8-31-2016

The United States Medical Licensing Exam (USMLE) and medical student wellness: an ethnographic qualitative study at Cooper Medical School of Rowan University

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THE UNITED STATES MEDICAL LICENSING EXAM (USMLE) AND MEDICAL STUDENT WELLNESS: AN ETHNOGRAPHIC QUALITATIVE STUDY AT COOPER MEDICAL SCHOOL OF ROWAN UNIVERSITY

by

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A Dissertation

Submitted to the
Department of Educational Services and Leadership
College of Education
In partial fulfillment of the requirement
For the degree of
Doctor of Education
at
Rowan University
July 25, 2016

Dissertation Chair: Ane Turner Johnson, PhD.

Dedications

I dedicate this dissertation to my husband Jay, for his patience and support throughout these many years of long nights and weekends at the computer; and to Julia and Jenna, my girls, for cheering me on along the way and for not complaining (too much) about my pre-occupation with medical students and wellness. Finally, I also dedicate this work, in loving memory of my dear sister Mary Kay, for inspiring me from a very young age to continually seek to learn, to care deeply about wellness and education, and to always aspire to do more.

Acknowledgments

From the very earliest days of my coursework in the Rowan doctoral program, Dr. Ane Johnson has been both an admired educator and a supportive mentor. Through her ongoing guidance and encouragement this research grew into an inspired and personal project. Thank you Ane for serving as an outstanding Chair of my dissertation committee. I also want to sincerely thank Dr. Leslie Spencer and Dr. Kate Dayton for their expert advice, knowledge, and engagement and for serving so well on my dissertation committee.

Thank you to Renee Cole, trusted friend and research expert. You editing helped me to be more critical and scientific in my approach to considering and developing my theories. It was also interesting to share my findings with you as your daughter Megan simultaneously went through the USMLE process.

Finally, I want to thank and acknowledge all of the faculty, administrators, and staff at Cooper Medical School of Rowan University for participating in this project and most especially, the medical students who let me into their lives and allowed me to silently observe their world as they prepared for the most important test of their lives.

Abstract

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Research indicates that medical students experience unusually high levels of stress, anxiety, depression, and loss of empathy while in medical school. As the number of medical students rises and residency positions remain stagnant, the USMLE receives greater emphasis as a barometer in determining residency placement and future career paths thereby increasing levels of stress among students. Stress is associated with diminished self-care, potentially leading to a negative impact on well-being. This ethnographic, qualitative study sought to examine the extent to which the anticipation of, preparation for, and implications of the USMLE contribute to medical student stress, wellness, and self-care. Through forty-four interviews combined with immersed observation, and multiple brief interactions with medical students, faculty, and staff at Cooper Medical School of Rowan University, the impact of the USMLE on the health and well-being of medical students was assessed. Results clearly indicated that the USMLE adversely affects medical student wellness, particularly depleting physical, social, and psychological well-being. While a few students were able to successfully manage through the exam preparation, the vast majority decreased or depleted their coping reservoir over the course of USMLE preparation exhibiting emotional, social, and physical ramifications.

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Chapter 1

Introduction

As the primary arbiters of healthcare in the United States, physicians play a critical role in managing the wellness of our country. If they are unwell, society at large is at risk for having suboptimal and potentially poor care (Wallace, Lemaire, & Ghali, 2009). Research provides evidence that there is a high prevalence of burnout among medical practitioners that is not only damaging the quality of life and health of physicians, but also producing negative effects on both patients and the health care system (Dyrbye, West, Satele, Boone, et al, 2014; Dyrbye, Varkey, Boone, Satele, Sloan, Shanafelt, 2013; Garr, Lackland, & Wilson, 2000; Gilley & Pfifferling, 2000). Some of the contributing factors to decreasing wellness among physicians include a high pressure career that is prone to litigation, declining financial reimbursement combined with rising educational debt, and longer hours with more patients (Block, 2015). Considering the well-documented disdain for admitting vulnerability or need for support that is prevalent in the physician community, it is easy to understand the increased levels of stress and burnout experienced by this profession (Thompson, Cupples, Sibbett, Skan, & Bradley, 2001). Unfortunately, the resulting implications for society include recruitment and retention issues (Cohen & Patten, 2005), lowered productivity, increased mistakes that can lead to patient injury or death, and a greater financial burden on society (Wallace et al, 2009).

Medical school is an important transitional period in the life and development of future physicians. In addition to intense education and professional growth, these students are in the midst of important personal development. Research suggests that student

burnout and mental illness are increasing in U.S. medical schools with a recent study published in the Journal of the American Medical Association (Schwenk, Davis, & Wimsatt, 2010) revealing that while students enter medical school with mental health profiles similar to those of their peers, they end up experiencing depression, burnout and other mental illnesses at significantly higher rates (Chen, 2010; Yousoff, Mat Pa, Esa, & Rahim, 2013). Psychological distress in U.S. medical students is common (Dyrbye & Shanafelt, 2006; Dyrbye, et al., 2011; Greenburg, Durning, Cruess, Cohen, & Jackson, 2011) and the incidence and frequency of test taking is negatively correlated with measures of well-being (Reed, et al., 2011) suggesting that schools that emphasize testing and grades may be cultivating learning environments that exacerbate anxiety and stress ((Bloodgood, Short, Jackson, & Martindale, 2009). On a broader scale, research suggests that a close relationship exists between physician well-being and the compassionate care they provide patients. Decreased wellness or physician impairment is detrimental to the field of medicine; impaired physicians are more likely to deliver suboptimal care to their patients and more likely to lose their licenses and careers (Estabrook, 2008).

Unfortunately, many medical students and physicians today are neither adequately trained nor actively involved in their own care. In addition, many students, residents, and physicians at all levels of practice experience burnout and "compassion fatigue," losing sight of empathy under the stress of medical school and modern medical practice (Dyrbye, et al., 2014; Gilley & Pfifferling, 2000; Greenburg, Durning, Cruess, Cohen, & Jackson, 2010). While attention has been placed on helping the impaired physician, less attention has been paid to preventing impairment and increasing the overall well-being of physicians (Dyrbye, et al, 2014; Schwenk, Davis, & Wimsatt, 2010). The American

Association of Medical Colleges encourages medical schools to promote empathy because it is linked to patient care and because the organization aspires to change current trends (AAMC, 2013).

The current standard for medical school education continues to emphasize disease management in a high stress, extremely competitive and aggressive environment. At present, a model of wellness education that is considerate of the 'whole' individual and that places an emphasis on both the student and patient well-being does not exist. There is a need for more clarity regarding what specific attributes in the current medical school climate contribute to the rising levels of mental duress and decreasing empathy seen in medical schools.

Medical Training and Well-Being

One might expect the emphasis at medical school to be placed on the skills advocating for and honoring health and wellness for oneself and one's patients. Although an environment of wellness and self-care should be modeled and nurtured, the literature supports that physicians are not well-versed in managing the full spectrum of their own wellness, resulting in an exacerbation of elevated stress and unhealthy behaviors (Hettler, 1976; Dyrbye, et al., 2014). In addition, attitudes that have been perpetuated in the medical field include pushing oneself beyond 'normal' limits, believing that physicians cannot show weakness or vulnerability, as well as an overall disdain for emotions, and delicate or sensitive/emotional topics (Estabrook, 2008; Dyrbye & Shanafelt, 2011). What is valued and praised most often is working harder than others, analytical demeanors, and operating well in competitive or challenging environments (Dana, 1927). Medical school educators spending the most time training future physicians are modeling

unhealthy behaviors that may be detrimental to students and their patients in the long run. A high-stress, high-stakes educational environment may encourage physicians in training to downplay or marginalize the importance and value of wellness education and preventive health measures in themselves and in their patients (Hojat, Gonnella, Erdmann, & Vogel, 2002).

High-stakes environment. The medical profession is one of the most highly regarded and appealing arenas for aspiring future professionals; and the medical doctor career choice in particular is considered attractive, stable, and financially lucrative. The sheer number of applications annually received by United States Medical Schools attests to the competitive nature of the admissions process. In 2014, there were over 700,000 applications for 20,343 seats in United States M.D. degree granting medical schools (AAMC, 2014).

Preparation for entry into medical school often begins in high school with numerous preparatory programs for those considering a future medical career. Cooper Medical School of Rowan University (CMSRU) developed a MEDacademy program in 2015, designed to provide interested and high caliber high school junior and senior students with foundational information in the coursework that can be expected in medical school along with a realistic overview of the requirements and preparation necessary for one to be competitive in the admissions process (CMSRU, 2015). Programs like this one are competitive with many more students seeking entrance than there are seats to accommodate them. High school grade point averages, accomplishments, and letters of recommendation are used to determine entry into the program. Often parents of potential students are equally invested in gaining admission as their children.

The critical test culture begins for aspiring physicians with the SAT or ACT in high school. High test scores are often required in order to attain entry into a strong college or one that has a strong pipeline into medical school. Those students considering medical school from an early age are already placing a great emphasis on testing in order to be well positioned to successfully reach medical school. The stakes only get higher for college pre-medical students across the country as they begin early preparation for the Medical College Admissions Test (MCAT), which is used as a metric by every medical school to filter the enormous number of applications for a finite number of spots. For example, CMSRU received almost 6000 applications for 80 seats in the 2015 incoming class. MCAT preparation courses and programs are practically a standard supplement to the undergraduate curriculum of pre-medical students. In addition, there are a myriad of post-baccalaureate programs designed for students possessing B.S. degrees but lacking in credentials (their GPA, coursework or MCAT score) competitive enough for medical school admission. Although gaining entry into medical school is a huge accomplishment, the high level of competition and stressful test preparation is not over. Perhaps the most critical and challenging test lies ahead for these future physicians, and it is the United States Medical Licensing Exam (USMLE).

The USMLE is a high-stakes exam used to assess a physician's ability to apply knowledge, concepts, and principles, and to demonstrate the fundamental patient-centered skills necessary for safe and effective patient care (USMLE, 2015). The USMLE is a three-step examination for medical licensure in the United States; USMLE scores at each step will influence a medical student's career progression. Step 1 is taken at the end of the second (M2) year of medical school, Step 2 during the fourth (M4) year, and Step

3 in the first or second year of post-graduate/ residency training. Most medical licensing authorities require completion of USMLE Steps 1, 2, and 3 within a seven-year period that begins once the first Step of the exam is passed (USMLE, 2015).

Graduate medical education decision-makers rely heavily on USMLE scores to screen and determine selectivity into residency programs across the United States. For medical students, this is a critical decision because it determines not only if they are accepted into a licensed graduate medical program that will enable them to ultimately be a licensed practitioner, but it also decides whether or not they will be able to practice in the specialty of their choice. The most financially lucrative residencies, including surgery, dermatology, or ophthalmology, for example, require the highest USMLE Step 1 scores if one is to be considered for admission. For some, lifelong dreams are destroyed if they do not achieve high enough scores.

The USMLE has been identified as a challenging and stress-inducing milestone in the educational career of medical students (Tucker, et al., 2015), yet there is a dearth of research specifically evaluating the impact of this test on students' perceived wellness. Meanwhile, there is significant evidence supporting that both self-care and empathy toward patients deteriorate over the course of the four medical education years (Dyrbye & Shanafelt, 2011; Yousoff et al., 2013). Despite medical students beginning their educational journey with self-reported well-being that is comparable to similar age-equivalent cohorts not entering medical school (Chen, 2010; Dyrbye & Shanafelt, 2011), by the third year of education, there is a significant loss of empathy, along with increases in substance abuse and mental illness including depression, anxiety, and suicide (Dyrbye & Shanafelt, 2011, Greenburg, et al., 2011). There are likely multiple factors contributing

to these negative alterations that develop over the course of medical education; however, only limited research exists on the correlation between student wellness (i.e., self-care and lifestyle habits) and the United States Medical Licensing Exam (USMLE). There is a positive correlation between wellness as it pertains to producing higher scores on the USMLE test (Stephens, 2015) but none that explicitly assesses the potential negative impact that this exam may have on student wellness.

Wellness and Well-Being

Wellness has many definitions and means different things to different people. For the purpose of this particular study the National Wellness Institute (NWI) definition is used and characterizes wellness as an active process through which people become aware of, and make choices toward, a more successful existence (Hettler, 1976). There are six dimensions to wellness that must be considered when determining one's overall well-being; they include physical, social, intellectual, spiritual, emotional, and occupational (NWI, 2015). Well-being is the interrelation of these six dimensions that when taken together determines how people interpret the quality of their lives. The interaction between their circumstances, activities and psychological resources or 'mental capital' defines overall well-being (NEF, 2015).

Student wellness. In the field of medicine, it has been commonly known for a long time that medical training can be extremely stressful and that extreme stress can be a precursor or contribute to a multitude of both physical and psychological ailments including headaches, gastrointestinal distress, coronary heart disease, depression, impaired judgment, absenteeism, and self-medication with drugs and alcohol (Dunn, Iglewicz, & Moutier, 2008; Dyrbye, 2011). Furthermore, it is recognized that doctors in

training and in practice who fail to manage their stress levels are less likely to be safe or competent health care providers (O'Rourke, Hammond, O'Flynn & Boylan, 2010). Although medical school is the training environment for the health care providers and leaders of the future, medical education is sorely lacking in attention to student wellness or student well-being (Spring, 2011). Using the National Wellness Institute (NWI) definition (Hettler, 1976) described above, it seems as though the current medical education environment is not giving attention to student wellness.

Self-care. Self-care comprises those activities performed independently by an individual to promote and maintain personal health, and to prevent and deal with illness. It is a broad concept encompassing: hygiene (general and personal); nutrition (type and quality of food eaten); lifestyle (sporting activities, leisure etc.); environmental factors (living conditions, social habits, etc.); socioeconomic factors (income level, cultural beliefs, etc.); and self-medication (World Health Organization, 2015). It encompasses the body, mind, and spirit and is an approach to living that incorporates behaviors that rejuvenate, replenish, encourage personal motivation, and promote personal growth.

Teaching and modeling practice. Despite the array of research underscoring the value of self-care in supporting health and well-being, and despite the fact that medical and health professionals are charged with helping to maintain the health of their patients, there seems to be a disconnect or lack of attention by physicians given to the well-being of physicians in training (Gilley & Pfifferling, 2000; Stange & Nutting, 1994). Medical education is largely focused on acquiring the ever-increasing, massive amount of scientific and clinical information necessary for knowledgeable and skillful medical practice. Less emphasis is placed on guiding or encouraging medical students to take

good care of their physical, mental, and social well-being (Shanafelt, Sloan, & Habermann, 2003).

Research suggests that physicians who are well are more productive and provide better care to their patients while having greater job satisfaction, and reduced stress and burnout (Wallace, Lemaire, & Ghali, 2009; West, Huschka, Novotny, 2006). Unfortunately, practicing and teaching physicians continue to suffer from stress, depression, burnout, anxiety, and other unwanted consequences related to unhealthy behaviors (Wallace, et al, 2009). Clearly, if those practicing, teaching, and leading in the medical field are not alert to the dangers of a stressful environment and not considering well-being as a critical educational component, there is little likelihood of change in the field. In addition to the natural impact of stress on well-being, practicing physicians' role-modeling behaviors must also be considered as it pertains to medical student health and self-care.

Problem Statement

The rigorous training required to master the vast array of information needed to become a practicing physician necessitates that the majority of time in medical school be spent either in the classroom or studying. Simultaneously, the overall amount time spent on traditional activities associated with wellness diminishes while students are enrolled in their training program. Research asserts that medical students experience substantial stress, anxiety, depression, and loss of empathy over the course of their four-year medical school training. The increased emphasis and pressure associated with high performance in medical school is exacerbated by the high stakes USMLE test which is first taken at the end of the second year.

As the number of medical students continues to rise and the availability of lucrative residency assignments across the country remains stagnant, the pressure associated with the USMLE test continues to grow. Students who are committed to attaining highly sought after residency positions will experience more stress and pressure in this demanding environment. Likely, that increased stress will lead to more burnout and psychological distress and will be associated with less attention to health and well-being. A possible consequence of the in-attention to wellness is a future physician workforce that is not well versed in self-care and is therefore potentially less capable of advocating for the same in their patient population. Potential ramifications include a society that does not receive an adequate level of guidance surrounding self-care and are subject to less than optimum care from their physicians.

Purpose of Research

The purpose of this ethnographic, qualitative study is to examine the extent to which the anticipation of, preparation for, and implications of the United States Medical Licensing Exam (USMLE) contribute to medical student stress, wellness, and self-care. I will employ qualitative interviews and focus groups with students across all four years of medical school at Cooper Medical School of Rowan University (CMSRU), as well as with faculty and key ancillary personnel. In addition, to supplement the interviews and contribute to the validity of the data, I will employ other ethnographic tools throughout the study including journaling, participant observation, and field notes. Using a constructivist approach to grounded theory; my method will be systematic, yet flexible as I collect and analyze data as the research progresses (Charmaz, 2014). I will explore how

perceptions among medical students and key ancillary personnel explain views toward and the impact of the USMLE on the health and well-being of medical students.

Gaining perspective on the role that the USMLE plays in the lives of medical students will provide a greater understanding for both medical education administrators and educators and for the institutions that utilize and emphasize the scores from these tests. Armed with knowledge of the impact of the exam, a case can be made to either decrease the high stakes nature of the licensing test or to provide adequate support to enable students to successfully navigate through the process with minimal impact.

Research questions.

1. How do medical students experience the United States Medical Licensing Exam (USMLE) as a part of their medical school education?
    a. How do medical students describe their sense of each dimension of well-being as it pertains to their impressions and experiences of the USMLE?
    b. What factors contribute to and/or detract from medical students' perceived personal wellness as it pertains to the USMLE?
    c. How do medical students and significant medical education collaborators describe the impact of the United States Medical Licensing Exam (USMLE) on the self-care and well-being of medical students?
2. What changes are observed across the four-year spectrum of medical school in regard to the USMLE as it relates to student wellness?
    a. What changes in attitudes regarding the USMLE do participants report over the course of four years of study in medical school?

b. How do behaviors and attitudes of medical students toward engaging in personal self-care change in relation to USMLE testing?

Definition of key terms. Several terms are consistently used throughout this study and for clarity of purpose have been defined below:

- **Burnout –** Term used to describe when individuals feel emotionally overwhelmed by the demands of their job resulting in emotional exhaustion or withdrawal, fatigue, depression, suicide, substance abuse or impairment (Shanafelt, Bradley, Wipf, & Back, 2002); characterized by emotional exhaustion, depersonalization, and loss of sense of personal accomplishment.
- **Empathy -** In medicine, clinical empathy is defined as the act of correctly acknowledging the emotional state of another without experiencing that state oneself. The function of empathy is not merely to label emotional states, but to recognize what it feels like to experience something (Halpern, 2003).
- **Ethnography -** Research that has the goal of gaining an in-depth understanding of the culture of a group, organization, or society using different procedures, such as participant observation, interviews, and examination of artifacts (Teddlie & Tashakkori, 2009).
- **Resilience –** The process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress – such as family and relationship problems, serious health problems, or workplace and financial

stressors. It means 'bouncing back' from difficult experiences (APA, 2015).

