographic survey provided a combination of dependent variables that included items that were interval, nominal and categorical. This combination of variables was best analyzed using the multiple linear regression analysis (Field, 2016).

Chapter 4: Results

The purpose of this study was to examine the factors predictive of burnout and to determine the extent to which burnout was present in medical students in the Eastern Caribbean in their preclinical years of training. I determined the overall burnout score by assessing the scores from the scales on the three dimensions of burnout (emotional exhaustion, depersonalization and personal accomplishment). I screened the data and removed the surveys with missing responses. I explored the trends of the nominal variables by using the frequencies and percentages. Additionally, I used the Cronbach alpha to assess the consistency and trends in response to the items on the MBI-GS(S). The other measures included the means, and standard deviations to explore the trends of the response to the survey items.

I used the following research questions to guide this study:

Research Question 1 (RQ1): Does family support predict levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Research Question 2 (RQ 2): Is satisfaction with medical school predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Research Question 3 (RQ 3): Is a previous diagnosis or presence of a mental health disorder predictive of levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

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I conducted a series of multiple linear regressions to analyze the research questions. I evaluated the statistical significance for the regression models at the generally accepted level, $\alpha = .05$.

Data Collection

Time Frame and Recruitment

The Walden University Institutional Review Board (IRB) granted permission to conduct the study on December 21, 2018 (IRB approval number 12-21-18-00074239) The approval was conditioned upon the IRB approval from five other prospective collaborating schools. Letters of collaboration were provided by the schools in Dominica, St. Vincent, Antigua St. Lucia and Grenada between February 2019 and February 2020. Dominica and Grenada conducted independent IRB reviews; other collaborators signed letters of collaboration with the agreement that the schools' names are not published. Walden University's final IRB approval was granted on May 9, 2019 with an expected expiration date of December 20, 2019.

The process of application began after I emailed a letter to the schools inviting them to participate in the study (Appendix A). A letter of informed consent, and the sociodemographic questionnaire were attached (Appendix C). The MBI-GS(S) was not attached due to the copyright restrictions. I purchased the license from the company to reproduce a specific number of copies within 1 year of purchase. To initiate the survey process, I emailed a survey monkey link containing the consent form, the MBI-GS(S) and

the sociodemographic questionnaire to the schools' administrators who distributed the link to the students' email addresses.

Rate of Responses

. A total of 96 respondents consented to participate in the study. A total of 28 participants did not complete significant portions of the survey, consequently, the final sample size consisted of 68 participants. An apriori power analysis was conducted to determine the sample size needed to achieve desired level of power. The sample size was based on the Population - Proportion Sample formula with a 5% margin of error and a 95% confidence interval level: $N= (Z^2 \times P(1-P))/e^2$ (Select Statistics.co.uk).

I uploaded the data into the SPSS version 26 for windows for the statistical analysis.

Discrepancies in Data Collection

During the recruitment and IRB stages of the dissertation process one school insisted on demanding various changes to meet their IRB requirements. The demands were made for changes on the informed consent form that were previously verified and sealed by Walden University. This created a discrepancy and misunderstanding on my part regarding the role of the national IRB. The national review board considered their role as the national IRB responsible for the local research. Additionally, the national IRB requested that I include an additional research question to the sociodemographic questionnaire.

The Walden University IRB helped to rectify the concern and corrected the document so that I maintained the document in its original format. The additional question that the

local IRB had requested to be included in the survey was rejected since the schools from four islands did not request the change and had completed the survey in its original form.

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Restatement of the research questions

Research Question 1 (RQ1): Does family support predict levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Research Question 2 (RQ 2): Is satisfaction with medical school predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Research Question 3 (RQ 3): Is a previous diagnosis or presence of a mental health disorder predictive of levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

The request for continuing review was granted by Walden University after these discrepancies were clarified and were made consistent with the Walden IRB ethical requirements. The University in question gave their IRB approval for the study to be conducted, but later withheld permission for the students to be surveyed, citing the executive powers of the medical school board. An application was requested by University's Survey committee, who reviewed the survey post the IRB review. They contended that due to the nature of the survey, the information was viewed as proprietary

educational innovation and have decided not to participate since the information would be published.

Descriptive Statistics

A total of 96 participants consented to participate in the questionnaire. A total of 28 participants did not complete a significant portion of the survey, making their data unusable. The final sample size consisted of 68 participants.

Frequencies and percentages indicated the trends in the nominal-level variables (see Table 1). The sample consisted of 44 women (64.71%) and 24 men (35.29%). Most of the participants were in the 18–25-year age range (n = 56, 82.35%). Most participants did not have a steady partner (n = 42, 61.76%). Participants were distributed around the Caribbean (n = 17, 25.0%), North American (n = 6, 8.82%), Africa/Middle East (n = 29, 42.65%), and Other (n = 16, 23.53%). Most participants lived with their family while at home (n = 64, 94.12%). Most of the participants did not have a medical doctor in their home (n = 50, 73.53%). Most of the participants' income fell in the $25,000 to $50,000 range ($n$ = 39, 57.35%). A majority of participants did practice religion (n = 56, 82.35%). Participants were registered in a wide variety of semesters ranging from first to fifth. A majority of participants were satisfied with their career choice (n = 62, 91.18%), had not considered dropping out of a course (n = 46, 67.65%), and were acquiring the skills they needed (n = 50, 73.53%). Many participants were not satisfied with teaching strategies (n = 40, 58.82%). A majority of the sample were satisfied with course activities (n = 43,

63.24%) and enjoyed course work (*n* = 58, 85.29%), Most participants had not been previously diagnosed with a mental health condition (*n* = 64, 94.12%) and considered themselves calm (*n* = 44, 64.71%). There was approximately an even distribution of participants who did and did not exercise. A majority of participants viewed their future as good (*n* = 62, 91.18%) and considered themselves happy (*n* = 54, 79.41%).

Table 1

Frequency Table for Nominal Variables

Variable	*n*	*%*
What is your gender?		
Female	44	64.71
Male	24	35.29
What is your age range?		
18 – 25	56	82.35
26 – 36	9	13.24
37 – 47	2	2.94
Missing	1	1.47
Do you have a steady partner?		
No	42	61.76
Yes	26	38.24
Which region/country is your home?		

Caribbean	17	25.00
North America	6	8.82
Africa/Middle Eastern	29	42.65
Other	16	23.53
Do you live with family when you are at home?		
Yes	64	94.12
No	4	5.88
Is there a medical doctor in the family?		
Yes	18	26.47
No	50	73.53
Please indicate your annual family income		
US $25,000 to US$50,000	39	57.35
US $51,000 to US$100,000	10	14.71
US $101,000 to US$200,00	10	14.71
US $200,000 Above	4	5.88
Missing	5	7.35
Do you practice a religion?		
Yes	56	82.35
No	12	17.65

In which semester/term are you registered?		
1st	11	16.18
2nd	10	14.71
3rd	16	23.53
4th	16	23.53
5th	14	20.59
Missing	1	1.47
Are you satisfied with your career choice?		
Yes	62	91.18
No	6	8.82
Missing	0	0
Have you ever considered dropping out of a course?		
Yes	21	30.88
No	46	67.65
Missing	1	1.47
Do think you are acquiring the skills you need?		
Yes	50	73.53
No	18	26.47
Are you satisfied with the teaching strategies?		

Yes	28	41.18
No	40	58.82
Which best describes your feelings about the course activities?		
Dissatisfied	25	36.76
Satisfied	43	63.24
Do you enjoy your course work?		
Yes	58	85.29
No	10	14.71
Have you been previously diagnosed with a mental health condition?		
Yes	4	5.88
No	64	94.12
How would you describe yourself emotionally?		
Tense	24	35.29
Calm	44	64.71
Do you exercise?		
Yes	36	52.94
No	32	47.06
Missing	0	0
How do you view your future?		

Good	62	91.18
Not so good	6	8.82
Do you feel happy?		
Yes	54	79.41
No	14	20.59

Note. Due to rounding errors, percentages may not equal 100%.

The MBI-GSS was administered to participants. After reverse-scoring seven of the survey items, overall burnout scores were calculated through an average of the 16 survey items. Cronbach's alpha tests of reliability and internal consistency were conducted on subscales. The alpha values were interpreted using the guidelines suggested by George and Mallery (2016) where $\alpha \geq .9$ Excellent, $\alpha \geq .8$ Good, $\alpha \geq .7$ Acceptable, $\alpha \geq .6$ Questionable, $\alpha \geq .5$ Poor, $\alpha < .5$ Unacceptable. The Cronbach alpha for overall burnout met the acceptable threshold for internal consistency ($\alpha = .83$). Overall burnout scores ranged from 1.87 to 3.96, with $M = 2.72$ and $SD = 0.54$. Table 2 presents the descriptive statistics for GPA.

Table 2

Descriptive Statistics for Overall Burnout

Variable	*N*	*Min*	*Max*	*M*	*SD*	Number of items	*A*
Overall burnout	68	1.87	3.96	2.72	0.54	16	0.83

Null Hypothesis ($H1_0$:): Family support is not predictive of level of burnout in students attending Eastern Caribbean medical schools in their preclinical years of training.

Null Hypothesis (H1A): Family support is predictive of level of burnout in students attending Eastern Caribbean medical schools in their preclinical years of training.

To address research questions one, a multiple linear regression was proposed to examine the relationship between family support and overall burnout. A multiple linear regression is appropriate when testing the strength of the predictive relationship between a series of independent variables on a continuous dependent variable (Tabachnick & Fidell, 2013). Family support consisted of four survey items: have a steady partner, live with family members when home, medical doctor in family, and family income. Have a steady partner, live with family members when home, and medical doctor in family were dichotomous items coded: 1 = no and 2 = yes. Family income consisted of four income categories with "US$25,000 to US$50,000" being treated as the reference category. Overall burnout was the continuous criterion variable.

Prior to analysis, the assumptions of normality and homoscedasticity were assessed. Normality was assessed with a normal P-P scatterplot. As depicted in Figure 1, the assumption was met due the data closely following the normality trend line. Homoscedasticity was tested with a residual scatterplot. As presented in Figure 2, the assumption of homoscedasticity was met due to the data being randomly spread through the plot.