- **Self-care -** Self-care comprises those activities performed independently by an individual to promote and maintain personal health, and to prevent and deal with illness. It is a broad concept encompassing: hygiene (general and personal); nutrition (type and quality of food eaten); lifestyle (sporting activities, leisure etc.); environmental factors (living conditions, social habits, etc.); socioeconomic factors (income level, cultural beliefs, etc.); and self-medication (World Health Organization, 2015). It encompasses the body, mind, and spirit and is an approach to living that incorporates behaviors that rejuvenate, replenish personal motivation, and promote personal growth.
- **Wellness -** Definitions across studies in the literature vary (Spring, 2011). For the purposes of this study, the National Wellness Institute (NWI) definition will be used. It defines wellness as an active process through which people become aware of, and make choices toward, a more successful existence (Hettler, 1976). Encompassing six dimensions, including physical, social, intellectual, spiritual, emotional, and occupational, the NWI interdependent model encourages a person to be aware of the interconnectedness of each dimension and how they contribute to healthy living (NWI, 2015).

- **Well-being -** The dynamic process that gives people a sense of how their lives are going, through the interaction between their circumstances, activities and psychological resources or 'mental capital' (NEF, 2015).

Theoretical Framework

Dunn, Iglewicz, and Moutier (2008), after an exhaustive review of literature on medical student well-being and stress and coping mechanisms, devised a theoretical framework by which to describe patterns medical students use for managing stress using the terminology 'coping reservoir'. This model proposes that a myriad of factors negatively impact the well-being of medical students over the course of their years of medical school, including time and energy demands, internal conflicts, and various other stressors or negative inputs. Conversely, there are many positive inputs that can attenuate or help students to cope; those inputs include friends and social activities, pre-existing and sustained physical and psychological health, intellectual stimulation, etc. (Dunn, et. al, 2008). In effect, they surmise that care and attention given to the positive, sustaining inputs and an attenuation or prevention of some of the negative inputs may alleviate some of the stress, psychological issues, and loss of empathy that is seen during the medical school years into residency and beyond.

The literature review established that medical students experience increased stress, mental illness, and suicide while losing empathy over the course of their medical education (Chen, 2010; Schwenk, et al., 2010; Yousoff, et al., 2013). In addition, there is ample evidence to confirm that the USMLE is a high stakes exam that has meaningful and far reaching effects on the lives of future physicians (Tucker, et al., 2015). I hypothesize that the USMLE plays a critical role in the well-being of medical students,

considering data reporting a decrease in medical student well-being with a peak decline in the third year, just after completing the Step One USMLE. Although the literature anecdotally speaks to the potential negative impact of the exam, the test itself has only been studied as it pertains to the impact wellness has on the USMLE score, not the impact the anticipation and experience of taking the test has on wellness (Hojat et al, 2002).

Regarding wellness or well-being, throughout this study I will use the National Wellness Institute (NWI) paradigm which examines wellness as an active process through which people become aware of, and make choices toward, a more successful existence (Hettler, 1976). As noted earlier, this theory comprehensively appraises the physical, social, intellectual, spiritual, emotional, and occupational components of one's life in order to assess overall well-being. Through the study, I will be seeking to understand how medical students describe and how I observe their sense of physical, psychological, and spiritual well-being through the interaction between their circumstances, activities and psychological resources or 'mental capital' (NEF, 2015). Each of these critical components will be given attention throughout the study and, depending on observations and trends noted, may influence the evolution and emphasis of the process.

Because this is an ethnographic study, I hope to attain a broad view of how medical students experience this high stakes exam as a critical component of the medical education experience. Use of a grounded theoretical approach may uncover findings I do not anticipate or may substantiate my belief that the test may play a role in the well-being and self-care of medical students during their education years.

Significance of Study

This study is unique because it flips the paradigm and evaluates the exam's role in the overall wellness or self-care of medical students. Through an ethnographic approach, I will immerse myself in the lived experiences of the students and learn the impact of the USMLE across all four years of their education. The findings may or may not support my hypotheses, which are based on twenty years of informal observations of physicians and over seven years of experience working with medical students in the most recent portion of my career. I have observed changes in attitudes and exuberance over the course of the four years among students as well as the enormous emphasis placed on the exam. This study will provide the opportunity to exclusively examine the USMLE and gain an understanding of the role it plays in students' lives.

The findings from this study have implications for policy, practice, and research. By uncovering a fuller understanding of the meaning and implications of the USMLE in the context of the well-being of medical students, established policy, practice, and research may be challenged to consider alternative courses for measuring medical student competence. Additionally, changes in values or perceptions regarding career choice or implications surrounding attitudes and behaviors of faculty and administrative leadership may contribute to a dynamic that impacts student wellness providing numerous avenues for policy makers, researchers, and practitioners to reconsider current and explore potential future pathways.

Policy. At present the USMLE is a required test that all future United States medical students must pass in order to become practicing physicians. While it is known that the test is a pivotal barometer for acceptance into residencies of choice and future

career paths and that it is highly stressful, this study could potentially reveal that it negatively impacts the health and well-being of future physicians and the role it may play in their future health. With enough support demonstrating destructive implications of the test, an argument could be made on a national level to seek alternate means by which the competency of medical students can be ascertained that is less destructive to the well-being of medical students. Perhaps there could be a consideration of a pass or fail model of competency thus forcing a more comprehensive review of student qualifications to determine residency positions. There are many potential national policy choices that could be made that would de-emphasize the significance that the USMLE has taken on. Historically, the test was primarily considered merely a milestone and only in recent years has it become a numerical determinant of one's future career potential (National Resident Matching Program, 2015).

On a smaller scale, this study may provide a rationale for medical schools to proactively address and seek to attenuate the detrimental side effects of this test. At the very least, the results of this study will be shared with leadership at CMSRU and may alter local policy pertaining to the way in which students approach the USMLE and are supported during their test preparation.

Practice. Results from this study will provide data for the current cadre of educators at CMSRU, effectively explaining the current impact that the USMLE has on overall student wellness. Study results may facilitate local changes to the current curriculum and the environment to promote student preparation to meet the USMLE standards while preserving self-care and well-being. The study has the potential to create a meaningful dialogue that considers the personal wellness of the medical student and

methods by which CMSRU can attenuate or prevent some of the negative psychological and physical effects that medical students experience over the course of their education. More broadly, if compelling data is obtained from this research information could be disseminated on a larger scale and potentially provide the rationale for other medical schools to adopt similar attenuation or prevention strategies.

Research. Based upon the findings from this study, future implications for research might include more quantitative prospective studies to further validate some of the results that may surface. Because medicine is grounded in evidence-based practice, there may exist a certain bias against purely qualitative results (Thomas, 2013), therefore, findings with statistically significant data may be helpful to furthering a cause for change among the medical community. Additionally, conducting a study that is inclusive of students from a broader community of medical students than just CMSRU may uncover additional findings, particularly among legacy institutions. A collaborative effort from researchers across multiple sites could provide data advocating for change on a large scale. Finally, a more in-depth look at certain populations based on the initial findings, for example a certain demographic pool of students, may reveal unique findings and indicate a more individualized approach to addressing of the effect of the USMLE on medical student wellness.

With adequate time and resources, ideally one would conduct a longitudinal study assessing incoming first year medical students at regular time points over the four-year educational period evaluating changes in their perceived wellness and stress levels, combined with ethnographic observations and review of their medical school experience as it pertains to the USMLE. A repeated measures design study with the same students

evaluated over time might show peak periods of stress and reveal which students are able to successfully manage test preparation and its repercussions and what strategies they used. Such a study might also provide insight pertaining to which students are more likely to suffer from adverse consequences due to the exam-related stress.

Limitations and Delimitations

In the following sections several factors that must be considered when beginning a research project will be reviewed.

Setting, actors, and sampling. Because all of the research conducted will occur in either the Cooper Medical School building or on the grounds of Cooper University Hospital or Rowan University, and because all of the students, staff, and faulty interviewed and observed will be affiliated with that institution, there is an inherent potential for aspects unique to the institution to affect the outcome. CMSRU is a new medical school that will be graduating its first class of physicians in May of 2016; therefore, there are attributes and uncertainties characteristic to a new school that might contribute results that are different or may not be representative of a broader population. For example, students electing to attend a less established program may be risk-takers and less prone to suffering from the effects of stress than are risk-averse or highly stress prone individuals. Alternatively, attending a brand new institution without a known and proven curriculum or track record, and one without a history of USMLE test results or residency acceptances may prove to yield increased stressors. Those stressors may not be present at a more established institution and therefore could have the potential of skewing the impact of the USMLE on wellness to appearing greater than it would without the added stress of attending an 'unproven' program.

The sample for this study was selected first because of its convenience. Due to the fact that I am employed at CMSRU, access to the medical students is far more convenient that it would be if I were using another medical school. Second, and most importantly, because this is an ethnographic project, it is imperative that I am able to immerse myself in the day-to-day activities of the students, which would be unlikely and potentially precluded from happening at another institution. I have a pre-established rapport with many students, staff, and faculty and institutional leadership supports the project and embraces the potential benefits. Finally, it may be preferable to conduct this research at a new medical school because the inherent biases that develop based on hearsay and tradition at legacy schools may be avoided at an institution where students are in the nascent phase of acclimating to the issues surrounding the USMLE and the pressures associated with this high-stakes test.

Researcher's role. Potential for bias exists and possible detriments to this study include the fact that my position as Associate Dean for Program and Business Development at CMSRU might impact the responses of the students and ancillary personnel who will be interviewed. Most of the participants will be aware that I have established and chair a wellness committee at the medical school, therefore, there is the possibility respondents will answer questions in a way that might appeal to my interests. My history of involvement in establishing the wellness program may unintentionally encourage students and others to respond more favorably about the need for wellness than they might were the interviewer an unknown third party. Additionally, there is an inherent power differential that makes students want to please individuals they may deem as having an impact on their grades or success, despite the fact that I do not have any

responsibility or authority as it pertains to student affairs at CMSRU. Still, a position of authority at the institution might, in some way, impact the candid responses of students. The focus of the research will be primarily on the USMLE and the researcher will attempt to keep all questions and observations as impartial and open-ended as possible.

Ethical considerations. Other ethical considerations and possible detriments to this study include the fact that the interviews and emphasis this study places on the USMLE may inadvertently increase the stress surrounding the test for some students. In fact, some students may not want to participate in the study at all because of the time they may feel it will take away from their studies. Others may become concerned that their behaviors or responses could in some way impact their reputation and letters of recommendation to residency programs. Senior level administrators/deans at CMSRU are responsible for writing a Medical Student Performance Evaluation (MSPE) for each graduating student seeking entrance to a residency program. These letters provide information about the levels of accomplishment candidates for residency programs have achieved during medical school. In addition to the USMLE, this letter is the only form of evaluation, not recommendation that residency directors have. Ideally, the comparative report should be compiled and formatted so that a recipient can perceive a candidate's performance profile consistent with the medical school's grading system. Because the USMLE is already a likely major stressor to medical students, this research will take into consideration that it will be important to allow students to opt out of the study and be assured that there will be no repercussion for doing so.

Organization of Dissertation

After introducing the topic, the rationale for the proposal, and the research questions in the first chapter, this dissertation will ultimately be comprised of five chapters. While chapter one gives a summary overview and provides perspective on the scope, conceptual framework, and plan of study, content will be more fully elucidated in subsequent chapters. Chapter two will provide an in-depth review of the literature, delving deeply into the topics of the overall well-being of healthcare professionals and the potential impact of the presence or lack of that well-being on society at large, of medical student wellness including factors contributing to and detracting from their well-being, the extent and impact of testing on medical students, and research on the USMLE. This chapter will also very clearly explain the need for this particular study. Through a review of the literature, support for the research problem and significance of this study will be explained, studies supporting the conceptual framework will be reviewed, and research supporting the use of an ethnographic and qualitative approach will be discussed.

Chapter three will emphasize and detail the methodology to be used in this study. It will outline the step-by-step procedures to be used in a way that will enable future researchers to readily replicate the study. The proposed research design and strategies of inquiry including research questions, sampling and setting will be discussed. Chapter four will detail the research results including the role of researcher, how the data were collected and analyzed and what the specific findings are. The data collection section will address each data source, including validity, credibility and trustworthiness. Additionally, the approach for analyzing data will be discussed.

Finally, in Chapter five, the results will be evaluated, assessed, and interpreted. The potential value of the study will be discussed along with how it may or may not contribute to the current knowledge and practice of wellness in medical education or to the administration of the USMLE and the value widely placed on the exam. This chapter will determine if the dissertation addresses the problem presented in chapter one and how the findings might impact medical students. Finally, in this chapter recommendations for future research will be discussed.

Chapter Two

Review of the Literature and Theoretical Framework

This chapter consists of three sections. The first provides an in-depth review of literature that will provide background in the subject area both supporting and rationalizing the research to be conducted. The second section will clearly explain the use of the theoretical lens that will be employed throughout the project. The third section provides an overview of the context of the study.

Literature Review

This research project was conceived after an extensive review of research literature in three key areas. First, to establish and understand the arena in which healthcare is currently practiced in the United States, it was important to review research related to the overall well-being of healthcare professionals including residents, physicians, and other allied health professionals and the potential impact of the presence or lack of that well-being on society at large. In an attempt to understand the overall state of wellness among physicians, this review includes a synopsis of current trends in wellness as a part of national healthcare, as well as a review of wellness among physicians, residents, and other health care providers. Next, the state of medical student wellness including factors contributing to and factors detracting from their well-being was examined. The current prevalence of wellness and well-being education in medical school curricula as described in the literature was assessed, as were the prevalence and quality of current wellness programs at medical schools. In particular, information specifically related to the most challenging time in medical school, the second to third years, was reviewed in detail as this is a time in which empathy is reported to fall most

precipitously (Estabrook, 2008). Special attention was given to the hidden curriculum in this section as the research indicates that students may be affected by practices and by an environment that are less than healthy. Finally, the impact of testing on wellness was reviewed in general. Additionally, high stakes testing was reviewed as it pertains to various aspects of test anxiety. The nature and value of test preparation programs were assessed as a part of the USMLE arena as was the advent of pass/fail grading, how it relates to testing, the role it plays in medical school assessment, and its effect on medical student wellness.

Wellness and healthcare. With the advent of the Affordable Care Act (ACA), the United States has committed to providing Americans with the stability and flexibility necessary to make informed choices about their health (Rak & Coffin, 2013). The country is on notice that healthcare spending must be managed. Implementing and expanding wellness programs may offer our nation the opportunity to not only improve the health of its citizens, but also help control health care spending (Rak & Coffin, 2013). The ACA creates new incentives and builds on existing wellness program policies to promote employer wellness programs and encourage opportunities to support healthier workplaces (Selker & Wasser, 2014); it fosters an increased scrutiny on how physicians are practicing medicine and to what extent wellness or well-being is emphasized.

In order to provide quality care that emphasizes wellness, it seems logical that physicians providing that care should be well themselves. As noted by Wallace, Lemaire, and Ghali (2009), “when physicians are unwell, the performance of health-care systems can be sub-optimum" (p. 1720). Physician wellness can have a positive impact on a much broader scale by impacting the delivery of high-quality health care. Data has also shown

a close relationship between physician well-being and compassionate care for patients. Physician impairment translates as suboptimal care to the patient, and is detrimental to the field of medicine because impaired physicians are more likely to lose their licenses and careers (Wallace, Lemaire, & Ghali, 2009) (see figure 1).

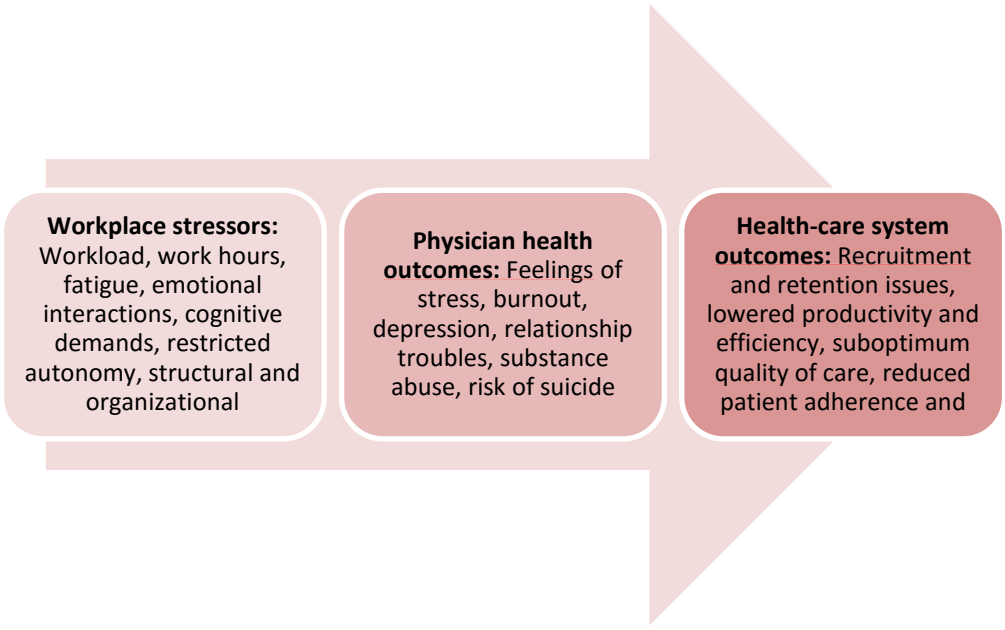

Figure 1. Physician health link to health-care system outcomes (Wallace, Lemaire, & Ghali, 2009).

The state of physician wellness. Research provides a troubling perspective regarding the well-being of physicians (Baldwin, Dodd, & Wrate, 1997; Estabrook, 2008; Schernhammer & Colditz, 2004; Wallace et al., 2009). Although the profession is committed to counseling patients and encouraging them to live healthy lives, data suggest that physicians and residents in training do not often prioritize their own physical and psychological health as many continue to work despite significant impairment (Baldwin et al., 1997). Figure 1 highlights evidence suggesting that those

affected by stress at work may go on to experience substance abuse, relationship troubles, depression, and death (Wallace et al., 2009). In fact, a recent national survey revealed that 40% of surgeons suffered from burnout and that 30% had symptoms of depression. In addition, there are over 300 physicians who commit suicide annually (Schernhammer & Colditz, 2004). Against the backdrop of a national physician shortage, this is of particular concern as those numbers are approximately the equivalent of three graduating medical school classes per year (Schernhammer & Colditz, 2004).