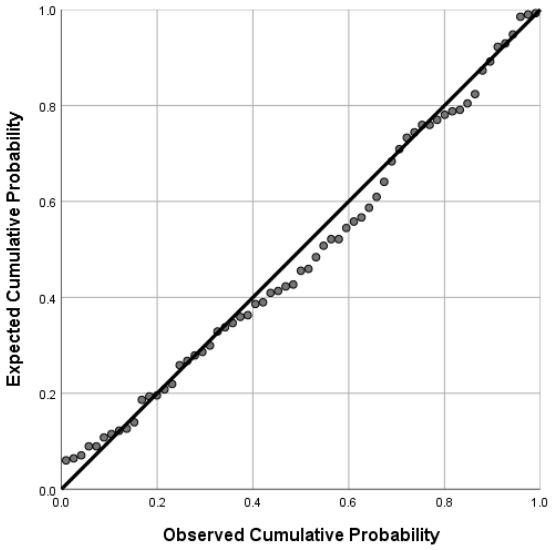

Figure 1. Normal P-P scatterplot for overall burnout by family support.

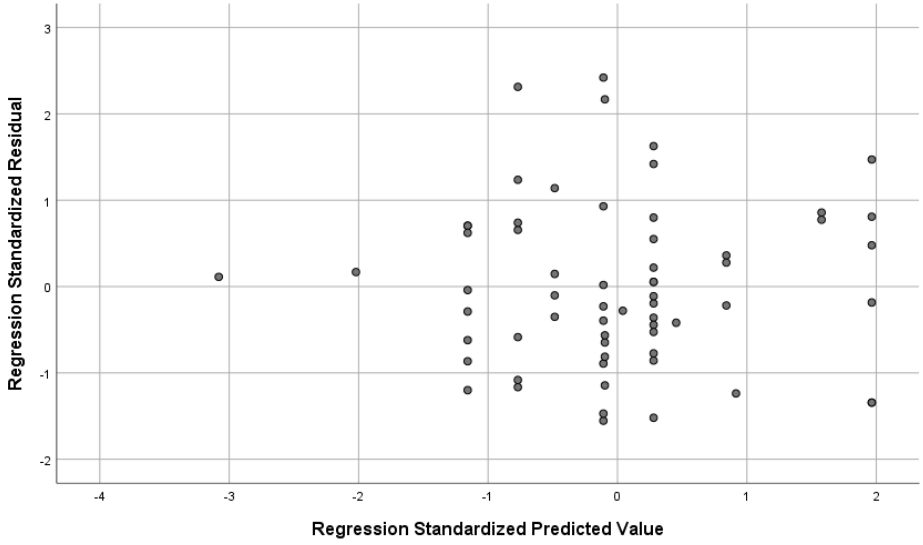

Figure 2. Residuals scatterplot for overall burnout by family support.

The findings of the linear regression were not statistically significant, $F(6, 56) = 1.18$, $p = .331$, and $R^2 = .112$, indicating that there was not a significant predictive

relationship between family support and overall burnout. The coefficient of determination, R^2, suggests that 11.2% of the variance in overall burnout can be explained by the family support variables. Due to the collective model not providing statistical significance, the individual predictors were not examined further. The null hypothesis for research question one ($H_0 1$) was not rejected. Table 3 presents the findings of the multiple linear regression.

Table 3

Results for Linear Regression with Family Support Predicting Overall Burnout

Predictor	*B*	SE	β	*t*	*P*
Have a steady partner (reference: no)	-0.07	0.14	-.06	-0.49	.626
Live with family (reference: no)	0.34	0.32	.14	1.08	.286
Medical doctor in family (reference: no)	-0.19	0.17	-.16	-1.12	.267
Income (reference: $25,000 to $50,000)					
$51,000-$100,000	0.30	0.20	.21	1.52	.134
$101000-$200,000	-0.07	0.20	-.05	-0.33	.740
$201,000 and above	0.10	0.28	.05	0.35	.727

Note. $F(6, 56) = 1.18$, $p = .331$, $R^2 = .112$.

Research Question 2(RQ 2): Is satisfaction with medical school predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Null Hypothesis *($H2_0$):* Satisfaction with medical school is not predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training.

Alternative Hypothesis *($H2_A$)*: Satisfaction with medical school is predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training.

To address research questions two, a linear regression was proposed to examine the relationship between satisfaction with medical school and overall burnout. Satisfaction with medical school consisted of one survey item: satisfaction with career choice. Satisfaction with career choice was a dichotomous item coded: 1 = no and 2 = yes. Overall burnout was the continuous criterion variable.

Prior to analysis, the assumptions of normality and homoscedasticity were assessed. Normality was assessed with a normal P-P scatterplot. As depicted in Figure 3, the assumption was met due the data closely following the normality trend line. Homoscedasticity was tested with a residual scatterplot. As presented in Figure 4, the assumption of homoscedasticity was met due to the data being randomly spread through the plot. The dichotomous nature of satisfaction of medical school causes discreteness in the diagram.

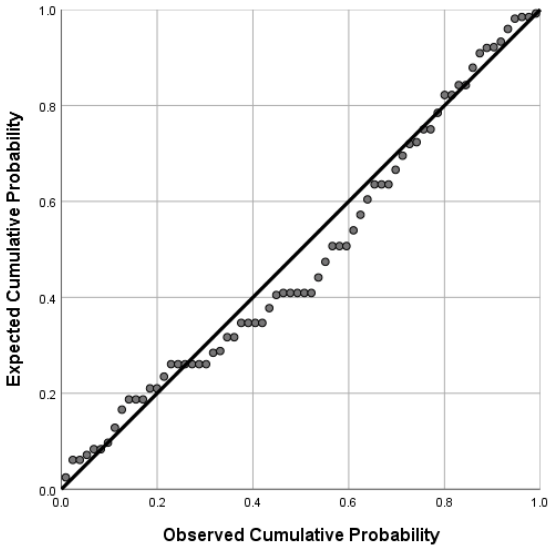

Figure 3. Normal P-P scatterplot for overall burnout by satisfaction with medical school.

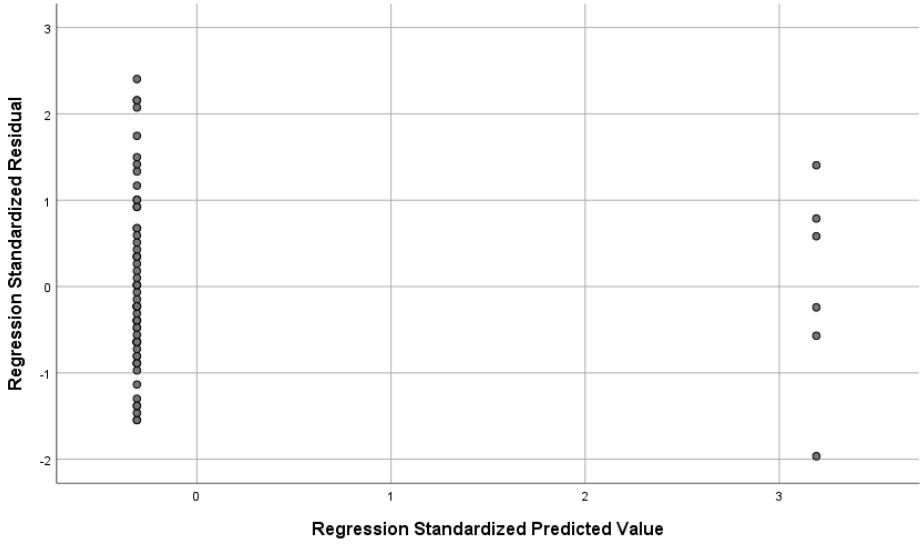

Figure 4. Residuals scatterplot for overall burnout by satisfaction with medical school.

The findings of the linear regression were not statistically significant, $F(1, 66) = 3.09$, $p = .083$, and $R^2 = .045$, suggesting that there was not a significant predictive relationship between satisfaction with medical school and overall burnout. The

coefficient of determination, R^2, suggests that 4.5% of the variance in overall burnout can be explained by satisfaction with medical school. Due to the collective model not providing statistical significance, the individual predictor was not examined further. The null hypothesis for research question two (H_{02}) was not rejected. Table 4 presents the findings of the multiple linear regression.

Table 4

Results for Linear Regression with Satisfaction with Medical School Predicting Overall Burnout

Predictor	*B*	SE	β	*t*	*p*
Satisfaction with medical school (reference: no)	-0.40	0.23	-0.21	-1.76	.083

Note. $F(1, 66) = 3.09$, $p = .083$, $R^2 = .045$.

Research Question 3 (RQ3): Is a previous diagnosis or presence of a mental health disorder predictive of levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Null Hypothesis ($H3_{0:}$): A previous diagnosis or presence of a mental disorder is not predictive of burnout in medical students attending medical school in the Eastern Caribbean during their preclinical years of training.

Alternative Hypothesis ($H3_{A:}$): A previous diagnosis or presence of a mental disorder is predictive of burnout in medical students attending medical school in the Eastern Caribbean during their preclinical years of training.

To address research questions three, a multiple linear regression was proposed to examine the relationship between previous diagnosis or presence of a mental disorder and overall burnout. Previous diagnosis or presence of a mental disorder consisted of three survey items: describe self emotionally, feel happy, and view your future. All three survey questions dichotomously coded: describe self emotionally (1 = tense and 2 = calm), feel happy (1 = no and 2 = yes), view your future (1 = not so good, 2 = good). Overall burnout was the continuous criterion variable.

Prior to analysis, the assumptions of normality and homoscedasticity were assessed. Normality was assessed with a normal P-P scatterplot. As depicted in Figure 5, the assumption was met due the data closely following the normality trend line. Homoscedasticity was tested with a residual's scatterplot. As presented in Figure 6, the assumption of homoscedasticity was met due to the data being randomly spread through the plot.

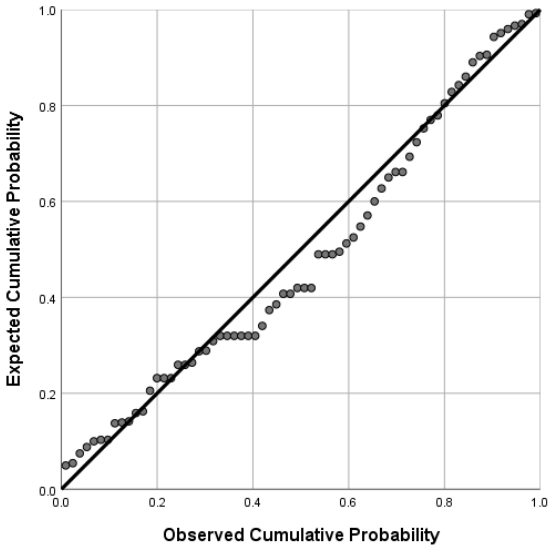

Figure 5. Normal P-P scatterplot for overall burnout by previous diagnosis and presence of a mental disorder.