When reporting physician distress or conditions of being unwell, research often references the term 'burnout' (Dyrbye, Varkey, Boone, Satele, Sloan, & Shanafelt, 2013; Chen, 2010; Estabrook, 2008). Mosby's Medical dictionary (2015) defines burnout as "mental or physical energy depletion after a period of chronic, unrelieved job-related stress sometimes characterized by physical illness." The Farlex Partner medical dictionary (2012) defines it as "a psychological state of physical and emotional exhaustion thought to be a stress reaction to a reduced ability to meet the demands of one's occupation; symptoms include fatigue, insomnia, impaired work performance, and an increased susceptibility to physical illness and substance abuse." While definitions vary, there are three common characteristics of burnout: emotional exhaustion, depersonalization, and loss of a sense of personal accomplishment (Dyrbye, 2008). The term specifically describes "when individuals feel emotionally overwhelmed by the demands of their job; emotional exhaustion or withdrawal, fatigue, depression, suicide, substance abuse, or impairment" (Shanafelt, Bradley, Wipf, & Back, 2002, p. 359). There is a high prevalence of this burnout among medical practitioners and trainees. Burnout adversely affects practicing physicians and thereby has a negative

effect on patient care. Burnout results in physician errors, patient dissatisfaction with care, and impacts the health care system at large, especially considering that many physicians experiencing burnout are care providers, educators, and role models for future physicians (Dyrbye, West, Satele, Boone, et al, 2014; Dyrbye et al, 2013; Garr, Lackland, & Wilson, 2000; Gilley & Pfifferling, 2000).

Many physicians do not take time to care for themselves, often working long hours with reduced time for healthy behaviors. The resultant lack of sleep, stress, and numerous intense patient interactions contribute to burnout, substance abuse, and depression (Thomas, 2004). Higher among physicians than the general population, burnout peaks during medical training and among mid-career physicians. In addition to burnout, the physical detrimental effects of stress include impaired immune function, inflammation, elevation of cardiovascular risk factors, and depression (Dyrbye et al., 2014; Dyrbye et al., 2013).

Impaired physician programs "mandated to identify, treat, and rehabilitate physicians struggling with burnout-related drug and alcohol addiction" (McClafferty & Brown, 2014) finally arose in the 1980s. However, "a culture of stoicism still permeates the practice of medicine, slowing program development and the push for a more open dialogue about physician health and wellness" (McClafferty & Brown, 2014, p. 83). So, although there has been some progress made as it pertains to certain substance abuse and addiction issues among health care professionals, physicians still suffer from a lack of good self-care and appropriate attention to wellness. Medical training focuses exclusively on evidence-based medicine and thereby encourages physicians to ignore any information that does not come from a double-blind,

randomized controlled trial (Thomas, 2013). Most studies pertaining to wellness do not use the methods familiar to physicians and are therefore not given the same level of gravitas in patient care or physician self-care.

***Physician wellness is good for patient wellness*.** There is a great deal of research examining the extensive and growing prevalence of physician burnout (Garr, Lackland, & Wilson, 2000; Gilley & Pfifferling, 2000; Thomas, 2004) and the literature indicates that physician health practices impact how they advise patients regarding lifestyle issues such as diet and exercise (Hershman & Sherman, 1993). Physicians are more likely to counsel patients when they practice healthy lifestyle behaviors themselves (Lewis, Clancy, Leake, & Schwartz, 1991; Lobelo & Duperly, 2009). Most physicians believe that while primary prevention, including behavioral counseling, is important, their practices primarily emphasize disease management (Mirand, Beehler, Kuo & Mahoney, 2002) which has been thoroughly tested and vetted through double-blind placebo controlled trials (Thomas, 2013).

If a physician is healthy and practices healthy behaviors, the physician is more likely to assertively advocate the same for his or her patients (Belodoff, B., Frank, E., Lewis, C., & Rothenberg R., 2000). A U.S. female primary care physician study found a significant correlation between those who demonstrated healthy personal habits and their self-reported prevention-related counseling and screening practices for their patients (Belodoff, Frank, Lewis, & Rothenberg, 2000). These findings suggest potential new directions for physician training. In addition, physicians practicing good self-care are more likely to educate and encourage their patients to practice healthy lifestyles and positive self-care (Frank et al., 2000). In order to maintain high quality performance,

physicians have a responsibility to maintain their health and wellness which encompasses preventing disease, mental illness, disabilities and occupational stress as well as treating these conditions quickly when they present (Taub, Morin, Goldrich, Ray, & Benjamin, 2006).

Troubling trends in wellness. Literature attests to the fact that while there is conceptual worth to primary prevention, including behavioral counseling the predominant clinical emphasis and rewards are on secondary care (Mirand et al., 2002). Also, the preventive focus in primary care is on chronic nonmalignant conditions (Mirand et al., 2002) like diabetes, hypertension, and hypercholesterolemia. Most primary care physicians believe that while primary prevention, including behavioral counseling, is important, their practices primarily emphasize disease management (Mirand, Beehler, Kuo, & Mahoney, 2002). Despite strong support for the importance of clinical prevention, physician delivery of preventive services falls well below recommended levels (Mirand et al., 2002). The competing demands of acute care, chronic illness, administration, and psychosocial issues physicians face during medical encounters present major barriers to the provision of specific preventive services to patients. These demands negatively affect the physician's ability to deliver clinical preventive care (Jaen, Stange, & Nutting, 1994). It is a reasonable deduction that more time spent on disease prevention and wellness education, might translate to a decreased need for disease management and the population at large would be healthier.

More information is needed to determine what contributes to some physicians feeling well over time. According to Taub et al. (2006), physicians can benefit from some of the very same strategies recommended to their patients, such as having strong social

support networks, good coping mechanisms, and altering or eliminating stressful environmental hazards. The Council on Ethical and Judicial Affairs of the Society of Occupational Medicine (2015) recommends that:

> to preserve the quality of their performance, physicians have a responsibility to maintain their health and wellness, construed broadly as preventing or treating acute or chronic diseases, including mental illness, disabilities and occupational stress. When health or wellness is compromised, so may the safety and effectiveness of the medical care provided.

The council further recommends that physician health programs should be developed to provide a supportive environment for maintaining and reporting on health and wellness. The literature confirms that the current state of physician wellness is in need of change. The ACA has outlined a path that supports an emphasis on preventive and wellness care (Selker & Wasser, 2014). The education of future physicians should be aligned with these goals; however, the literature depicts that wellness issues exist across the medical education continuum.

Medical students and medical education. Although achieving the goal of gaining a seat in a first year medical school class is an enormous and hard-earned accomplishment for the majority of entering students, extensive research has established that time spent in medical school is one of increased stress and challenges for most medical students (Dyrbye, 2008). Contributing to the stressful environment are new pressures that include adjusting to a peer group that is of equal academic competence and competitiveness, adapting to an extremely busy and taxing curriculum, and coping with the reality an exceptionally high debt burden (Dyrbye, Thomas, & Shanafelt, 2005;

Seritan, Hunt, Shy, Rea, & Worley, 2012). According to a study done by the American Association of Medical Colleges (2014), 84% of medical students graduate at the end of four years with significant average debt of $180,000. Other stressors prevalent in medical training include a heavy class and clinical workload, sleep deprivation, difficult patients, little control over one's schedule, isolation, student abuse, exposure to death and suffering, and ethical conflicts (Goebert, Thompson, Takeshita, et al., 2009).

For many, these stressors result in increased levels of emotional and psychological difficulties (Dyrbye, 2008; Kligler, Linde, & Katz, 2013) with up to 45% of students reporting burnout (Kligler et al., 2013). Data reveal that there is a higher rate of burnout, depression, substance abuse, and suicidal ideation among medical students than from comparative cohort groups in the general population (Dyrbye, 2008). Moffatt, McConnaichie, and Ross (2004) found that depression and anxiety are 25% to 50% higher in medical students than in other graduate students. In addition, the higher levels of personal distress, anxiety, and depression that medical students experience may lead to academic difficulties, effects on ethical conduct and professionalism, and ultimately precipitate substance abuse problems and broken relationships (Dyrbye & Shanafelt, 2011; Estabrook & Christianson, 2013). Of a critical and particularly compelling nature is the finding that there is a clear loss of empathy and an increase in personal medical conditions reported by medical students (Chen, 2010; Estabrook, 2008). Compelling quantitative data details the various stressors associated with the 'unwell' condition of medical students. Despite this data and the added attention placed on the cognitive and psychosocial repercussions of those stressors, there is a paucity of qualitative studies addressing the nature of the stressors or the perceptions and lived experiences of medical

students. Although quantitative studies show changes in behavior and wellness, they do not explore the feelings and perceptions of medical students as they experience medical school. Assumptions regarding negative sequelae can be generally related to the medical school curriculum but qualitative research could yield rich, new findings that may elucidate a deeper understanding of what medical students are experiencing, why behaviors and attitudes change, possible strategies to mitigate these issues, and identify new avenues of study.

Most difficult time of medical school. The third year of medical school has a particularly negative effect on the overall wellness of some medical students (Kligler et al., 2013; Compton & Carrera, 2008; Paro & Morales, 2010). In an in-depth qualitative study of third year students, Kligler et al. (2013) found that students reported difficulty in making healthy lifestyle choices in the face of time challenges and a certain tension between self-care and dedication to work. Students claimed to have little time for buying and preparing healthy food, socializing with family and friends, exercising, or sleeping due to the competing need for time to study. Feelings of guilt, anxiety, inadequacy, and loss of autonomy were reported (p. 538). Moffat et al. (2004) reported that positive attitudes and level of life satisfaction dropped significantly for medical students as they proceed through their clinical years. It is not clear what specifically causes these negative assessments of well-being. The myriad of negative stressors is present within the very first days of medical school including the competitive environment, exposure to the cadavers in the gross anatomy lab, the prospect of fulfilling expectations, and increasingly the early exposure to patient care (Moffat et al., 2004). However, exploring

stressors as described by students and understanding specifically what triggers changes has not been fully explored.

Wellness programs. The American Medical Students Association (AMSA, 2013) has devoted organizational resources to student wellness and there are several medical schools that have webpages exclusively featuring student wellness (Vanderbilt, 2015; Creighton, 2015; Stanford, 2015; Brown, 2015). An increasing number of medical schools have added wellness websites. Furthermore, there has been a simultaneous enhanced emphasis in the literature on the topic of wellness in medical school (Slavin, Schindler, & Chibnall, 2014). In fact, the Liaison Committee on Medical Education (LCME), the accrediting body for MD degree granting medical schools, includes a standard that is directly related to what a medical school is doing to promote wellness. Yet most wellness programs appear to be wholly elective with many emphasizing skills to do well on the USMLE, tools for managing stress and for healthy eating, and resources for crisis management. Vanderbilt is a leader in the field having published the first comprehensive medical student wellness initiative model in 2010. Vanderbilt serves as a model to other medical schools as they slowly begin to follow suit (Drolet & Rodgers, 2010).

Lack of training/knowledge around wellness. Literature shows that medical students are at increased risk of compromising their wellness on several fronts including relationship troubles, poor diet, depression, and an increased risk of suicide (Wolf, 994). Medical student health practices affect not only their well-being, but also how they advise patients regarding lifestyle issues such as diet and exercise (Hershman & Sherman, 1993). Research indicates that medical school wellness training is clearly lacking

(Estabrook, 2008) and schools are slow to incorporate specific wellness training into their already saturated curricula. Little research has been done to promote the value of wellness training (Pearson, 2011). Without policy change requiring wellness training within medical school curricula, most educational programs will continue increasing the emphasis on the biomedical sciences and subject matter that is shown to result in strong USMLE scores. The goal is to position graduating medical students, and the medical schools that they attend, in the best light possible as they apply for residency spots (Pearson, 2011).

Medical school curricula are replete with factual scientific knowledge on the biomedical sciences, with physiologic and clinical information and skills, all of which are meticulously tested in an ongoing and rigorous manner, culminating in the USMLE step exams (Tompkins, 2011). There is little time available in these intense schedules for what is viewed by the educators as less critical training (Kligler et al., 2013). Wellness is potentially de-emphasized because there is no time left in the day to add in wellness-focused training.

Hidden curriculum. Clearly, the environment in which future physicians are educated plays a critical role in how they evolve in the profession. In addition to the obvious and published curriculum, a 'hidden curriculum', or unspoken social norm or culture, is learned and shaped through medical student interactions with others in the health care environment, including residents, nursing staff, physicians, other health care professionals, as well as the schools' staff and faculty (Hafferty, 1998; Murinson, Klick, & Haythornthwaite, 2010). The hidden curriculum represents an undercurrent of norms, values and regulations embedded within the training process that students are to assume

and embrace in order to function effectively in a social role (Hafferty, 1998; Wren, 1999). In medical education the hidden curriculum may function to stunt the growth of professionalism among medical students (Michalect & Hafferty, 2013). In effect, the 'teachings' of preventive medicine and living a healthy lifestyle are contradicted in the hidden curriculum that actually may serve to counteract explicit formal instruction in the principles of self-care (Hafferty, 1998; Michalect & Hafferty, 2013). Attitudes perpetuated in the medical field include pushing oneself beyond 'normal' limits, believing that physicians cannot show weakness or vulnerability, and an overall disdain for emotions and 'touchy/feely' topics (Dyrbye et al., 2005). What is valued and praised most often is working harder than others, analytical demeanors, and operating well in competitive or challenging environments (Dyrbye et al., 2009). Educators (clinical educators/physicians) spending the most time with up and coming physicians, are, by example, teaching students to behave in a manner that is unhealthy for both the student and for their patients in the long run.

As noted by Dyrbye, Thomas, & Shanafelt (2006), "unfortunately, medical educators, themselves, were trained in an atmosphere of frequent belittling and humiliation, and this negativity may be involuntarily perpetuated. An impressive 50-80% of students report having felt abused or taken advantage of" (p. 1615). It is important to reference this statistic and this concept because it resurfaces when considering the culture that medical students are immersed in from the very early days of their training. As cited by Block (2015), "in medicine, seeking help is often seen as a weakness" (p. 17) and this stigma is emphasized and perpetuated by the physicians and educators that the medical students are observing and emulating. Although the American Association of Medical

Colleges professes a desire to change current trends (AAMC, 2013), which show that medial students lose empathy as they progress through medical school (Estabrook, 2008), there is much work yet to be done. In addition to the environmental stressors, increased workload, and the hidden curriculum, medical students must also contend with the USMLE test, which continues to grow in importance and relevance as it pertains to the future of these rising physicians.

The impact of testing. Aspiring physicians in the United States must pass a series of professional licensing examinations in order to practice medicine. They include Step 1 and 2 of the United States Medical Licensing Examinations (USMLE), covering basic sciences taken at the end of the second year, and clinical medicine taken in the fourth year. Additionally, a specialty board examination must be completed after residency training. In general, there have been many studies establishing potential negative consequences associated with the pressure of taking important tests (DeBlassie, 1972; Sterian, & Mocanu, 2013). In medical school in particular, there are increases in student stress levels due to excessive concerns about evaluations and workload (Enns, Cox, Sareen, & Freeman, 2001). In addition, higher levels of anxiety and frustration have been associated with lower academic performance (DeBlassie, 1972).

Medical training produces particularly high levels of stress with the medical student anxiety levels estimated on average to be in the 85th percentile as compared to the general population (Vitaliano, Maiuro, Russo, & Mitchell, 1989). Test pressure in the United States is exceptionally intense as scores from the USMLE Step 1 are used to screen students at residency programs in the more competitive specialties. They use strict numerical cut points to narrow the ever-increasing applicant pools (Tompkins, 2011). As

the number of medical students continues to increase, a commensurate increase in the available residency spots has not occurred; therefore, the competition for high scores has reached an all-time high (McGaghie, W.C., Cohen, E.R., & Wayne, D.B., 2011). The importance of the actual score continues to rise despite evidence that suggests use of the USMLE scores for postgraduate residency selection is flawed as the scores are not associated with measures of clinical skills acquired by many advanced students, residents, or fellows (McGaghie et al., 2011). In fact, the origin of the test was simply to serve as an initial checkpoint along the path to licensure (Tompkins, 2011). As Tompkins (2011) notes, "because medical students are aware of residency programs' tactics, the threat of mathematical elimination has bred a widespread sense of desperation regarding Step 1" (p. 105). This desperation and fear may be a significant contributing factors in the reduced wellness behaviors and increased mental health issues that have been reported (Dyrbye, 2012; Estabrook, 2008).

Test anxiety. For all medical students it is likely that the weight of the USMLE bears a certain level of stress. However, for a small portion of students, test-related anxiety can become so debilitating as to compromise their performance on these professional licensing examinations (Sterian, & Mocanu, 2013). Because of debilitating text anxiety (DTA), a subgroup of about 2% of a typical medical school class does not pass the USMLE (Powell, 2004). Those who are DTA-vulnerable can suffer from both poor test preparation and poor test performance (Meichenbaum & Butler, 1980). Poor test preparation ranges from avoidance and procrastination to over involvement in activities that appear otherwise useful, such as volunteer work, exercise, and social clubs (Meichenbaum & Butler, 1980). Time spent on extraneous activities prevents optimal

preparation for the actual test. The other DTA issue of actual test anxiety prohibits students from managing tension, worry, or panic during the actual test, resulting in poor performance (Meichenbaum & Butler, 1980).

Test preparation programs. Although most students are apprehensive about taking the USMLE, the vast majority pass the exam the first time they take it (Brunstein & Gollwitzer, 1996). New pressures to attain high scores to secure certain residency spots are associated with ever increasing stress and anxiety for medical students. Coaching firms are contributing to the anxiety burden and profiting from doing so (Werner & Bull, 2003). This huge industry purports to provide exam-preparation assistance while capitalizing on student anxiety, obfuscating the learning process, and not delivering higher scores (Werner & Bull, 2003).

USMLE Step 1 Secrets (Brown & Shah, 2013), a training manual for the USMLE intended to support medical students as they prepare for the critical exam, provides tips to doing well along with study maps or guides. In addition, in the preface there are many comments from students who have successfully used the manual and taken the test. Below are two excerpts:

- "You will inevitably go through periods of intense fear and anxiety, and there may even be days where you feel like giving up on studying entirely. There is no doubt that you will want and need people you trust to pull you through this stressful time. SS, MD/PhD Candidate, Entering Class of 2009." (Brown & Shah, 2013)
- "Despite the constantly mounting anxiety and pressure of doing well as test day nears, do not forget to take some time to relax and vent. The last thing you

want to do is crash and burn right before the big day. CA, Medical Class of 2013." (Brown & Shah, 2013)

Clearly, the recognition that this test is highly anxiety provoking is not hidden in any way. In fact, the authors capitalized on the fear and anxiety, indicating that medical students should be placing tremendous effort into achieving a high score, and should use their manuals to aid in the process. Multiple clear references to stress, anxiety, and the importance of the test can only add to the intense burden medical student are already experiencing (Brown & Shah, 2013; Estabrook, 2008; Sterian, & Mocanu, 2013; Powell, 2004)

United States Medical Licensing Exam (USMLE). Research related specifically to the USMLE as it pertains to wellness focused on the level of student wellness prior to taking the exam and sought to determine whether or not wellness practices correlated with a better test score. Among emotional and physical health measures, only feelings of morale correlated negatively with Step 1 performance in an investigation conducted at the University of Oklahoma Health Sciences Center (Tucker, Haekyung, J., Ugur, Arvidson, & Khalafian, 2015). Stephens, Dong, & Durning (2015) found that fitness and academic performance measures were indeed correlated for naval medical students in the Uniformed Services University. Although this was a small study with many potential confounding factors, an assumption is that low fitness scores might serve as an indicator of 'at risk' performance. Research thus far is inconclusive as to whether or not wellness is definitively related to test performance on the USMLE.