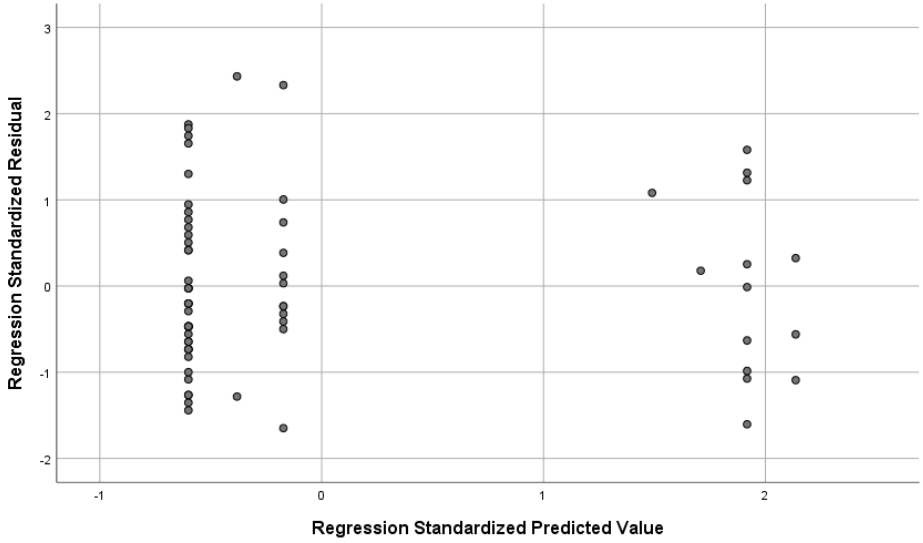

Figure 6. Residual's scatterplot for overall burnout by previous diagnosis and presence of a mental disorder.

The findings of the linear regression were statistically significant, $F(3, 64) = 5.28$, $p = .003$, and $R^2 = .198$, suggesting that there was a significant predictive relationship between previous diagnosis and presence of a mental disorder and overall burnout. The coefficient of determination, R^2, suggests that 19.8% of the variance in overall burnout can be explained by the previous diagnosis and presence of mental disorder variables. Due to the collective model providing statistical significance, the individual predictors were examined further. Feel happy ($t = -2.67$, $p = .010$) was a significant predictor in the regression model, suggesting that participants who were happy tended to score 0.50 units less on overall burnout. Describe self emotionally and view future were not significant predictors in the regression model. The null hypothesis for research question three ($H_0 3$) was rejected. Table 5 presents the findings of the multiple linear regression.

Table 5

Results for Linear Regression with Previous Diagnosis and Presence of Mental Disorder Predicting Overall Burnout

Predictor	*B*	SE	B	*t*	*p*
Describe self emotionally (reference: tense)	0.10	0.15	.09	0.69	.495
Feel happy (reference: no)	-0.50	0.19	-.38	-2.67	.010
View future (reference: not so good)	-0.05	0.23	-.03	-0.23	.818

Note. $F(3, 64) = 5.28$, $p = .003$, $R^2 = .198$.

Summary

The analysis of the research question three support the hypothesis that a previous diagnosis or presence of a mental disorder is predictive of burnout in medical students attending medical schools in the Eastern Caribbean during their pre-clinical years of training In this chapter, the findings of the data analysis were presented. After reducing the data to account for missing responses, the final sample size consisted of 68 participants. Descriptive statistics were utilized to examine the trends of the burnout variable. To address the research questions, a series of multiple linear regressions were conducted. The findings of the multiple linear regression for research question one was not statistically significant, indicating that there was not a significant predictive relationship between family support and overall burnout. The findings of the multiple linear regression for research question two were not statistically significant, indicating that there was not a significant predictive relationship between satisfaction with medical school and overall burnout.

The findings of the multiple linear regression for research question three were statistically significant, indicating that there was a significant predictive relationship between previous diagnosis and presence of a mental disorder and overall burnout. The variable “Feel happy” was a significant predictor in the regression model, indicating that

participants who were happy tended to have lower overall burnout scores. The null hypothesis for research question one and two were not rejected. The null hypothesis for research question three was rejected. In the Discussion chapter, the findings will continue to be examined and interpreted with connections back to the existing literature.

Chapter 5

Introduction

The purpose of this quantitative, cross-sectional study was to examine the factors that predict burnout among medical students in the Eastern Caribbean in the preclinical years of training. The study involved students in the first 2 years of their medical education program. The rationale for the study was based on the lack of information in the literature relating to burnout among this cohort of students in the Eastern Caribbean. The literature largely focused on U.S. medical students in their clinical years of study. The survey instruments were the Maslach Burnout Inventory General Survey for Students (MBI-GS (S)) and a sociodemographic questionnaire.

Three research questions guided the study:

Research Question 1 (RQ1): Does family support predict levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Null Hypothesis *(H_01)*: Family support is not predictive of level of burnout in students attending Eastern Caribbean medical schools in their preclinical years of training.

Alternative Hypothesis (H_a1): Family support is predictive of level of burnout in students attending Eastern Caribbean medical schools in their preclinical years of training.

Research Question 2 (RQ 2): Is satisfaction with medical school predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Null Hypothesis (H_0 *2*): Satisfaction with medical school is not predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training.

Alternative Hypothesis (H_A*2*): Satisfaction with medical school is predictive of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training.

Research Question 3 (RQ 3): Is a previous diagnosis or presence of a mental health disorder predictive of levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

Null Hypothesis (H_0 *3):* A previous diagnosis or presence of a mental disorder is not predictive of burnout in medical students attending medical school in the Eastern Caribbean during their preclinical years of training.