Pass/fail grading. Acknowledgement of the impact of the USMLE on stress levels has been well-documented in medical school programs (Enns, et al., 2001). Some

have attempted to address that stress by replacing the standard five-interval grading system with pass/fail grading (Bloodgood, Short, Joacson, & Martindale, 2009; Rohe, Barrier, Clark, Cook, Vickers, & Decker, 2006). Programs that converted to pass/fail grading resulted in improved psychological well-being and satisfaction as highlighted by student reports of decreased perceived stress, greater group connectedness, and comparable USMLE scores and residency placements (Bloodgood et al., 2009). Reed, Tait, Shanafelt et al. (2011) determined that the means by which students are evaluated has a greater impact on their well-being than other aspects of curriculum structure. They recommend that programs seeking curricular reform to improve student well-being should use pass/fail grading. As noted by Wallace, Lemaire, and Ghali (2009), "when physicians are unwell, the performance of health-care systems can be suboptimum and their wellness may not only benefit the individual physician, but could also be vital to the delivery of high-quality health care" (p. 1717).

Questions remain. Although the USMLE and NBME subject examinations are broadly used for the admission, promotion, and or graduation of medical students, the question remains as to whether or not they are the best and sole tools to adequately determine the level of competencies required for effective medical practice (McGaghie et al., 2011). Some argue that current assumptions are faulty and potentially dangerous (Hoffman, 1993). The USMLE, since 1992, has been used to measure knowledge of competencies for graduation and promotion but it does not appear to adequately reflect ability, competence, attitudes, efforts, and values (McGaghie et al., 2011; Tompkins, 2011). The impact that this ongoing pressure and stress has on the lived medical school experience has not been fully explored. Is critical important learning diminished because

students are focused on a specific set of obscure data that may be tested versus spending time immersed in the problem-solving necessary to be an excellent clinician? Does the constant focus on an exam have a broader detrimental impact than stress and anxiety? Through this ethnographic study, the breadth and depth of the implications of this test can be fully explored, providing insight into the attitudes of medical students across the continuum of their medical school career as it pertains to their self-care, the role and impact of the USMLE, and potential implications for their future wellness and medical careers.

Theoretical Framework: Coping Reservoir Concept

Dunn, Iglewicz, and Moutier (2008), after an exhaustive review of literature on medical student well-being, stress and coping mechanisms, devised a theoretical framework by which to describe patterns medical students use for managing stress using the terminology 'coping reservoir.' The coping reservoir refers to a level of wellness that differs among individuals, and provides for or allows one to successfully function in their environment, despite periodic challenges. More specifically, this coping reserve tank model, as outlined in figure 2, asserts that each individual has certain personality characteristics or coping mechanisms that are a natural 'set point' for that individual (Dunn et al., 2008). There is a myriad of factors that can negatively impact the well-being of medical students over the course of their years of medical school, including time and energy demands, internal conflicts, and various other stressors or negative inputs. There are also many positive inputs that can attenuate or help students to cope; those inputs include friends and social activities, pre-existing and sustained physical and psychological health, intellectual stimulation, and other events or circumstances that

serve to make one feel good (Dunn, et al, 2008). In effect, this theory puts forth that care and attention given to the positive, sustaining inputs and an attenuation or prevention of some of the negative inputs may alleviate the stress, psychological issues, and loss of empathy seen during the medical school years into residency and beyond. In the context of this study, I surmise that the USMLE exams and related stressors substantially contribute negatively to the coping reserve of medical students in their daily lives and that it is likely that those who are able to navigate successfully, have added positive inputs to attenuate the negative effects of the exam.

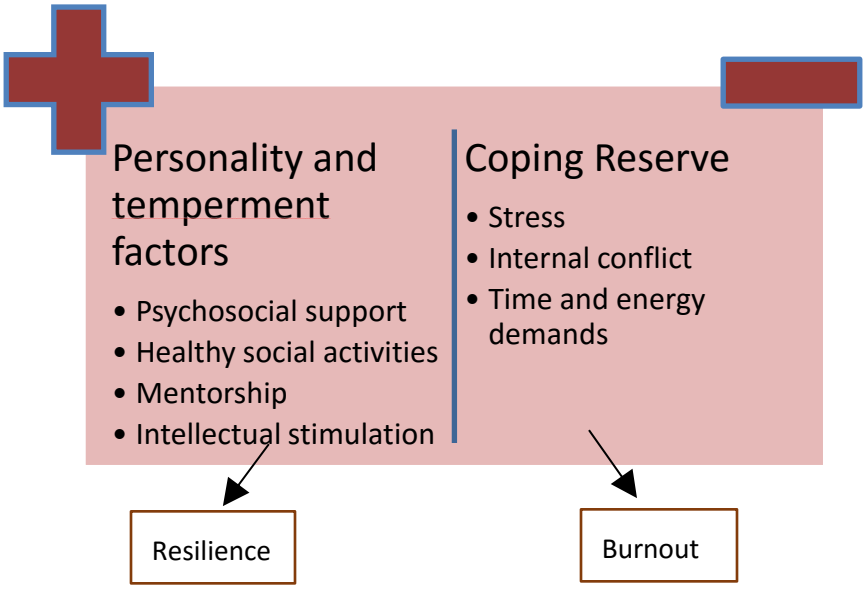

Figure 2. Promoting resilience and preventing burnout. Adapted from "A Conceptual Model of Medical Student Well-being: Promoting Resilience and Preventing Burnout," by Dunn, L.B., Iglewicz, A., Moutier, C., 2008, Academic *Psychiatry, 32*, 44-53.

Medical students experience increased stress, mental illness, and suicide while losing empathy over the course of their medical education (Schwenk, et al., 2010; Yousoff, et al., 2013). In addition, there is ample evidence to confirm that the USMLE is

a high stakes exam with meaningful and far-reaching effects on the lives of future physicians (Tucker, et al., 2015). I hypothesize that the USMLE plays a critical role in the well-being of medical students, considering data reporting a decrease in medical student well-being with a peak decline in the third year, shortly after completing the Step 1 exam. Although the literature anecdotally speaks to the potential negative impact of the exam, the impact of wellness on the USMLE score has been studied in detail, whereas the impact of the USMLE on student wellness has not been characterized (Hojat et al, 2002).

Wellness paradigm. Regarding wellness or well-being, throughout this study I will use the National Wellness Institute (NWI) paradigm which examines wellness as an active process through which people become aware of, and make choices toward, a more successful existence (Hettler, 1976). As noted earlier, this theory comprehensively appraises the physical, social, intellectual, spiritual, emotional, and occupational components of one's life in order to assess overall well-being. Through the study, I will be seeking to understand how medical students describe and how I observe their sense of physical, psychological, and spiritual well-being through the interactions between their circumstances, activities and psychological resources or 'mental capital' (NEF, 2015), primarily as it pertains to their impressions and experiences of the USMLE test. Each of these critical components will be given attention throughout the study and, depending on observations and trends noted, may influence the evolution and emphasis of the process.

The active wellness paradigm described by Hettler (1976) encompasses six areas of wellness that contribute to the overall well-being of an individual. This paradigm will be used in conjunction with the coping reservoir theory (Dunn et al., 2008) in that both the coping reserve and the positive and negative inputs will be considered as they pertain

to the physical, psychological, and spiritual well-being of medical students. The study will assess to what extent the USMLE test impacts wellness measures and alters the coping reserve demonstrating either resilience or burnout and the accompanying attributes (Figure 3).

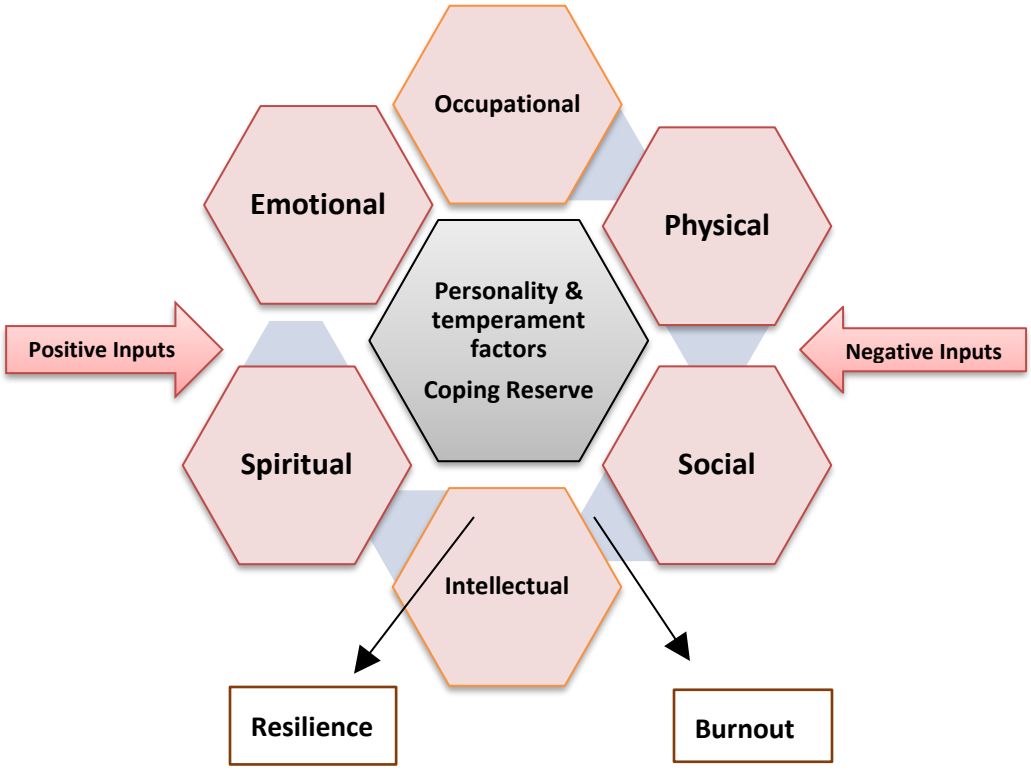

Figure 3. Conceptual model: Coping reserve tank & dimensions of wellness. This figure illustrates the relationship between the NWI paradigm and the Dunn et al., 2008 Coping Reserve theory.

Context

This study will embark on examining to what extent the USMLE affects the overall wellness or self-care of medical students. The ethnographic approach will provide an in-depth view and understanding of the lived experiences of the students across all

four years of their medical school education. My premise is that as students experience the negative stressors associated with the USMLE, if they are not attenuating those negative stressors with positive inputs, it will have a detrimental effect on their overall well-being and lead to burnout or other negative wellness indicators. Findings from this study have implications for policy, practice, and research. With a broader understanding of the meaning and implications of the USMLE in the context of the well-being of medical students, there will be an opportunity to challenge established policy and practice. In addition, new avenues of research may open, including alternate testing strategies or means by which to attenuate the current stressful environment associated with the USMLE.

Conclusion

Medical school is an important and transitional time in the life and development of future physicians. In addition to intense education and professional growth, these students are also in the midst of important personal development. Research indicates that student burnout and mental illness are increasing in U.S. medical schools and a close relationship between physician well-being and compassionate care for patients exists. Physician impairment is detrimental to the field of medicine and to patients, since impaired physicians deliver suboptimal care (Estabrook, 2008; Hershman & Sherman, 1993; Lewis, Clancy, Leake, & Schwartz, 1991; Lobelo & Duperly, 2009).

Unfortunately, many medical students and physicians today are neither adequately trained nor actively involved in their own care. In addition, many students, residents, and physicians at all levels of practice experience burnout and "compassion fatigue", losing sight of empathy under the stress of medical school and modern medical practice (Gilley

& Pfifferling, 2000). While attention has been given to helping the impaired physician, less attention has been paid to preventing impairment and increasing the overall well-being of physicians (Chen, 2010).

This literature review has shown that physicians are not effectively managing their own wellness and that their levels of stress and unhealthy behaviors can negatively impact patient care. A high-stress, high-stakes educational environment may encourage physicians in training to downplay or marginalize the importune and value of wellness education and preventive health measures in themselves and their patient's.

Current data supports the fact that medical students, residents, physicians and other health care providers are suffering from stress and the implications of burnout at high rates, and that there is a need for recognition and an acknowledgment that something must be done to alter the present situation.

> As noted by McClafferty and Brown (2014), there needs to be a change in focus: from burnout treatment to preventive physician health and wellness and an identification of factors that will increase career satisfaction and longevity. Those factors include promotion of a balanced lifestyle encompassing physical activity, healthy nutrition, restorative sleep, supportive relationships, and effective stress management skill. (p.833)

Similarly, as medical school serves to lay the foundation of how future physicians will care for their own well-being, it follows that it is an environment in which all draining factors are attenuated and factors that add value and enhance health should be strengthened. As it is incumbent among physicians to identify and address the needs of colleagues who are impaired due to substance abuse or physical debilitation, they must

also be vigilant in supporting those who suffer from burnout and the serious implications associated with stress. Ultimately, the medical profession should provide an environment that maintains and restores health and wellness (Taub, Morin, Goldrich, Ray, & Benjamin, 2006).

This study will look very specifically at the high stakes USMLE test and all of the implications surrounding it. While there is ample evidence that the test has exceptionally high value to medical students, medical schools, and residency programs due to its utility as a tool for screening and differentiating students, it is not, in fact, an effective tool to measure competency (McGaghie et al., 2011; Tompkins, 2011). To date, research has indicated that this tool does not measure the quality of the medical student or resident but merely serves as an artificial means by which large pools of candidates can be separated (Tompkins, 2011). Through this study, I intend to learn from students, faculty, residents, and staff how this test is experienced, what impact it has on the lives of medical students, and what it adds to or detracts from the overall current and future well-being of these future physicians.

Chapter 3

Methodology

The purpose of this ethnographic, qualitative study is to examine the extent to which the anticipation of, preparation for, and implications of the United States Medical Licensing Exam (USMLE) contribute to medical student stress, wellness, and self-care. I will employ qualitative interviews and focus groups with students across all four years of medical school at Cooper Medical School of Rowan University (CMSRU), as well as with faculty and key ancillary personnel. In addition, as primary components of this study, the ethnographic tools of participant observation and journaling will provide an alternate perspective regarding the reality of the medical student experience (Wolcott, 2008). Using a constructivist approach to grounded theory, my method will be systematic yet flexible as I collect and analyze data (Charmaz, 2014). I will explore how perceptions, behaviors, and impressions among medical students and key ancillary personnel explain the views and impact of the USMLE on the health and well-being of medical students. Gaining perspective on the role of the USMLE in the lives of medical students will provide a greater understanding for the institutions that utilize and emphasize the scores from these tests. Armed with knowledge of the impact of the exam, a case may be made to either decrease the high stakes nature of the test or to provide additional support to enable students to successfully navigate through the process.

Objectives and Research Questions.

1. How do medical students experience the United States Medical Licensing Exam (USMLE) as a part of their medical school education?

a. How do medical students describe their sense of each dimension of well-being as it pertains to their impressions and experiences of the USMLE?
b. What factors contribute to and/or detract from medical students' perceived personal wellness as it pertains to the USMLE?
c. How do medical students and significant medical education collaborators describe the impact of the United States Medical Licensing Exam (USMLE) on the self-care and well-being of medical students?

2. What changes are observed across the four-year spectrum of medical school in regard to the USMLE as it relates to student wellness?
    a. What changes in attitudes regarding the USMLE do participants report over the course of four years of study in medical school?
    b. How do behaviors and attitudes of medical students toward engaging in personal self-care change in relation to USMLE testing?

Assumptions of and Rationale for Qualitative Research

In developing this research design, I considered the comments of Hostetler (2005), that first and foremost, research in education should consider how researchers could make life better for people. Qualitative research encourages study participants to fully elaborate on how and why they experience that which is being studied (LeCompte & Schensul); in this case, medical students and the USMLE. Ethnography, in particular provides for both the student participants and the researcher to fully engage in the most in-depth understanding of the relationship of the study and the studied (Jacob, 1987; LeCompte & Schensul, 2010). Results of qualitative research are descriptive rather than predictive and ultimately this methodology is used to understand a phenomenon in the

natural setting in which it occurs (Creswell, 2013; Fetterman, 2010; Rossman & Rallis, 2012).

Ethnographic research. This research follows a qualitative ethnographic design, which seeks to tell a credible, rigorous, and authentic story through participant observation, focus groups, interviews, and artifact collection (Fetterman, 2010; LeCompte & Schensul, 2010). This approach gives voice to people in their own context, relying on verbatim quotations and a "thick, rich" description of experiences (Wolcott, 1995). Stories are told through the eyes of individuals, in this case medical students, faculty, and staff, as they routinely exist within their own communities (Fetterman, 2010). Ethnographic research is defined as the study of groups of people as they go about their everyday lives (Emerson, Fretz, & Shaw, 1995) and ethnography literally means 'writing about people groups' (Nader, 2011). It has come to be known among qualitative researchers as any project with the intent of providing a detailed, in-depth description of everyday life and practice (Geertz, 1995; Hoey, 2008).

The ethnographer adopts a cultural lens to interpret observed behaviors, ensuring they are placed in a culturally relevant and meaningful context. Focusing on predictable, daily patterns, and working "in the field" allows for a realistic capture of the culture being studied. Through observation and in conducting activities in the participant's environment, the ethnographer learns to recognize traits that make up a culture and how to describe it to others (Barbour, 2007; Wolcott, 1995). Ethnographers define "culture" as a patterned behavior or way of life of a group of people (Barbour, 2007; Nader, 2011). Elements of culture are the common habits, customs, traditions, and histories —

everything that connects the members of the culture together and defines them (LeCompte & Schensul, 2010; Malinowski, 1948).

Ethnography is conducted through in-depth studies of smaller populations seeking to find out as much as possible about that small sample. Results from one ethnographic study do not necessarily apply to other cultures (Geertz, 1995; Nader, 2011). In ethnography, the purpose of the research is to conduct an in-depth study of a culture; it is ideally suited to gaining a true depth of understanding of subject matter versus breadth (Fetterman, 2010; Geertz, 1995). Ethnographic research places researchers at the heart of the investigation, often allowing them to participate in the culture they study. This active role provides valuable insights into the subject, which usually cannot be achieved simply by studying books, journal articles, and websites (Wolcott, 1995). Ethnography allows us to gain new knowledge about the communities and places we live in, the people we know, and to share that new knowledge with others. In this form of study, the researcher is allowed to be subjective and both descriptive writing and expression of emotions are encouraged (Fetterman, 2010; LeCompte & Schensul, 2010; Ortlipp, 2008).

I have selected an ethnographic, qualitative methodology because it will allow for a comprehensive and thorough narrative describing the experiences of medical students as each pertains to the impact of high stakes testing and wellness. This methodology provides the tools by which the researcher can explain the experience through participants' voices (Merriam, 2009). While there is a wide scope of qualitative methodologies used in conducting research with medical student populations, most are quantitative in nature. In fact, the vast majority of research conducted for this literature review relied on quantitative data (Drolet & Rogers, 2010; Dyrbye et al., 2011; Dyrbye,

Thomas & Shanafelt, 2006; Estabrook, 2008). For this reason, an in-depth, qualitative study may provide clarity regarding the impact of the USMLE on wellness that has not been illuminated by statistical analysis. It may also provide new avenues for exploration. As noted by Fetterman (2010), ethnographic inquiry can provide a previously unreported and largely unknown holistic view of a culture, in this case medical students, which may not be visible or noted in other methodologies.

Grounded ethnography theory. Ethnography is never mere description, but a theory of recording and describing a particular group, which incorporates participation and observation in their environment or social world (Charmaz, 2006; Fetterman, 2010). The process includes multiple sources and allows for innovative approaches. Historically, through its sociological roots, ethnography involved living among and talking to people, seeking to understand how they viewed the world from their own vantage point and in their own environment, which included the researcher (Agar, 1996). Ethnography has often been connected to the concept of holism in that it is inclusive of the entire environment or culture, and everyone within it is studied. For the interconnected, whole system to be described and understood, all of it must be considered (Marcus, 1998; Wolcott, 1995).

According to Nader (2011):

> Ethnographic theory is defined as the analysis of a set of facts in their relation to one another, or the general or abstract principles of any body of facts, which to my mind makes ethnography most definitely a theoretical endeavor, one that has had and still has worldly significance, as description and explanation. Thus, the ethnography itself as well as its explanatory use is a theoretical endeavor.

> Throughout more than a hundred years of ethnographic research, observation has been combined with a wide variety of theoretical outlooks. (p. 211)

I've chosen to combine my ethnographic research with grounded theory. Grounded theory is a method of conducting qualitative research that focuses on creating conceptual frameworks via inductive analysis therefore the analytic categories developed are 'grounded' in the data (LeCompte & Schensul, 2010). This method favors analysis over description and new ideas over preconceived notions. It differs from other approaches in that it is inclusive of the researcher who is involved in analyzing the data throughout the research process and thus shaping the developing theory (Charmaz, 2010). I chose to use a grounded theory approach because it aligns with ethnography and with my intention to develop new theory regarding the impact of the USMLE on medical student wellness. In addition, grounded theory methodology will help to expedite and streamline the probing and in-depth exploration that will likely occur in the study (Charmaz, 2010). While ethnography can go deeply into an experience, being grounded provides the necessary structure to make more timely interpretations (Charmaz, 2010; Coffey & Atkinson, 1996). Grounded theory approach assists the ethnographer in conducting more efficient fieldwork and increasing analytic incisiveness as it seeks to provide an interpretive understanding of the studied world (Altheide and Johnson, 1994; Charmaz, 2010; Guba and Lincoln, 1994). Through this ethnographic study, I will learn how medical students experience the USMLE and through ongoing review of what I learn, I will be developing a theory regarding the impact that the USMLE does or does not have on wellness.

Participant observation when combined with grounded theory, focusing on a basic social process, can help the researcher to gain a more complete picture of the whole

setting (Charmaz, 2006; Nader, 2011). Grounded theory leads ethnographers to compare ongoing data collected with data from the beginning of the research, as new ideas and themes emerge, and to demonstrate relations between concepts and categories (Atkinson, Coffey, Delamont, Lofland & Lofland, 2005). Unlike the positivist notion of passive observation, grounded theorists select the scenes they observe and decide where to focus within them allowing for more efficient fieldwork and astute analyses (Altheide and Johnson, 1994). Grounded methods allow for probing deep beneath the surface while maintaining control over the research process by providing focus, structure, and organization (Charmaz, 2006). An ethnographer in the field should be open to studying whatever is happening there, working from the ground up to follow what they find to be of most interest (Charmaz, 2006; Nader, 2011). Grounded theory ethnography gives priority to the studied phenomenon or process rather than the setting itself (Charmaz, 2006). Ethnographers can make connections between events by using grounded theory to study processes.

In this ethnographic study, I will cover all aspects of life occurring at CMSRU as it pertains to the USMLE and student wellness. It will include supplementary data from documents, diagrams, photographs, focus groups, and formal and informal interviews. I will seek detailed knowledge of the multiple dimensions of life within in the studied milieu and aim to understand members' taken-for-granted assumptions and rules (Ashworth, 1995; Charmaz & Olsen, 1997). An ethnographer's job is to become fully immersed in the subject being studied and to gain vast experience in order to legitimately make a meaningful interpretation (Baszanger, 1998; Timmermans, 1999).

Methods

This section will detail the specific methods to be used throughout this qualitative study. While I will begin this research with a clear research map (Figure 4) to guide the process, the nature of ethnographic grounded theory allows for deviation and new avenues of exploration that develop over the course of the study (LeCompte & Schensul, 2010). The planned map will be updated as necessary. As my research unfolds, and as noted in Charmaz (2010), data will be collected throughout the study using a constant comparative method combined with theoretical sampling allowing for coding to adapt to building theoretical categories and refined theory development.

Setting. Interviews will be conducted at the Cooper Medical School of Rowan University (CMSRU). The medical school building was the most logical location since all participants either work or attend school there. Additionally, because I work at the same institution, it is convenient for all parties involved and provides a quiet, safe location to have in-depth conversations. The study is specific to the medical education arena and includes both students and relevant ancillary staff and faculty; therefore, the site is ideal (Rossman & Rallis, 2012). Finally, I have relatively easy access to study participants and am readily able to provide meeting rooms for focus groups, and a quiet space for the interviews and recordings.

Cooper Medical School of Rowan University has a unique culture in that the students, faculty, and staff share a certain set of routines and practices primarily occurring in a particular environment that likely can only be fully understood through engaged participant observation (Nader, 2011). A culture encompasses the total way of life of a people including their way of thinking, feeling, and believing (Rossman &

Rallis, 2012). CMSRU has a distinct set of values and way of being that comprises its. As a working staff member in the CMSRU medical school building, I will have unique access to both the environment and the culture being studied as both a participant and an observer.

Participants and sampling criteria. A purposeful sampling strategy will be used in this study to select students, faculty, and ancillary personnel for focus groups and interviews. The logic and power of purposeful sampling lies in selecting information-rich cases for in-depth study (Patton, 1990). Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research, thus the term purposeful sampling (Patton, 1990). In this process, participants are chosen because they can provide particularly valuable information related to the research questions under examination and allow for a relatively small number (Teddlie & Tashakkori, 2009). In this study, all participants will be students, faculty, or employees of CMSRU. These individuals will be selected based up on willingness, availability, and diverse representation of each medical school year class (first through fourth year). The sampling technique will be useful to this study since participants will be able to speak not only to their own experiences but also to speculate on those of their colleagues or peers (Rossman & Rallis, 2012). I will use a reflective journal to capture thoughts and plans for participation as the study progresses. Ortlipp (2008) notes that journaling can provide for transparency in the research process and from an ethnographic vantage point, it will provide supplementary research material (Emerson, Fretz, & Shaw, 1995). Figure 4, below provides a graphic illustration of my sampling strategy and each component is described below.

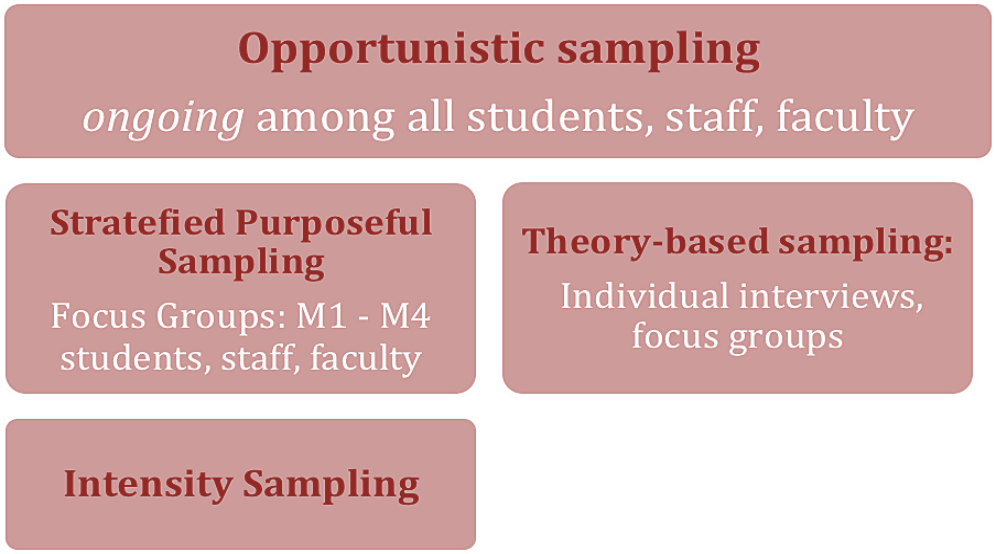

Figure 4. Sampling strategy

Stratified purposeful sampling. I intend to choose students from each of the four medical school years (M1, M2, M3, and M4) to gain perspective regarding what students experience as they work through their medical school career. In addition, I will select a group of faculty and a group of staff. A stratified purposeful sample allows the researcher to capture major variations rather than identify commonality, although that may also emerge in the analysis (Patton, 1990). Each of the strata identified will constitute a fairly homogeneous sample but not large enough for (nor intended for) statistical representativeness. By including students from each of the four medical school years, I am likely to observe any attitude shifts that may happen in one of the particular years, especially regarding how the impact of the USMLE grows or wanes over the years.

The stratified purposeful sampling method, less than a full maximum variation sampling, still seeks to capture and describe main themes with the greatest participant variation possible. Regarding wellness and the USMLE at CMSRU, I will seek to find

any common patterns that emerge and capture core shared experiences related to wellness and the USMLE (Patton, 1990; Zirkel, Garcia, & Murphy, 2015). According to Patton (p. 172), when selecting a small sample of great diversity, the data collection and analysis will yield two kinds of findings: high quality, detailed descriptions of each case, which are useful for documenting uniqueness; and important shared patterns that cut across cases and drive their significance from having emerged out of heterogeneity.

Intensity sampling. Certain participants from the focus groups may be selected for individual follow-up interviews in order to elaborate or further expand upon certain research questions (Charmaz, 2014; Gordon-Finlayson, 2010). Intensity samples are information-rich cases that strongly manifest the area or experience of interest and allow for rich and clear detail, and yet exclude extreme cases, which might distort the subject of interest (Patton, 1990).

Theory-based sampling. Theory-based sampling seeks pertinent data to develop an emerging theory (Charmaz, 2014). This gradual sampling strategy selects participants to further explore ideas that the researcher is developing from data already collected; oftentimes participants already interviewed are revisited to confirm developing ideas or theories (Charmaz, 2014; Glaser, 1978). This method will generate the level of detail I am seeking in participant perspectives about this research topic. In addition, aligned with grounded theory, theoretical sampling provides for opportunistic exploration to support or deny novel avenues of developing theory (Emerson, Fretz, & Shaw, 2011). This more formal version of criterion sampling targets people based on their potential representation of important theoretical constructs and phenomenon of interest (Patton, 2002). Initial constructs of specific interest in this study and participants most representative of those

areas of inquiry include (a) CMSRU medical students preparing to take the USMLE (M2) and students who have recently taken it (M3); (b) faculty from CMSRU teaching second or third year and having close interaction with students as they go through the USMLE (c) staff closely engaged with medical students during the USMLE process including student affairs and medical education personnel. As new or emergent patterns or categories develop, additional interviews or focus groups may be added to explore the concepts.

Opportunistic sampling. Because fieldwork in ethnography relies on being present and open to opportunities as they arise, on the spot interviews with students, faculty, or staff may be used. According to Patton (1990), being open to following wherever the data lead is a primary strength of qualitative research as this method allows the sample to arise organically.

All participants will complete an informed consent to participate in the research study; received and reviewed prior to engaging in any questions. Participants may withdraw from the study at any time without penalty.

Saturation. Purposeful samples, most commonly used in non-probabilistic sampling, typically rely on the concept of "saturation", or the point at which no new information or themes are observed in the data (Guest, Bunce, & Johnson, 2006; Sandelowski, 2001). Ethnographic research relies on the rich, thick data acquired through intensive and in-depth data collection because it correlates with the quality and quantity of information gathered to reach saturation (Glaser, 1992). Although the idea of saturation is helpful at the conceptual level, it provides little practical guidance for estimating sample sizes prior to the data collection typically considered necessary for

conducting quality research. Although Guest, Bunce, & Johnson (2006) attempting to operationalize saturation, in this study, the number of planned interviews and focus groups serve only as a means to gather meaningful information. The number actually conducted will depend on how long it takes to get to a point where no new concepts or experiences arise (Charmaz, 2010).

According to Glaser (1978), researchers must immerse themselves fully in systematic data collection and analysis as they work toward theoretical saturation. Data transcripts require a great deal of time for coding and analysis as the process of achieving saturation and generating a theory should be rigorous, thorough, and transparent (Bowen, 2008). The researcher should specify what they did and how they did it allowing grounded theory to arise systematically in the data as concepts eventually emerge and become consistent (Bowen, 2008; Guest, Bunce & Johnson, 2006). Bowen (2008) contends that the researcher's patience is important in making the analytical process efficient and effective, as premature closure will not produce a durable, stable, or workable theory. The purpose of ethnographic inquiry is to describe and interpret a human phenomenon (Geertz, 1995), in this case a connection between USMLE testing and wellness. Therefore, I must be clear about methods and interpretations in order that others can draw their own conclusions (Bowen, 1990; Whitehead, 2005).

The planned purposeful sampling technique combined with the opportunistic and theory-based sampling should provide for quality data, particularly since the method and goal of inquiry is relatively specific and the pool of respondents somewhat homogenous. In addition, although using a stratified purposeful sample, I am not seeking to assess variation between groups but merely to have a broad perspective. Overall, through

ongoing data collection and analysis among the myriad of data sources I am confident that saturation will be achieved. According to Charmaz (2014), saturation occurs when gathering additional data does not result in any new insights or categories. Depending on focus group results, I may use fewer follow-up interviews among certain groups and potentially more in others. Theory-based sampling was selected because it can increase quality (Hesse-Biber & Leavey, 2006; Patton, 2002; Zirkel et al., 2015) and allow for new, emerging concepts to be explored and for gaps in the data analysis process to be filled (Charmaz, 2010). In addition, in ethnography, like other qualitative research, more data does not necessarily lead to more information. The goal is to gather enough meaningful material to fully describe the phenomenon being studied, not to acquire a certain number of responses (O'Reilly & Parker, 2012).

Data Collection

The research design is aligned with the nature of the specific research questions posed (Hesse-Biber & Leavy, 2006). The primary research questions seek to understand the perceptions and behaviors of medical students as it pertains to the USMLE test and the role it plays in their wellness. Fieldwork is core to ethnographic research and through journaling, observation, artifacts, and field notes I will be an immersed participant throughout the project. While data collection methods and techniques will be planned in a clear and logical order, ethnographic work is not always orderly (Fetterman, 2010; Sunstein & Chiseri-Strater, 2012). Unlike most research where analysis follows data collection, in ethnography, analysis precedes and is concurrent with data collection. It involves many levels of analysis, which will be ongoing throughout the study (LeCompte & Schesul, 2010; Marcus, 1998). As a grounded theorist, I will carefully select the scenes

to observe and thereby establish a framework for digging more deeply into the research questions. This ongoing, approach provides structure and focus for an ethnographic undertaking (Lecompte & Schensul, 2010).

Cultural artifacts. The collection of artifacts will be essential to provide additional insights into the medical student culture helping to both understand and be able to explain it more clearly to others (LeCompte & Schesul, 2010: Marcus, 1998). In deciding which artifacts to collect and what to do with them I will be guided by the idea that artifacts are texts that can and should be read together with other research data. The meaning of cultural artifacts within the culture one is studying contributes to the meaning of the culture overall (Fetterman, 2010). As Sunstein and Chiseri-Strater (2012) argue, objects are readable texts. As you read an object, your position as researcher affects your reading just as it affects the way you read a field site. Researchers use the term material culture to refer to those objects and personal artifacts loaded with meanings and history that people mark as special (Malinowski, 1998; Nader, 2011). A successful ethnographic researcher doesn't just collect these objects and describe them in the project, but also tries to figure out what they mean for the people or the culture she is trying to understand and how that meaning may help them shape the texts they offer to their readers. A researcher's task is to develop that meaning by actively reading an artifact (Fetterman, 2012; Sustein & Chiseri-Stater, 2012).

Guidelines for determining which artifacts should be collected and analyzed cited by Sustein & Chiseri-Strater (2012) include:

- Paying attention to the items around me and what the medical students do with them, particularly those that seem important or particularly useful to them.
- Notice the appearance, size, texture, and other visible qualities of the artifact.
- Talk to culture members to learn the purpose of the artifact.
- Notice how the artifact is used by medical students.
- Compare my observations of artifact with descriptions I hear from students.
- Think metaphorically or symbolically about the artifact (p. 126).

Thoughtfully considering and analyzing artifacts in this way will provide insights beyond mere description and allow for more general conclusions to be derived as to the meaning of the objects. Potential artifacts that I might collect include USMLE study guides, information on the CMSRU website or in admissions materials, photographs, notes or historic reflections from students regarding the test, historic class scores, and other journal or reflective information that students, faculty, or staff are willing to share.

Field Notes. Ethnographic research employs a myriad of methods that can yield a great deal of material from which the researcher must derive meaning. Over the course of this project, I will observe the medical student culture, interview students from years one through four as well as relevant peripheral faculty and staff, and collect cultural artifacts. Throughout the experience, I will keep careful notes of everything I see and do. I will use these notes to both inform ongoing research as well as to describe and interpret the

medical school culture as it pertains to student wellness and the USMLE (Emerson, Fretz, & Shaw, 1995; Ortlipp, 2008; Sustein & Chiseri-Strater, 2012).

Key components of my researcher's journal will include:

- Research questions.
- Observations and reflections (two-sided journal).
- Interview questions, answers, and reflections.
- Descriptions of cultural artifacts and their readings.
- Notes to self for follow-up.
- Research leads and ideas.
- A reflection on what is working well and what isn't working.
- Overarching reflections on what conclusions I'm drawing and what I'm learning about myself through the research.

Maintaining an ethnographer's journal, in which I record all observations and interviews, and reflect upon them, will provide abundant and dense material for analysis (Emerson et al., 1995). I will specifically use a double-entry technique, dividing the page of a notebook in half (or employ a stenographer notebook) using the left-hand side column to record my actual observations of the medical students and their culture and the right side for my reflections, explanations, and questions about it (Emerson et al., 1995; Sunstein & Chiseri-Strater, 2012). Because ethnographic research data will not speak for itself, I will need to create the meaning for my eventual readers and myself. Therefore, I will reflect and speculate on the meanings of what I observe and analyze, and from what I learn from interview participants, the environment, and artifacts. The journal will allow for

reflection on progress and be a tool for discovering new avenues to pursue in the research process (Wolcott, 2008; Creswell, 2007).