Alternative Hypothesis *(*H_A *3):* A previous diagnosis or presence of a mental disorder is predictive of burnout in medical students attending medical school in the Eastern Caribbean during their preclinical years of training.

The findings of the linear regressions for Research Question 1 (RQ1) and Research Question (RQ2) indicated there were no significant predictive relationships between family support and burnout nor between satisfaction with medical school and

burnout, respectively. The Null Hypothesis ($H_0$1) and Null Hypothesis ($H_0$2) were not rejected. Statistical analysis of research question three indicated that there was a significant predictive relationship between a previous diagnosis or presence of a mental disorder and burnout. The null hypothesis for research question three ($H_0$3) was rejected. Individual predictors were examined further, and "feel happy" was a significant predictor in the regression model, indicating participants who were happy tended to have lower overall burnout scores.

The remainder of the chapter will include a discussion and interpretation of the findings of this study in relation to those of previous studies. Additionally, I discuss the limitations of the study, present recommendations for further research, and discuss implications for practice and social change.

Interpretation of The Findings

RQ1 was: Does family support predict levels of burnout in students attending Eastern Caribbean medical schools during their preclinical years of training?

The linear regression for (RQ 1) revealed no significant statistical relationship between family support and burnout, which does not align with previous findings. In a study on burnout and depression among medical students in Trinidad and Tobago, Youssef (2016) noted that incidence of burnout was less documented in less developed regions and found a 52% prevalence of burnout and a 40% prevalence of depression among final year students at the University of the West Indies in Trinidad and Tobago. Risk factors for burnout among these medical students included lack of emotional and family support. Youssef also found that burnout was related to marital status or having a

steady partner, living with family when at home, distance from home, and family financial earnings. Lashley et al. (2014) identified that financial constraints, family concerns, and psychosocial factors were associated with burnout in medical students on the Barbados campus. Oliva Costa et al. (2012) additionally identified these as socioeconomic and demographic characteristics that may influence burnout in medical students in Brazil. The literature indicated that family support is associated with burnout among medical students.

The population in this study may be dissimilar to a population of students from the North American context. The data indicated that 42.65 % of the respondents are from Africa/Middle East 25% of respondents were from the Caribbean, respondents from North America were 8.82 % and Other countries were 23.53 %. The four Eastern Caribbean Islands surveyed shared many social and economic and cultural similarities with the students from African countries.

The expectations and demands of this cohort of students may be different than that of the students from North America attending school on the Islands. Cecil et al. (2014), Costa et al. (2012), and IsHak (2013) conducted studies in North America and the United Kingdom; they concur that burnout was indicated among medical students in relation to the variables of emotional and family support and other psychosocial factors. Students attending from another developing country may experience less distress and cognitive dissonance when placed in social and economic contexts that are like their own home countries (Cole & Carlin, 2009).

Family support is also indicated by the annual family income; the lowest annual income bracket US$25.000-US$50.000 was endorsed by 57.35% of respondents Living operate with lesser financial demands due to the economic lifestyles of the developing countries. Similar cultural practices may provide a buffer to the adjustment of this group of students. Additionally, the highest number of respondents 94.12% live with family when at home, which may indicate another level of family support in this cohort of students attending Eastern Caribbean medical schools.

RQ2 was: Is satisfaction with medical school predictive of burnout in students attending Eastern Caribbean medical schools?

The findings of the linear regression were not statistically significant, indicating no significant relationship between satisfaction with the medical school and burnout. The challenges of obtaining a medical education may negatively impact the student's satisfaction with the medical education process or with the school. The issues highlighted in the literature included the demands of the course work, concerns related to grading systems, large class sizes in some instances, and challenging course activities and learning environments (IsHak, 2013; Oliva Costa, 2012). The students enrolled in the Eastern Caribbean medical schools are not exempt from the initial stressful moments of adjustments to medical school away from their home countries or the constant stresses associated with the basic science phase of the training process (Oliva Costa, 2012). Also included are the anxieties related to transitions to the clinical and clerkship stages as students prepare to transition to North American or British Clerkship programs in some instances, which may involve the prerequisite USMLE STEP 1 examination (Norcini,

Boulet, Dauphniee, Opalek, Krantz & Anderson, 2010). The students' responses, however, did not indicate dissatisfaction with their schools, or with the medical education process in the Eastern Caribbean medical schools.

Responses in this study may arguably reflect the schools' structuring of the program. There are also variabilities in the programs among the schools that may also reflect differences in the students' educational experiences from one school to another (Boulet, Bede, McKinley & Norcini, 2007). Furthermore, the smaller student populations of some of the Eastern Caribbean schools may allow for greater support for students from faculty and administrators, which may contribute to a greater sense of satisfaction with the school. Another possible explanation to be considered that may have impacted the outcome is the omission of questions on the MBI-GS(S) rendering the data unusable and therefore may have some impact on the outcome in relation to the question. However, Oliva Costa et al. (2012) observed that in the study conducted among the Brazilian medical students, those who indicated satisfaction with the medical education process also indicated high levels of professional efficacy, and positive expectations of the future. They also indicated a commitment to stay the course rather than dropout of the program. These responses were also consistent with their indications of satisfaction with the medical program. Consequently, there was no significant difference found for satisfaction with the medical school and the predictive symptoms of burnout.

RQ3 was: Is a previous diagnosis or presence of a mental health disorder predictive of levels of burnout in students attending Eastern Caribbean medical schools?