Observations. Observations will be documented throughout focus groups and interviews via prompts contained in the interview protocols. Analytical memos will be used throughout the study to describe the physical setting, the ambiance, and details about artifacts (Marvasti, 2014; Emerson et al., 1995). Observation entails the systematic noting and recording of events, behaviors, and artifacts (objects) in the social setting chosen for study (Emerson et al., 1995). The observational record, frequently referred to as field notes, provide detailed, nonjudgmental, concrete descriptions of what has been observed (Marshall & Rossman, 2006). In an ethnographic study, observation is ongoing and the researcher makes no special effort to have a particular role in the setting but often seeks to be tolerated as an unobtrusive observer. This method assumes that behavior is purposeful and expressive of deeper values and beliefs. Observation in this study will be holistic in description of events and behavior (Marshall & Rossman, 2006). Although an ethnographer is recording observations from a detached and impartial perspective, she is simultaneously recording thoughts, feelings and reflections regarding the observed milieu as a participant within the culture being studied (Fetterman, 2010; Wolcott, 2008).

Interviews. Structured and informal unstructured interviews will be a part of this research. In qualitative research, interviews allow participants to describe the meanings of central themes in their world (Creswell, 2007). Interviews in ethnography look to gain both factual and interpreted meaning from the interaction with participants. Individual interviews provide the opportunity for the researcher to learn the 'why' and 'how' behind

standard research questions and, in addition, to then pursue in-depth information around the topic of interest (Hesse-Bieber, 2006; LeCompte & Schensul, 2010).

While some planned interviews will use a general interview guide (Appendix A) to insure that the same general areas of information are collected from each interviewee (Merriam, 2009), in the more informal, conversational interviews that will occur 'ad hoc', no predetermined questioned will be asked. The goal of the opportunistic interviews will be to remain as open and adaptable as possible to the participants' own priorities, allowing for interesting and novel avenues of inquiry (Creswell, 2007; Fetterman, 2010; Merriam, 2009).

Focus Groups. Individual interviews assume that people know how they feel about a particular topic, however, sometimes through listening to the opinions of others in a safe, small group setting encourages individuals to form thoughts and opinions (Barbour, 2007; Krueger and Casey, 2000). Focus groups are well suited to situations where participants may not previously have considered a topic. In this case, medical students are already focused on the USMLE that they may not have formed opinions regarding the impact the test may or may not have on their wellness or personal lives. Focus groups can reveal a wealth of detailed information and deep insight by creating an accepting environment that puts participants at ease allowing them to thoughtfully answer questions in their own words and add meaning to their answers (Barbour, 2007). In addition to serving as a group interviewing technique, focus groups allow for observation of interactions among participants thereby providing additional cultural information (Morgan and Spanish, 1984).

Ideally a focus group consists of five to ten people led through an open discussion by a skilled moderator who insures that all voices are heard (Krueger and Casey, 2000). In this study, 60 – 90 minutes will be allotted and discussion will be structured around a set of research related questions (Appendix A). Each of the six planned focus groups will be homogenous: four groups of students from the same class level (M1, M2, M3, and M4), faculty members, and one group of relevant CMSRU staff, likely including student affairs and medical education personnel. Engagement questions will be used to introduce the groups to the topic of discussion, exploration questions will get to the heart of the topic and finally, exit questions will determine if anything was missed in the discussion. According to Krueger and Casey (2000), important moderator traits include the following:

- Listen attentively and with empathy.
- Listen and think simultaneously.
- Believe all participants have something to offer.
- Has adequate knowledge of subject.
- Can keep personal views out of facilitation.
- Is someone the group can relate to and also give authority to?
- Can appropriately manage group dynamics.

Some, such as Brink and Edgecombe (2003), contend that that if the researcher "creates" a population, then research is no longer ethnography (2003, p. 1028), while others believe that focus groups may have some advantages over the more laborious and opportunistic aspects of observational fieldwork. Bloor, Frankland, Thomas, & Robson (2001) argued that focus groups provide "concentrated and detailed information on an area of group life

which is only occasionally, briefly, and allusively available to the ethnographer over months and years of fieldwork" (p.6).

Ultimately, Bloor et al. (2001) determined that focus groups allow the researcher to get an inside view of how certain groups operate within a society when traditional observational methods are restricted, especially to those who are not members. Focus groups provide an opportunity to generate data that are amenable to analysis within the symbolic interactionist approach, which emphasizes the active construction of meaning (Seale, 1999). Focus groups are useful to investigate what participants think, but more importantly, excel at uncovering why participants think as they do (Morgan and Spanish, 1984). In ethnography specifically, focus groups allow for detailed transcript analysis beyond typical summary explanations, by providing interesting relational information such as who was in charge, personal demeanors and relationships, group energy as it relates to specific topics, etc. (Agar & MacDonald, 1995). A pre-understanding of the culture being studied and active engagement by the researcher is required to maximize focus group contributions and maintain alignment with the ethnographic approach (Barbour, 2007; Agar & MacDonald, 1995).

Instrumentation

Observation protocol. Although observations will be largely opportunistic, the study will incorporate planned scene observations that will centralize on many venues. Relevant 'observation' times within the medical school building and opportune times for observation include 'white space' (free time within the medical student curriculum), traditional lecture, active learning group sessions, and the hours before and after traditional class time. A four-week schedule (Appendix F) has been developed around the

student schedules to maximize student interaction time and insure planned access at opportune intervals. As described by Charmaz and Mitchell (2001), bringing an open and energetic attitude to the observation process, as well as a standard framework for guidance is helpful. For the purpose of this study, I will use an adapted set of questions developed by Charmaz and Mitchell (2001) to assist in the process (Appendix E).

Focus group and interview protocols. Two sets of questions were developed to encourage comfortable and descriptive responses. One set is designed specifically for the medical students and will be utilized in both the focus groups as well as the theory-based individual interviews (Appendix A). The second set of questions (Appendix B) was slightly modified to be applicable to the focus groups comprised of staff and faculty. These sets of questions will be used merely as general guides for the discussions as I intend to allow for flexibility in the conversation to insure that while the research questions are being addressed I continue to allow for interesting avenues of exploration (Rubin & Rubin, 2012). As Creswell (2013) notes, a researcher collects open-ended emerging data with the primary intent of developing themes from the data (Ortlipp, 2008). Ethnographic questions are different from those asked by news media reporters sent to observe and record. According to Sunstein and Chiseri-Strater (2012):

> An ethnographer and a journalist may both gather information about the same event but write up their accounts very differently. A standard daily newspaper reporter, for example, conducts research in an attempt to be objective whereas a fieldworker collects and considers multiple sources of information, to convey the perspective of the people about the culture you study. (p. 13-14)

An ethnographer is interested in explaining the culture being studied and therefore must create research questions that will answer both what is happening and why it is happening as well as what significance it has for the culture investigated (Agar. 1996; Fetterman, 2010). Questions must help discern patterns and make connections between people, incidents, and events. Ultimately, the ethnographer is interested in understanding and describing a social and cultural scene from the insider's perspective acting as both a storyteller as well as scientist (Fetterman, 2010; Nader, 2011).

Qualitative data will be collected through focus groups and semi-structured interviews based on the use of an interview guide (Appendices A & B) or written list of questions and topics that need to be covered (Charmaz, 2014; Rubin & Rubin, 2012; Whitehead, 2005). This process follows the open-ended approach characteristic of ethnographic and qualitative research (Agar, 1996; Rubin & Rubin, 2012). Although there is a list of questions and a particular order to the intended interviews, through probing, the researcher can delve more deeply into responses and elicit answers more fully (Rossman & Rallis, 2012; Wolcott, 2008). This method explores participants' perspectives in-depth in order to obtain rich, detailed responses and an increased understanding of their lived experiences (Charmaz, 2014). It features open-ended questions and a responsive format that permits follow up on unanticipated areas of inquiry (Charmaz, 2014; Rubin & Rubin, 2012). During the interview, the researcher's perspectives stay in the background to fully explore participants' experiences and concerns, particularly their views and actions around the research questions (Fetterman, 2010; Rossman & Rallis, 2012).

Although the focus group and interview sessions will be open and provide for novel avenues of exploration, the interview guides will ensure that the original research questions are central to the discussion and allow multiple opportunities to explore the original research questions in depth. A research question matrix was developed for each set of questions to ensure that the interview guides address the research questions posed in this study (Appendices C & D).

If appropriate, I may use the critical incident technique to explore the actual USMLE test day experience. This method involves interrogating a key incident that made a memorable impact to those involved (Rossman & Rallis, 2013; Rubin & Rubin, 2012). To attain accurate and detailed behavioral descriptions, specific probing questions will be used to completely detail the incident (taking the USMLE test) to the extent the participant is able (Agar, 1996; Fetterman, 2010). This will allow for further exploration into a specific situation that might be most demonstrative of a discussed concept. For this study, I will conduct and audio-record focus groups and one on one, in-person interviews. Some focus group members may be interviewed to further explore certain research questions.

Data Analysis

In the analysis phase of the research process, one begins to make sense of the data collected. Unlike a quantitative study, a qualitative ethnographic study does not follow a clear, preconceived theoretical analytical process. Instead, analysis is an iterative process in which the researcher continually explores questions and new ideas simultaneous with data collection. Thus, theory develops along the continuum of data analysis while the researcher seeks alignment across data sources and participants (LeCompte & Schensul,

2010). The process begins through 'chunking' the information gathered into large conceptual groups, defining terms, finding themes, cross referencing sources, aggregating like items, and ultimately drawing conclusions regarding the meaning of the story that evolves.

Overall analysis process. I will continuously compare data throughout the research process as defined by the grounded theory foundation of an ethnographic study (Charmaz, 2010). Comparing data with emerging categories will demonstrate relations between concepts and categories thus increasing my involvement in research inquiry. Analytic memo writing will occur throughout data analysis and serve as a means of constant comparison (Charmaz, 2010; Corbin & Strauss, 2008). Interview and focus group transcripts, artifacts, documents, and observation notes will be coded using open, then focused coding methods (Charmaz, 2010; Creswell, 1998; Saldaña, 2009). The coding and memo writing process develops ideas that form categories to begin the path of theory building. Theoretical sampling will further explore emerging theories until a grounded theory is established and developed (Charmaz, 2010; Corbin & Strauss, 2008; LeCompte & Schensul, 2010).

According to Charmaz (2010), "grounded theory methods preserve an open-ended approach to studying the empirical world yet add rigor to ethnographic research by building systematic checks into both data collections and analysis" (p. 23). The recursive process aids the ethnographer in looking critically at data analysis and focusing on themes relevant to the defined research questions, thereby avoiding divergence to meaningless paths of inquiry. In addition to the ongoing coding and categorizing that will occur with the first observations and opportunistic interviews, the audio-recorded session

from each focus group or formal interview will be transcribed verbatim on the day of or within 48 hours. In addition to extensive field note assessment throughout the study, codes will be regularly reviewed and include newly transcribed material. A key feature of ethnographic data analysis is that the process is recursive or iterative in order to continually reassess questions and modify and clarify ideas about what has been discovered (LeCompte & Schensul, 2010). This constant comparative method (CCM) involves making comparisons during each stage of data analysis with a goal of making analytic sense of the material that may challenge taken-for-grated understandings (Charmaz, 2010).

Coding. Throughout this research, coding will be an ongoing process. Coding is attaching labels to segments of data that depict what each segment is about, distilling and sorting data to assist in making comparisons with other data segments (LeCompte & Schensul, 2010; Saldaña, 2009). I will label text using a descriptive approach. In grounded theory, Charmaz (2010) recommends initial coding as data is collected followed by focused coding, and categorizing combined with ongoing theoretical sampling to develop theoretical categories. My approach will also be holistic, as I will document how respondents express feelings about the test taking, the USMLE, and their wellness and will interpret the data through the lens of wellness. By differentiating and coding numerous comparisons, the researcher begins to analyze and form concepts. In this way, ideas about the data are generated, and additional data is gathered to check and refine emerging categories ultimately culminating in a theoretical understanding of the research or a 'grounded theory' (Charmaz, 2010; Saldaña, 2009).

Using reflection and mental mapping, I will be able to cluster some ideas together as part of the synthesis process to identify code concepts that may be telling the same story or repeating the same message (Patton, 2002; Saldaña, 2009). According to Saldaña (2009), pattern coding is explanatory or inferential in that it seeks to identify an emerging theme or explanation. By placing my original research questions on paper in front of me I may be able to simplify and solidify my codes. For ongoing observations and opportunistic interviews, I will keep the research questions on the front page of my field journal. Through the iterative CCM process, I will likely delete some codes that no longer seem relevant as the study evolves, thus allowing for a narrower filter and clearer results. This inductive method of grounded theory (Merriam, 2009) is widely used in qualitative research and is applicable for this ethnographic approach (Nader, 2011).

Analytic memo writing. Memo writing will occur throughout the research process (Emerson et al., 1995; Saldaña, 2013). A field journal in which I document observations, thoughts, and findings will provide the rationale for decisions and approaches for later review and reflection as the research progresses (Emerson et al., 1995; Sunstein & Chiseri-Strater, 2012). Memos are tentative works in progress written throughout ethnographic studies that allow for reflection and development of the conceptual content (Emerson et al., 1995; Saldaña, 2013). Much of the data gathered through observation and artifact collection will be coded and used to enhance the interviewing process, potentially providing for more in-depth concept exploration and early coding (Marshall & Rossman, 2006; Saldaña, 2013). In addition, as the study progresses, ongoing reflection may alter the path of subsequent questions and considerations.

Throughout the data collection and analysis process, in addition to writing detailed, descriptive field notes, the ethnographer also writes brief, analytical focused 'memos' to explore and edit initial theoretical concepts or possibilities (Emerson, Fretz, & Shaw, 2011). Ethnographic fieldworkers seek to collect and analyze data simultaneously, thus allowing early analytic concerns to be addressed (Charmaz, 2010). Initial grounded theory coding allows the researcher to identify areas that are lacking in data, and ethnography provides the opportunity for the research to go and explore ways to fill the gaps of information, through observation, theoretical sampling, or other data collection. As Charmaz (2010) notes, "the advantage of grounded theory is that you may learn about gaps in your data from the earliest stages of research…and can locate sources of needed data and gather them. Hence simultaneous data collection and analysis can help you go further and deeper into the research problem as well as engage in developing categories" (p. 48). Grounded theory coding is flexible, allowing the researcher to revisit initial interpretations and revise insights and theoretical possibilities (Charmaz, 2010; LeCompte & Schensul, 2010).

Theory generation. The intended outcome of this study is a grounded theory regarding the impact of the USMLE on the overall wellness of medical students at CMSRU. Building theory in this study will likely clarify if the USMLE negatively impacts student wellness, and may uncover specific vulnerable populations, coping mechanisms, or other unanticipated findings.

Throughout the data analysis process, using the ongoing constant comparative method (CCM), I will consider gaps or breaks in logic, especially when considering theory development (Corbin & Strauss, 2008). Theoretical sampling will allow me to

answer questions that arise from the analysis of and reflection on previous data (Charmaz, 2010; Corbin & Strauss, 2008). The method of comparing and contrasting will be used for practically all intellectual tasks during analysis including forming categories, establishing boundaries of the categories, assigning segments to categories, summarizing the content of each category, and finding negative evidence (Corbin & Strauss, 2008). The goal is to find conceptual similarities, refine categories, and discover patterns (Tesch, 1996). Ongoing comparisons will allow the researcher to inductively develop a theory though categorizing, coding, delineating categories and connecting them (Charmaz, 2010; Corbin & Strauss, 2008; Saldaña, 2009).

Constant comparison aligns with theoretical sampling because it allows the ethnographer to decide what data should be gathered next and where to find it based on initial theoretical ideas (Glasner, 1992; Corbin & Strauss, 2008). Questions that arise from the data can be analyzed and compared with new data (Charmaz, 2010; Corbin & Strauss, 2008). According to Charmaz (2010), taking a grounded theory approach to ethnography refines the data collected by giving priority to the studied process or phenomenon rather than the setting itself (p. 22). The cycle of comparison and reflection on 'old' and 'new' material can be repeated several times until new cases do not bring any new information (Charmaz, 2010), reaching the point of saturation. Alternate explanations will be considered during theory generation; the final proposed theory will be firmly grounded in the relationships and data gathered throughout the analysis and interpretation processes (Charmaz, 2010; Glasner, 1992; Corbin & Strauss, 2008). Ultimately the goal of this study is to produce a theory regarding the impact of the

USMLE on student wellness and potentially some recommendations to address the findings, including areas for future research.

Trustworthiness

Criteria for evaluating the trustworthiness of research depends on the audience who will ultimately use the results. In qualitative research, standard validity and reliability expected from quantitative research cannot be replicated, thus the field adopts alternate terminology to accurately assess how trustworthy a study is (Lincoln & Guba, 1989). In inquiry into issues of trustworthiness and quality in narrative studies, Jason Loh (2013) asserts that to convince readers of the knowledge claims in narrative studies, narrative researchers must pay attention to and use quality procedures that have consensus among the research community at large. Therefore, they should adopt techniques in trustworthiness, analyze narratives for truth, and ensure that the study resonates with and has use for the intended audience (Loh, 2013 p. 12). Aligned with traditional expectations for grounded theory, the attributes I intend to seek in this study include credibility, transferability, dependability, and confirmability (Charmaz, 2010; Lincoln & Guba, 1989). It is more important to be concerned with quality in grounded theory research rather than validity; thus research should be innovative, thoughtful, original and creative (Corbin & Strauss, 2008).

Credibility. Credibility in grounded theory can be established through ongoing engagement and persistent observation in the researched environment and culture. As a CMSRU employee immersed in the medical school milieu, I will have extensive exposure and knowledge of the environment studied. Charmaz (2014) equates the theoretical sampling in grounded theory with member-checking, a more accepted

positivist term that describes confirming findings with your participants, and also contributes to credibility. Grounded theory researchers should also have feeling and sensitivity for the topic, participants, and researchers (Corbin & Strauss, 2008).

Transferability. Transferability can be demonstrated by rich, thick descriptions in sufficient detail that readers can feel as if they were in the field with the researcher, evidence about how the data was gathered and analyzed is presented, and the kinds of data that interpretations are based on are specified (Corbin & Strauss, 2008; Glasner & Strauss, 1967). I intend to use actual quotes from study participants as evidence to support interpretations.

Dependability. A close relationship exists between credibility and dependability. Dependability is the stability of data over time and conditions, which most likely occurs by employing overlapping methods that are confirmed while demonstrating credibility (Lincoln and Guba, 1989). In this study, dependability is verified through focus groups, interviews, and observations. To specifically address dependability, processes used in the study will be reported in detail, thereby enabling future researchers to repeat the work, not necessarily expecting to attain the same results, but to use as a prototype and to clearly understand the methods used and their effectiveness. I will also employ a dependability audit, which allows any observer to trace the course of the research step-by-step through decisions made and procedures described. This 'audit trail' will encompass both how the data was gathered and processed as well as the manner in which the research concepts gave rise to the work that followed (Loh, 2013).

Confirmability. Triangulation of multiple data sources can produce a comprehensive and consistent picture of the domain being studied (Patton, 2002). Using

repeated questions, discussion, and actual observations, reviewing the same information on the same topic will ensure that the data is rich, robust, comprehensive and well developed (LeCompte & Schensul, 2010). Ethnography builds redundancy into data collection methods as multiple sources provide confirmation or corroboration (p. 180). Additionally, assuring that each question is answered by more than one data source creates confirmatory redundancy (Denizen, 2005). Therefore, staff and faculty will be interviewed, in addition to students, and in some instances individuals will be interviewed more than once. Observations of people will verify that they are actually doing what they say they are doing. Examining an issue under multiple lenses can deepen both the inquiry and understanding (LeCompte & Schensul, 2010).