The linear regression was statistically significant, indicating a significant predictive relationship between a previous diagnosis and the presence of a mental disorder and overall burnout. Therefore, the null hypothesis for Research Question 3 (RQ 3) was rejected. This finding aligns with the findings of previous research that a predictive relationship exists between mental health conditions and symptoms of burnout. Youssef (2016) reported that large numbers of Caribbean medical students, 59%, experienced symptoms of depression, though less so for students in the preclinical years of training. Lashley et al. (2014) also found that depression was related to burnout in medical students. The relationship between the experience of depression and other mental health diagnoses and burnout is also consistent with the reports from other studies done in Brazil, Europe and North America (IsHak et al., 2013; Gade, Chari, and Gupta, 2014; Oliva Costa, et al., 2012).

Limitations

One limitation was that the study included a cross-sectional design, which only allows for the identification of a predictive relationship between variables and cannot indicate causality. Furthermore, the study did not include analysis of the separate components of burnout: emotional exhaustion, reduced personal accomplishment, and depersonalization identified by Maslach & Jackson, (1981); Emotional exhaustion refers to a sense of being under pressure, overwhelmed, and the depletion of emotional resources. Maslach & Rostami (2013) detailed description of the scales provides a wealth of information for more in depth analysis. Reduced personal accomplishment refers to feelings of reduced personal efficacy, productivity, and a decline in competence

(Enoch et al.,2013; Maslach & Jackson, 1981; Rostami et al., 2013). Depersonalization refers to becoming detached and giving cynical response to others (Schaufeli, Maslach & Marek,1993). The analysis of burnout using the dichotomous model in this instance has limited the comparison to the presence of burnout or no burnout. An analysis of the three components of burnout would have generated three scores for each component of the burnout syndrome. The latter has the potential to generate a wider range of information for later comparisons with other groups of students (Shanafelt & Dyrbe,2012). Additionally, the analysis of the individual component is a stricter criterion which would also inform how the score of one component may impact another (Oliva Costa et al., 2012). However, the instrument has been widely used and validated with the use of one or the other criteria. In this study the instrument was used in conjunction with the social demographic survey which provided additional information about the students' lives to additionally inform the burnout impact.

Another limitation related to the study is the proprietary cost of the burnout instrument and other required copyright documentation that were time limited in the availability of their use throughout the time frame of the study.

External Validity

Another limitation of the study is the extent to which it can be generalized to the wider population of Eastern Caribbean medical students and the wider Caribbean medical school population. The group of medical students from these Eastern Caribbean schools that participated in the study are more homogeneous and less reflective of the international representation of the schools in the entire region. I had anticipated at six

medical schools to have participated in the study, which would have been a greater representation of the schools in the Eastern Caribbean. The larger and more established schools did not participate as was indicated due to administrative and executive decisions.

Additionally, the sample makeup was impacted by the COVID-19 Pandemic. The schools that signed on to participate highlighted the additional hardships of the situation as students were eventually evacuated off the Islands. I was concerned that this new experience would confound the results of the study hence they elected not to participate in the study after signing on.

Recommendations

A recommendation to replicate this study in the future should consider the inclusion of the additional question that was dropped from the study. It is recommended that the study be continued or replicated to include the Research Question (RQ) Does the experience of a negative life event predict burnout in students attending medical school in the Eastern Caribbean? The study may require a more in-depth qualitative research method to further explore the findings of this study that were inconclusive or inconsistent with the literature. A comprehensive understanding of the mental health concerns of the students and the relationship to burnout is important since the results indicated a relationship between the two. Additionally, to enquire into what else mitigates against burnout among medical students in the Eastern Caribbean.

The findings are also consistent with the literature that burnout begins before students embark on their clinical programs; preventive strategies are imperative to

address psychosocial and preexisting mental health issues in students. A structural institutional approach in identifying predictors of burnout among students at the beginning of their program. The approach must be informed by an understanding of the importance of students' autonomy, dignity and respect; making every effort to prevent any infringement on students' rights to privacy.

The schools 'recruitment strategies include types of screening that identify students who may be at risk for burnout due to preexisting mental health conditions. Included in the recruitment schools will do well to provide and inform students of mental health services and support systems available to all students both on campus and in the community. This includes a university wide wellness program.

It is possible to incorporate intervention strategies into the students' medical education process by addressing burnout prevention interventions on the following levels based on Leiter and Maslach (2004) benchmarks for addressing burnout prevention from the level of the institution:

1. Medical education workload. Institutional consensus regarding the advantages and disadvantages of regulating students' workload across schools.
2. Allowing students' some measure of control over their schedules
3. Creating rewards and incentives related to their study programs
4. Developing and maintaining a sense of community
5. Building a reputation of a sense of justice and fairness
6. Promoting the Institutions' values that speak to the students' needs and concerns

Another recommendation for further research includes study of the collaboration between medical schools on the Islands in the areas of student development and wellness. The invitation of medical schools to participate in the present study was preempted on the principle of collaboration and regional collegiality by virtue of the socio-political functioning of the Islands. Opportunities to build collaboration around research interests may provide opportunities to grow students' sense of competence and professionalism on their path to the profession of medicine.

Implications

Maintaining medical students' mental health to avoid burnout should be a consistent and intentional concern. Incorporating health and wellness centers is recommended to help medical students focus on positive experiences that lead to happiness and help prevent burnout. Schools should provide free professional services to students for counselling, psychological assessment, and psychotherapy.