Originality. Ethnography is both novel and original in the study of medical students in general but particularly in the arena of the USMLE where the literature review revealed that there was little to no qualitative research on the subject. Charmaz (2014) specifies that researchers should question the insights offered by categories, whether the analysis provides a new conceptual rendering of the data, what the significance of the study is, and how the grounded theory challenges, extends, or refines current ideas, concepts, and practices (p. 337). These criteria for originality will be assessed in the findings and discussion of the final study. Corbin & Strauss (2008) comment that research should be innovative, thoughtful, creative, and resonate with readers' and with the life experiences of study participants. This study addresses resonance by situating the research and researcher within the medical school building where student education and study occur (Rossman & Rallis, 2012). Major criteria for this study's ultimate grounded theory will be whether or not it resonates with those who implement and utilize the

USMLE. Finally, the theory developed should be understood by common practitioners in the field, and provide the user with tools to bring about change (Corbin & Strauss, 2008; Glasner & Strauss, 1967). In my study, I will work to frame any resulting theory so it can be understood and applied by educators, administrators, and those using USMLE results as a differentiating tool.

Ethical Considerations

Potential for bias exists and possible detriments to this study include the fact that my position as Associate Dean for Program and Business Development at CMSRU might impact the responses of the students and ancillary personnel who will be interviewed. Most participants will be aware that I established and chair a wellness committee at the medical school; therefore, respondents may answer questions in a way that might appeal to my interests. My involvement in establishing the wellness program may unintentionally encourage students to overstate the impact of the USMLE on wellness than if the interviewer were an unknown third party. Additionally, there is an inherent power differential that makes students want to please individuals they may deem as having an impact on their grades or success, despite the fact that I have no responsibility or authority as it pertains to student affairs at CMSRU (Creswell, 2014). Still, a position of authority at the institution might, in some way, impact the candid responses of students. The focus of this research will be primarily on the USMLE and the researcher will attempt to keep all questions and observations as impartial and open-ended as possible.

Other ethical considerations and possible detriments to this study include the fact that the interviews and emphasis this study places on the USMLE may inadvertently

increase the stress surrounding the test for some students. In fact, some students may not want to participate in the study at all because of the time they may feel it will take away from their studies. Others may become concerned that their behaviors or responses could in some way impact their reputation and letters of recommendation to residency programs. Because the USMLE is likely a major stressor to medical students, this research must take into consideration that it will be important to allow students to opt out of the study and be assured that there will be no repercussions for doing so.

This research will be conducted in either the Cooper Medical School building or on the grounds of Cooper University Hospital, and because all participants will be affiliated with CMSRU, there is an inherent potential for aspects unique to the institution to come into play. First, CMSRU is a new medical school that will be graduating its first class of physicians in May of 2016; therefore, there are attributes and uncertainties characteristic to a new school that might contribute to results that are different or may not be representative of those found in a broader population. For example, students electing to attend a less established program may be risk-takers and less prone to suffering from the effects of stress than are risk-averse or highly stress prone individuals. Alternatively, attending a new institution without a known and proven curriculum or track record, and one without a history of USMLE test results or residency acceptances, may prove to yield increased stressors. Those stressors may not be present at more established institutions and may therefore skew the impact of the USMLE on wellness to appear greater at an 'unproven' program.

The sample for this study was selected first because of its convenience. Due to the fact that I am employed at CMSRU, medical students are far more accessible than they

would be if I were using another medical school. Second, and most importantly, because this is an ethnographic project, it is imperative that I am able to immerse myself in the day-to-day activities of the students, which would be unlikely and potentially precluded from happening at another institution. In addition, it may be preferable to conduct this research at a new medical school because the inherent biases that develop based on hearsay and tradition at legacy schools may be avoided at an institution where students are in the nascent phase of acclimating to the issues surrounding the USMLE and the pressures associated with this high-stakes test.

An ultimate ethical consideration in qualitative research is to be true to participant voices while acknowledging that the final product is always the researcher's interpretation of participant data (Orb, Eisenhauer, & Wynaden, 2001). In addition, this study is also bound by professional ethical standards and research oversight. The School Superintendents Association (ASSA) Code of Ethics has the professional code that I personally follow and speaks to insuring that the education and well-being of students is the fundamental value of all decision making. In practice and in research I must fulfill all professional duties with honesty and integrity, always acting in a trustworthy and responsible manner, maintaining standards and seeking to improve the effectiveness of the profession through research and continuing professional development, and committing to serve others above oneself (AASA, 2013).

In addition, I will conduct this research aligned with the seven ethical principles set forth by the Council for the Advancement of Standards in Higher Education (CAS) which include: autonomy, non-malfeasance, beneficence, justice, fidelity, veracity, and affiliation. Aligned with the recommendations of Creswell (2013), as a researcher, I will

maintain transparency, providing full disclosure regarding the purpose of the study and gaining all necessary permissions to conduct the research. This study will strive to abide by these professional ethical standards, mainly through institutional review board and informed consent processes. Additional oversight for ethical considerations of this study will be supervised through the Rowan University's Office of Research Glassboro Campus Institutional Review Board for the social, behavioral, and educational sciences. As primary researcher I have completed the Collaboration Institutional Training Initiative (CITI) human subjects training program, including the social and behavioral responsible conduct of research, and conflicts of interest training. Upon committee member acceptance of this dissertation proposal, I will submit an electronic IRB application including research protocols, consent forms, and other necessary information. Throughout the research process, I will openly disclose the purpose of my research and make every effort to respect the research participants and the research (Orb, Eisenhauer, & Wynaden; Rubin & Rubin, 2012). I will strive to respect the privacy and maintain the confidentiality of participants through the use of aliases and/or composite participant profiles (Creswell, 2014).

Conclusion

This unique study will provide a rich story regarding the role that the high stakes USMLE test plays in the lived experiences of medical students at CMSRU, which will be elucidated from multiple vantage points within the school. Findings will have the potential to inform educational leadership at the medical school of the possible negative implications of the test including how it may be altering the health and wellness of its students and the potential role it may play in behaviors and attitudes. In addition, there is

opportunity to assess which particular aspects of the current educational model either contribute to or detract from supporting the medical student through this test-taking experience. The described methods will be implemented upon institutional review board approval at Rowan University. Findings will be described in Chapter Four and finally, in Chapter Five, results will be evaluated, assessed, and interpreted.

Chapter 4

Findings

The purpose of this ethnographic, qualitative study was to examine the extent to which the anticipation of, preparation for, and implications of the United States Medical Licensing Exam (USMLE) contribute to medical student stress, wellness, and self-care. I employed qualitative interviews and focus groups with students across all four years of medical school at Cooper Medical School of Rowan University (CMSRU), and interviews with key faculty and administrative personnel. In addition, to supplement the interviews and contribute to the validity of the data, I employed other ethnographic tools throughout the study including journaling, participant observation, and field notes. Using a constructivist approach to grounded theory, my data collection and analysis was systematic, yet flexible, allowing for adaptation as the research progressed (Charmaz, 2014). Chapter four is intended to communicate the findings that emerged from this ethnographic study after an in-depth analysis of both the scheduled one on one interviews and focus groups as well as observations, brief interviews, journaling, and artifact collection.

Discussion of Ethnographic Findings

This research followed a qualitative ethnographic design, seeking to tell a credible, rigorous, and authentic story through participant observation, focus groups, interviews, and artifact collection (Fetterman, 2010; LeCompte & Schensul, 2010). Through this method the voice of CMSRU medical students can be heard in their own context through verbatim quotations and rich description of experiences (Wolcott, 1995). I adopted a cultural lens to interpret observed behaviors and ensure that they were placed

in a culturally relevant and meaningful context. Through observation and conducting interviews and focus groups in the medical student environment I was able to identify and recognize traits comprising the CMSRU culture around wellness and the USMLE (Barbour, 2007; Wolcott, 1995). Culture, comprised of common habits, customs, traditions, and history – everything that connects members together and defines them - was actively studied and observed throughout this process (LeCompte & Schensul, 2010; Malinowski, 1048). In this research, the active role I played provided valuable insights into the subject, which likely could not have been achieved simply by studying books, journal articles, and websites (Wolcott, 1995). My role as researcher was subjective and used both descriptive writing and expression of emotions to convey observations and analyses (Fetterman, 2010; LeCompte & Schensul, 2010; Ortlipp, 2008).

As noted earlier, I chose this methodology to provide clarity regarding the impact of the USMLE on wellness that has not been illuminated by statistical analyses, nor by previous research. It has also opened new avenues for exploration. As noted by Fetterman (2010), ethnographic inquiry can provide a previously unreported and largely unknown holistic view of a culture, in this case medical student culture that may not be visible or noted in other methodologies. I spent a great deal of time (both scheduled and non-scheduled) in the medical school building to observe the students and their everyday lives as they prepared for the USMLE. This presence allowed me to learn more about what life while preparing for the USMLE exam looks like and enabled me to engage with far more students and staff than I otherwise would have had I only been engaged in my role as the Associate Dean at the school.

Adaptation of research. While the intended format of this research was mostly adhered to throughout the study period, a few alterations were made along the way to adapt to the developing findings. Focus groups were conducted among three of the four medical school years. These focus groups revealed that the primary student groups that should be the center of this research were the M2 and M3 classes as they were either in the midst of preparing for the USMLE or had most recently completed it and therefore had the freshest memories of the experience. The M2 class, just beginning their intensive study period at the time of this research, was not interested in participating in a focus group. The reason cited was that students did not want to share their thoughts and feelings with their peers because some felt they would be judged or it would make them more anxious to hear what others were doing. Therefore, the majority of my M2 research findings were gained through one on one interviews and through observation.

Relatively early into my research and interview/focus group implementation, it became apparent that the richest and most relevant content would come from the students themselves. While the faculty and staff had good insights regarding the role of the test in the curriculum and were aware of the impact on students, I quickly reached a point of saturation regarding new or in-depth information. Therefore, I decided to limit faculty and staff interviews to five with key individuals who work closely with students, and spent the vast majority of the study time focused on the students. Key faculty and staff interviewed included a learning specialist, M3 coordinator, Associate Dean for Student Affairs, Dean of CMSRU, and a clinical faculty member who serves in a counseling role with students from across all four years. Ultimately I had 30 to 75-minute contact through either a focus group or one on one interview with 39 students and 5 faculty and staff.

Each of these interactions was unique. The descriptive data for formal focus groups and interviews is reported in Table 1.

Table 1

Focus Group and Interview Participants

Participant	Focus Group	Interview	Male	Female	*URM
M1	6	2	2	6	3
M2	0	15	7	8	2
M3	8	3	5	6	2
M4	5	0	2	3	0
Faculty/Staff	0	5	3	2	1
Total (44)	19	25	19	25	8

*Under Represented in Medicine (URM)

Of the 39 students interviewed 41% were male and 59% female, which is representative of the student body. Similarly, comparable to the school's student body, eighteen percent of those interviewed were under-represented in medicine (URM), which at CMSRU refers to those students of either Latino or African American descent. In addition to the formal, audiotaped interviews, numerous intermittent and brief informal interviews were conducted throughout the study. During these interviews, which included faculty, staff, and students, notes were taken and analyzed. While specific demographic

characteristics are not available, they were comparable to those in the formal interview process. A portion of the additional brief interviews were follow-up conversations with some of those originally interviewed in either a focus group or one on one, sit-down interview. Ongoing observations, artifact gathering, and field notes were simultaneously being recorded and analyzed. As noted in chapter three, all focus groups and 30 minute and longer interviews were audiotaped, transcribed, and analyzed.

Major Themes

In addressing the research questions, several themes have been identified and will be discussed at length in this section. In addition, each of the six parameters of wellness as defined by the National Wellness Institute were considered in the context of this study including assessing the students' perceived connection between wellness parameters and the USMLE. Six major themes and several subthemes were found over the course of this study. These major themes included the following:

1. Exam as All-Encompassing: it was all-consuming, overwhelming every other aspect of the students' lives;
2. Isolation and "Dropping out": giving up other responsibilities or obligations;
3. Clique and Peer Issues: issues with peers and cliques were regularly noted as was the competitive nature of the class;
4. Psychological Strains: multiple psychological stresses and experiences including anxiety, depression, anger, and guilt were identified;
5. Regimentation: the regimentation of daily life that accompanied USMLE study was routinely observed;

6. Better Balance: some students, definitely the minority, seemed to have found a balance amidst the chaos.

Theme 1: Exam as all-encompassing. Virtually every student agreed that most of their second year was consumed with thoughts about the STEP 1 exam. After January it became even more of a looming concern and once the intensive study period began (the intensive time varied beginning in early May for most but earlier for some who decide to take the exam prior to mid-June) there was little else that occupied the lives of the students. Excerpts from discussions with three different students follow:

> It was mostly like all I did all day every day. I had a study schedule that I worked from and I would get up in the morning, study, take my dog for walk, study, eat launch, study, eat dinner, and study a little more. It's pretty all encompassing. You know with a couple of fun things thrown in - my sister got married – that was a perk. (GS- M2)
>
> For the intensive study period you have to be all in. For some its 4 weeks, for some 6 – beyond that, there's no way because you're burnt out and maybe you don't even realize it. Your days are solely focused on the schedule and you literally do nothing else – same thing every day. Some take time for food shopping… I didn't even do that, I had it delivered. (MF – M4)
>
> I don't do anything else. It's funny like I didn't leave my house for like 6 or 7 weeks only to go to school. I didn't do anything and that like stinks. It's awful; like my friends are always texting me but I just don't go. I started studying in the fall so I'm just exhausted. It's the spring now, and I just start my day an hour earlier. I usually get up about 5:15 or 5:30, catch the train and study on the way

into school, by 7. Study an hour before school. In class from 8 – 12. Work through lunch and do something within the block. I go to lecture and lab; I'm one of those people. After that I usually go home right away. I live with my parents – like an hour home, which stinks…but 2 solid hours of study, so I get home, eat, try to work out and then study till 10 or 11 and just do it again. (RD-M2)

Students try to squeeze as many hours of study into a given day, allocating little time for anything else. The monotony of their exam preparation efforts is also apparent in that it's the same thing all day, every day. In addition to the all-consuming nature of the study period, it was evident that the exam also had an effect on the emotional state of students. One M4 shared:

I was in the middle of study and my wife called to ask if I could pick up my son at daycare ... I'm like, I can't? And she said, what? And I'm like, let me play this out for you quickly because I don't have a lot of time. Fifteen minute there, fifteen minutes back, twenty minutes talking to someone, now we're at 50 minutes. I said, getting him settled back at the house, an extra 10 minutes with a snack or something now we're at an hour. I'm getting to bed at 11 o'clock and getting up at 3 o'clock to make up for that lost hour and she's like, I have never ever seen you this intense, ever. I love you, it will be okay. I think you need to go… and that's when I left and was like out and away for a week. (BM- M4)

This particular student, a father, relayed that he was so stressed that he was uncharacteristically short and even angry with his family. Because the exam and its significance weighed so heavily, he and other students felt as though everything else in their lives had to be curtailed or put on hold. These beliefs and behaviors often impacted

other aspects of their lives, including social relationships. The stress and intensity of the need to study changed the typical demeanors of some, precipitating negative consequences.

Students in M3 and M4 years who had taken the exam unanimously agreed that particularly during the intensive study period, nothing else in their lives received much, if any attention. This attitude was similarly reflected among staff and faculty who commented on how students had "taken over the building" and were "camping out in every nook and cranny" they could find. I have also observed students in the building studying from very early in the morning (6am) until later in the evening (8pm) and learned from facilities workers that they sometimes have students in the building until midnight.

> Every day that I get here at 7am, there are already students spread out in various study spots all over the building. It appears as though they have an enormous amount of material at their sides; in addition to books and computers, they have plenty of food, extra clothes, and one student even has a pillow…. Every evening that I stay late (7pm) there are still M2 students here studying; same students, same places. They look extremely intense and I rarely notice them interacting…. with anyone. (field notes, May 4, 2016)

The intensive nature of the study was best revealed, however, through their own descriptions of how "the test becomes their lives". Schedules devised by the students to guide the intensive study period also clearly indicated that there was time for virtually nothing beyond study as students prepared for the test (Appendix C). The intense and comprehensive focus on the test leaves little time available for wellness activities,

including sleep, socialization, or exercise, thereby negatively impacting medical student well-being.

Theme 2: Isolation and dropping out. For many students, studying for the boards is a time of intentional isolation and detachment from responsibilities not related to studying for the USMLE. While some students begin this social isolation early in the second year of medical school, for most it begins upon return from the winter break (around January), and for a few, it doesn't fully happen until the 'intensive study period' which is approximately six weeks prior to the test (beginning of May).

> My alarm goes off at 6. I get out of bed, drink coffee. Go through morning STEP prep; DIT videos and Uworld questions (all study guides designed to help students prepare for the USMLE). Lectures. Study an hour at lunch. Go to labs till three. Go home, work out from 3-4. Make dinner and start studying again at 7 until 11 and bed. Weekend I sleep in and go to a coffee shop to study for hours. Mostly I study alone. (MR-M2)

This type of scheduling is standard among medical students with the exception that most are not taking time for exercise. For most, isolation from family and friends is expected because there is such a vast amount of material to cover and the bulk of their time must be devoted to an immersion in the myriad of study guides and materials that they have been collecting and organizing for this most intense year of their lives. Both students and administrators accept this sequestered time as a necessary 'rite of passage' if they are to do their best on this "most important test of their lives."

Dropping out. A recurring theme throughout this research that was noted across all four years of students and among staff and faculty and that was widely accepted, is

that medical students 'drop out' or are no longer available for any outside activities, clubs, or volunteer work other than what is 'required' once they begin their second year of school. The phrase 'dropping out' was commonly referenced and accepted by both faculty and staff. When asked about the USMLE, the M1 focus group of students who will take the exam next year shared:

> It seems awful, well what the M2s are doing right now. They just dropped everything. And they are expected to do an additional 16 hours of study a week. So they have to like drop out of all their extracurriculars and do the extra studying but that's almost at the expense of their normal studying that they have to do. There still are normal classes.
>
> I think across the board, not just at CMSRU – they just drop off the map at this time and then study and then come back on the other side after that. Hopefully…. (Laughs)

Leadership roles are passed on, participation in clubs and activities is dramatically reduced and general socialization is curtailed. One security guard I spoke with noted that "after their class ends at 10am, many of them are 'out of here' for the day". The reason for this is that the second year is, for many, exclusively focused on study and preparation for the STEP I exam which most will take in June of their second year. Many fear that outside activities or interests will distract or compete for time needed in intensive study.