Implications for Social Change

The geographic location of Eastern Caribbean medical schools and their proximity to North America presents a unique opportunity to continue to develop the brand of medical education in the region. The positive impact of international medical graduates from Eastern Caribbean countries is recognized in the medical arenas of Europe and North America (Boulet et al., 2012), and the continued growth and development of these schools are important to the social and economic growth of the countries where they are located. The schools contribute substantially to the Gross

Domestic Product of the islands, up to 20% in some islands, providing employment and sustainability in health development, education, research, and tourism (World Bank Group, 2018) This study adds to the knowledge pool on the phenomenon of burnout among medical students in the Eastern Caribbean; and will serve as a catalyst to an ongoing dialogue on the importance of the mental health of the medical students in the preclinical years of their studies.

Other implications for social change include increased opportunities for higher education and increased funding for research in the region. The establishment of reputable schools is an asset to the countries socially and economically. Educational and economic initiatives are bolstering the quality of higher education in the region and impacting economic growth and the quality of life of citizens (Brown & Shen, 2017). Intrinsic to the sustainability of these schools is the support of the mental health and wellbeing of medical students.

Conclusion

The study was designed to examine the factors predictive of burnout and determine the extent to which burnout present in medical students in Eastern Caribbean medical schools. A total of 96 (N=96) participants consented to participate in the questionnaire. The final sample size consisted of 68 participants. Because of the small sample size and other limitations, the generalizability of the study is limited to the schools that participated. Additionally, incomplete data from participants who left portions of questions unanswered, may reflect the predictors of burnout among these respondents. The findings indicated that the presence of a mental health condition or

previous diagnosis was statistically significant, indicating that there is a predictive relationship to overall burnout.

This finding highlights the importance of preserving the mental health and wellbeing of medical students by providing the necessary support programs academically, psychosocially, and psychologically. It was refreshing to notice the students' commitment to their education and their demonstration of resilience. However, this level of commitment must be preserved and maintained by preventive measures and interventions to prevent burnout. While burnout predictors are lower in Eastern Caribbean medical schools than indicated in the literature for medical students in other regions, it is fair warning for educators and stakeholders to be expeditious in their responses. The medical education community in the Eastern Caribbean is not an industry, product, or brand but a community of brilliant, courageous, and hopeful medical professionals in the making. This community is supported by committed administrators, mentors, and faculty helping them to stay the course and hopefully to finish well.

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Appendix A: Information Regarding the Study

Dear participant,

I appreciate your interest in my study. I have had a long-time interest in the development and wellbeing of our medical students here in the Caribbean. My name is Denise Lewis a graduate student in the Clinical Psychology Ph.D. at Walden University. I am requesting your participation in my dissertation study investigation the prevalence of burn out in medical students in their preclinical years at Eastern Caribbean medical schools.

The intent of the study is to explore the variables related to the medical students studying in the Eastern Caribbean and determine if they are predictive of burn out among the students. Additionally, to accurately predict the incidents of burnout and why are they are experiencing burnout. The information can be used by stakeholders and medical education architects to address and alleviate where possible, the factors that relate to burnout among their students. Additionally, the information will contribute to the dialogue on the support of students' wellness and resilience. There is a growing need to implement and develop support and relevant interventions to prevent burnout and to reduce the incidents of chronic distress among medical students matriculating into their clinical years of training.

Participants must be enrolled in the first 2 years of the medical program in any Eastern Caribbean Island. You would be asked to participate in an online survey via Survey Monkey. Participation is solely up to your choice, and you are free to discontinue the survey at any point if you no longer wish to participate.

You will be asked to complete the following two surveys on Survey Monkey: The Maslach Burnout Inventory - Student Survey (MBI-GS(S) and a student demographic questionnaire. The completion time of consent and the questionnaires is estimated to be about 30 minutes.

Appendix B: Sociodemographic Prevalence Questionnaire

Completion of this questionnaire is important in determining what are factors influencing burnout symptoms among students. This information will remain confidential since no identifying information of participants will be revealed. Please check the appropriate line as indicated**.**

Gender:

What is your Gender?

_____Female

_____Male

What is your age range?

_____18 – 25

_____26 - 36

_____37 - 47

_____48 - 58

Do you have a steady partner?

_____Yes

____No

Which region/country is your home?

_____North America

_____Caribbean

_____Africa/Middle East

_____Europe

_____Other

Do you live with family when you are at home?

_____ Yes

_____No

Is there a medical doctor in the family?

_____Yes

_____No

Please indicate your annual family income

___US$25,000 to US$50,000

___US$51,000 to US$100,000

___US$ 101,000 to US$200,00

__US$200,000 Above

Do you practice a Religion?

_____Yes

_____No

In which semester/term are you registered?

_____1st

_____2nd

_____3rd

_____4th

_____5th

Are you satisfied with your career choice?

_____Yes

_____No

Have you ever considered dropping out of a course?

_____Yes

_____No

Do think you are acquiring the skills you need?

_____Yes

_____No

Are you satisfied with the teaching strategies?

_____Yes

_____No

Which best describes your feelings about the course activities?

____Comfortable

____Uncomfortable

Do you enjoy your course work?

_____Yes

_____No

Have you been previously diagnosed with a mental health condition?

_____Yes

_____No

How would you describe yourself emotionally?

_____Calm

_____Tense

Do you exercise regularly?

_____Yes

_____No

What are your expectations for the future?

_____Good

_____Not so good

Do you feel happy?

_____Yes

_____No