Isolation. Students either shared that they feel the need to be alone or they've observed among their peers that many second year students stay far away from the building and from their peers beginning in the second year and escalating around the time of the intensive study period. For those students I interviewed who practiced this

'isolating' behavior, it was attributed to feeling stress and pressure from their peers. Noted one third year student,

> The study period was really weird. I would wake up every day and just start studying and I would usually go to either the library or a coffee shop. I really didn't want to be here because I didn't want to see any others who were studying and have to have those conversations of, oh, what are you doing because this is what I'm doing. I mean, my peers, I felt like there was a lot of people who couldn't help themselves. They were like –this is what I studied today – I was like okay great… good for you. But that caused me some anxiety. I get very anxious. And I knew that about myself because that's how it's been and I just don't want to invite comparison. So I was purposefully avoiding others but I was spending a lot of time by myself. (CK – M3)

One M2 student shared:

> I think people segregate to get away from those who stress them out. I feel like I'm a really intelligent person but when you hear others knowing things you don't you feel like your options are: they are smarter than me or I'm not working as hard as they are. It's usually that they've put in more hours than I did. (M2-MC)

The pressure seemed to come from either the "braggadocio" of their peers making them feel concerned about how knowledgeable they were as compared to others, which led to self-criticism and increased stress and anxiety, or from the constant talk and discussion about the exam and the magnitude of its importance making them feel "sick inside". An M4 student in focus group agreed stating:

> That's why I actually left. … For me, I went home – I went back to my parent's house, and I went back to my old bedroom and desk. I needed not to be around other people's anxiety and I think I was pretty isolated from everyone here.

Self-inflicted isolation from peers shielded some students from the anxiety-provoking comments of their fellow students. At the same time, being separated from those going through similar experiences deprived them of the comradery or sense of sharing they might have experience with someone of a like mind.

For others, just the test and study experience itself was a dramatic change from the team based learning they were accustomed to (CMSRU uses eight-member active learning groups in the first two years of curriculum) and being alone so much had a negative impact on their psychological well-being.

> The whole experience was very isolating and I didn't have an outlet. Third year was awful for me but it was kicked off by STEP 1. I had to go back to my therapist. And, around Christmas of 3rd year, I didn't know what was wrong with me. I couldn't' get my head back in the game, I couldn't focus. It was all because after STEP 1 I didn't know what to do with myself. That was isolating for me. It was a big change – after STEP it was like, now what? No transition. You need to find purpose again. (AM-M4)

The intensity of the USMLE exam preparation was a life-changing time for some, separating them from their close peer group with whom they had shared the first two years of medical school. This abrupt transition was so challenging for some students that they linked it to the precipitation of psychological issues such as anxiety and depression.

Parallel Play. Both observed in my ethnographic observations and described by many students was independent study alongside of another student/s. One of our administrators described this observed behavior in which the medical students are studying alongside one another but not really interacting or engaging with one another as 'parallel play'.

> Their interpersonal relations change. They may have had a particular friendly group but as it gets closer to STEP 1 they tend to isolate themselves and not mingle as much. The reason they do this is they don't want to deal with others' stress. Others may be studying something different; maybe content they didn't think they had to emphasize and it stresses them out. They like to stay by themselves and like with children who have parallel play, they have what I call parallel study. Because they'll sit in the cubicle next to each other but they don't interact with each other when they are studying. They each have their own agenda; their own methods of studying. (PP)

In childhood development, this phenomenon is described as a form of play in which children play adjacent to each other, but do not try to influence one another's behavior; they usually play alone during parallel play but are interested in what other children are doing (Childhood Development Institute, 2015). During fieldwork, I observed many students demonstrating this exact behavior over the course of this study. In rooms, they sit across from each other with books, not speaking, only studying. When I asked them about this behavior, they noted that there was some comfort in being around others, not to talk or study with them, but to just know that there was someone alongside them who understood what they were going through and who was in the experience as well. "A

bunch of us were studying at the school. You wouldn't necessarily socialize with the people that were here but you knew that there were other people here doing what you were doing and it made you feel a little less crazy." (MF, M4)

> Mostly I study independently. I'll like, study with people and ask questions if I have them, but mostly we are just studying in a room together. We're like, it's nice to have someone there with you so you're not alone but it's not like we're interacting. I think you'll notice that if you look in ALGS you'll see people with headphones on, not looking at each other. It also helps to keep each other accountable. (KL – M2)

Students who chose this pattern of studying alongside one another noted that they might plan to stop at a certain time for a coffee break and talk for 10 minutes or so, and then go back to study. Some commented that this was really their only social interaction during the intensive study period. Though they were literally together physically while studying, in every other way, they were ultimately studying alone. This lack of socialization and human interaction that evolves during USMLE preparation negatively impacts the overall well-being of the student as many noted that during the exam preparation they felt lonelier than ever before in their lives.

Lack of Presenteeism. The phenomenon of being 'somewhere', but also not being there was described by many students. An M3 student said, "I was trying to make time to see my family, but I also felt like whenever I was there I was still not necessarily focusing on anything other than whatever I was studying. It was hard to disengage." (LP-M3)

Obligations to attend family functions or school related events when they 'knew'

they should be studying resulted in a preoccupation with the lost time and sometimes resulted in devising methods by which they could still study in the midst of the event. One student described reviewing flashcards on his way to his brother's wedding while in the car with his mother. Another talked about reviewing flash cards while driving, eating, or going to the restroom. Others talked about mentally reviewing things in their head while at mandatory events. "I'd sneak off to the bathroom to do questions and that was the issue. I knew that in my brain I should be doing things for myself but I couldn't because that would make me feel worse." (JB-M4) Balancing what should be enjoyable life experiences with self-imposed, incessant study deprives students of time to relax and refill the coping reservoir (Dunn, Iglewicz, & Moutier, 2008) and increases their guilt and stress. This is one more way that the USMLE preparation negatively affects medical student wellness.

Theme 3: Clique and peer issues. Early on in the research with students, the topic of other students and their changing behaviors became a noticeable theme. In addition, there seemed to be some clear differences among classes which could either be related to advancement in medical school career or may simply be an arbitrary characteristic attributable to a specific class of students. These differences included: The M4 class seemed very intense with several instances of extreme anxiety; the M3 class defined themselves and were noted by others to be more relaxed and easy-going; the M2 class was characterized by everyone (faculty, staff, all students) as extremely competitive; the M1 class was also described as competitive but too new to be fully understood. Whether classes of students felt comfortable with one another or not, there was mention made of small or larger 'groups' of students who tended to be like-minded

in the manner in which they studied. One M2 student shared that she began separating from most of her classmates, "That's been going on since the beginning of the year. Knowing who is going to stress you out; who is going to put you in a bad mental place and also who doesn't help because they are too far behind" (MC-M2). The concern about peer behavior increased the likelihood that students would isolate, decrease socialization, and deplete wellness as they prepare for this most intense test.

Student affect. The subject of peers who are loud or overly confident seemed to be particularly disturbing to those students who were already concerned or anxious about the STEP exam.

> A lot of my classmates are very high strung, or like freaking out. And I've been trying to avoid those people. There are those who go around just spouting off like every random piece of information that they know whether it's relevant to anything we need to know or not. And I'll be like, I don't know that; why don't I know that? They have a need to talk about whatever it is they think they need to know. (KL – M2)

Overall comments about those students who were overly confident or even insulting to others were attributed to those who had demonstrated a more assured or aggressive demeanor throughout medical school. An M2 stated,

> People are very competitive. A lot of ego – a LOT of ego! It's um, I mean just medical school in general attracts a certain I don't know; it's just my theory. But I've literally had to talk to my classmates about the way that they've treated me. My ALG is terrible but it's one person in particular that doesn't let other people speak. Um, one-upping. And I had to talk to him one day. I had been complaining

about this to my friends and boyfriend for months and they were like, I'm tired of hearing about this, you need to talk to this person. And I hate conflict so I'll just try to deal with in my own way or sit in silence until I got so uncomfortable. I was like doing a diagram up on the board one day and he like got up and started correcting it as I was standing there. I had to pull him aside and say I was very offended and I think you were really rude to me and like you need to be respectful to me. (MO – M2)

In addition to those who bragged about how far along they were with their STEP study material, there were other students who described that they felt awful about the upcoming exam and were sure that they would not do well.

Then there is a category of people who are like, OMG I've failed everything and like just constantly talking about how hard everything is and how they think they failed. And how I need to go home and I'm going to study like 14 hours tonight and will vocalize their study plan to everyone and you're comparing and like should I be studying 16 hours and like no. That's not realistic. (KL-M2)

These students also triggered stress responses in classmates because they would then begin ruminating on the challenge posed by the upcoming exam and wonder if they too would do poorly. In effect, the outward behaviors of others, especially peers, seem to have a negative impact more often than not.

Overall, when asked about changes in behavior or demeanor during the STEP, students described their peers as anxious, stressed, more reactive and volatile, less available, and depressed. One staff member I spoke with described students as "miserable" during their intensive study time. Students described themselves as

"someone I wouldn't want to be around" (AM-M3). Changed behavior is accepted as an inevitable occurrence both before and during the intensive study period with some students having a greater alteration and experiencing a larger impact than others. As noted earlier, the increased levels of stress and anxiety experienced by some led to the isolation or 'drop out' behavior among some and a more aggressive, unpleasant demeanor in others.

Competition. In many ways the feelings of guilt and fear are precipitated by the inherent competitive nature of medical school (AAMC, 2014; Dyrbye & Shanafelt, 2011). This competition has an affective component to it as well and most seem to possess it. There is an ongoing worry that others are more prepared or working more effectively to attain a high score. This is one reason why students don't want to be around each other; they don't want to hear how far along others are because it will make them feel either 'not as good' or it will potentially give them a 'false sense of security.' An M3 student shared, "The whole process in general is competitive; you're competing with people to get into med school …so the whole process has this underlying, inherent competition to it…you can't discount that we're all competing for residencies in a few months, after that we're going to be competing for jobs. It's there –you can't really get away from it." Students, faculty, and administrators acknowledge that the environment around medicine is highly competitive and thereby likely increases stress, thus negatively impacting wellness. The added burden of the USMLE only exacerbates that stress.

Aligned with that competition is the development of peer groups, whereby those who are deemed 'more intelligent' spend time mostly with each other; sometimes exclusively, believing that those who do less well on exams should not be in their circle.

One student shared with me that there is a certain clique mentality that has developed around STEP in her class. Another stated that, "I think people are on edge much more and I think people have broken off; it feels a little cliquier. People have found people they are okay sharing how they are studying; those they feel more comfortable with." (AM-M2). This same M2 student may be one of the more confident students alluded to. He also shared about his study group:

> We've all done a good job, I mean like my friend group, at being like ahead of the game. I feel like we got started on this stuff early; we all feel pretty good and the school has practice exams we do together and I did really well on the last one. I mean I'm passing already and I hadn't even taken Neuro yet and that's like one of the hardest ones. So I feel pretty good about what I'm doing. (JH – M2)

Other students, who maybe haven't scored as well on earlier tests, end up spending time together as well or end up isolating themselves and sticking to their own schedule for study. The changes and potential loss of social connection for these students likely contributes to a decline in overall well-being.

Theme 4: Psychological strains. As noted in the literature review, medical students, like residents and physicians, show an increase in psychological disorders as compared with the comparable population of the same age. The time when increases in these behaviors arise is during and after the second year of medical school (Dyrbye & Shanafelt, 2006; Dyrbye, et al., 2011). Throughout this study I sought to learn what medical students felt or believed as it pertained to the impact of the USMLE on various aspects of health and wellness. There is an exorbitant amount of importance associated with the exam that every student immediately emphasizes. From very early into their

medical school experience, the enormous weight of this one exam is anticipated and begins to have an impact on student well-being. One M2 student currently in the midst of her study shared:

> It makes me laugh that it's wellness you are studying because no part of STEP 1 relates; it is almost antithetical to wellness. We know it didn't used to be that way. It's so different for us now than it was. It's so much more stressful and it's like this is the most important test of your life. And it's coming from people who've probably done amazing on SAT and MCAT and now you're being told like this is the big one. I don't think they are trying to stress us out. It's just true and that's the state of medicine right now. (MC-M2)

As relayed from this student, the importance of this exam has grown tremendously in recent years and is readily acknowledged and seemingly accepted as are the increased stress and negative impact on well-being that accompanies it. The enormity of the exam permeates the student atmosphere and is exacerbated in the months during which the intensive study takes place. The following comment from a student affairs administrator comprehensively addresses the dropping off that occurs in wellness activities and impact he believes it has psychologically.

> I've seen the way that it impacts people. They give up exercise, sleep, and relationship time. And it's not unusual for me to see people around April that start crashing because their routine was changed. The things that kept them good psychologically; they gave up on and all of a sudden it's a duo fold thing because you have the stress of USMLE and the fact that they've electively given up their strategies at managing stress. So both of those happen at the same time.

With the intensity of the study preparation consuming medical student lives in the second year, there is less time for traditional wellness activities like exercise, eating well, socializing with friends and family, and just enjoying some down time. The combination of the increased stress with the decreased wellness activity likely leads to the reported and observed increases in psychological issues.

Anxiety. Asked to share the first thing that came to mind when thinking of the USMLE, students almost uniformly mentioned stress and anxiety. References ranged from a mild underlying unease that persisted throughout the entire M2 year to an anxiety that continued to escalate and impact the day-to-day life of some students. From the M3 focus group:

> In general, I'm a very anxious person, I have been my whole life. And I think that really blossomed in medical school. I think my general anxiety, there were moments in the last few years where it has just defined me (another student – You're not alone). And I think that is something that I've sort of realized about myself. It used to be that people would say, she's just hard on herself. It got to the point where my friends and family were like, 'Are you okay?' and I was like, maybe I'm not. Maybe I don't have to feel this panic, anxiety all the time. It definitely has forced me to recognize that and deal with it.

When conducting a focus group with M4 students, the exam was compared to 'a time of war', in that stressors are exceedingly high and students need to be at full capacity at all times. Some described having an emotional reaction to the test. One female student spoke of guilt, crying, anxiety, stress, anger, and an impact on relationships. The focus group uniformly said they couldn't go through the process again. Their depth of

emotion and feeling was surprising to me as I had anticipated that the M4 students, who were over a year away from having taken the test, would have a milder, more attenuated perspective. Instead, they were passionate about the impact of the test, some describing it as 'evil', and all agreeing that it overshadowed much of their medical school life from "day one through the completion of the test, and beyond".

> Oh my god it's like some days you don't get sleep. Some days the pressure just hits you and all of it starts at once and you're not sure why. And your like, I've got to like calm down and just push this down. I mean this was happening since like September of this year so… I know one person who during our first exam of second year, they had a panic attack and were just like 'oh my god' we're going to be taking so many of these tests. And they had to talk to an Advisor. I had the same thing; I had too many bad questions in a row and I was like, I hate this! Why do we do this and make it such a big deal and then it was just, I had to push it away. It's not going to help you to go down that avenue. (MC-M2)

In addition to the specific instances of stress and anxiety that students described in my interviews, many exhibited rapid speech, tense body language, and a frazzled appearance while studying for the exam or when speaking about it. In my field notes, I have multiple references to the 'frenzied' demeanor or the nervous energy that the students were emitting. A second year student shared that "I feel like I pay a lot of attention to the energy I get from people and how they make me feel and understandably some people just don't have good energy around them right now." The enormity of the process ahead of them tends to weigh heavy on students throughout their second year and culminates in the more intensive emotions, including stress and anxiety, particularly noted in the weeks

leading up to the exam.

Depression. Although only a few students verbalized that they were feeling depressed while studying for and anticipating taking the STEP 1 exam, attitudinal descriptions and observed behaviors indicated that the prevalence might be higher than reported.

> It's been hard to motivate to do the other things that make me happy because I'm exhausted from studying or because I feel like I need to do more studying, um, and that's been the weirdest part. The lack of interest in doing things that I like to do. I have to force myself to do those things…but it's weird; I just feel so exhausted mentally. (JT – M2)

One male M2 student noted that he was "not himself, just feeling pretty down I guess", while another male M2 stated "it's really harder to get out of bed these days". Some said they felt depressed during their M2 year because they were unable to live their usual lives. As noted by JT (M2), "When you wake up to go study and then you go study some more and then you come home and study some more, it's just there is no variety to my day. It all just comes together and it's depressing. Saturdays and Sundays aren't even days off any more." The intensity of the ongoing study and the inability to tend to areas of wellness is their lives puts an emotional strain on students leading to increases in depression.

The pressing demands of the test preparation precluded them from having typical social interactions with friends and family, impeded their sleep and eating patterns, forced them to curtail physical exercise and relaxation time, and negatively impacted their emotional well-being since they were always thinking about the test. Without

provocation, most students interviewed shared the ways in which the test negatively impacted their normal day-to-day well being.

> It's interesting that you brought up depression. Almost like everyone that I've talked to, who I talk to about emotional things, has had a bout of pretty serious depression in med school. And it's just so commonplace that it's not even like a big deal. Like you know you hear people joke around like maybe I'll just get in a car accident and like that's pretty grim. And like everybody hits it and we've all hit in like similar spots and it saps you of energy... I know I had a point where I was just sitting and watching TV and I didn't want to talk to anyone, didn't want to talk to my boyfriend, didn't want to move and like you're doing that with all of that pressure of you should be studying. So it's like regular depression, but a little bit extra. (MC-M2)

In general, most noted that all aspects of life outside of the test were put 'on hold' during the intensive study period, including family, friends and other passions. When probing for depression in interviews, students agree that it is definitely something that is prevalent among the group. One student commented that "almost everyone in medical school goes through depression – it's like the norm". These findings are aligned with research conducted by Yousouff, Mat Pa, Esa, & Rahim (2013) that indicated increasing rates of depression and burnout among medical students as compared to a comparable group of non-medical school peers.

Anger. Several of the students interviewed shared that the test itself made them very angry because it has metamorphosed into something it was never intended to be. While originally designed only to be a pass/fail exam measuring whether or not a medical

student had attained an adequate amount of knowledge in the basic sciences to prepare them to begin their clinical years (Tompkins, 2011), it has now become a tool by which residency directors across the country are able to narrow the ever-expanding pool of applicants, particularly for the more competitive fields such as surgery and dermatology (McGaghie et al., 2011). Students spoke of the inordinately high stakes that have become associated with the test due to the critical role it plays in their success at attaining a desired residency. For some, it evoked deep feelings of anger. One seemingly arbitrary test can make or break the life-long goals of a student.

> It's kind of ridiculous that we put so much stock into it. It's such a determinant to what kind of program we can get into. Like if you have an average score, people say you can't get into Ortho or something. I think it's silly that one number can have such an impact. So when I think of words I think 'stupid'! I think everybody knows its garbage and it's easy to see how much it weighs on people and it's really horrible. I feel like I wish there was something I could do to make it easier for the M2s now because I know they are so worried about it. (CK – M3)

Others students commented that they, themselves, were uncharacteristically edgy and short-tempered and believed the test contributed negatively to their personal relationships. Two quotes from different students follow:

> I'm someone who has such a long fuse, but during STEP, the slightest transgression and I couldn't handle it. I was like, 'you're chewing your food too loud'. And my wife was like 'what is wrong with you?' I don't know. It's everything. (BM-M4)

> I think I lost the potential for a decent relationship with someone because of

STEP. Like the little things that normally wouldn't annoy me began to annoy me too much. It was like, what do you mean you want to watch a movie, I've got like 40 more questions that I need to do. (MC-M4)

From the observer vantage point, several students commented that they noticed a change in tone among their peers as the intensive study period and actual test taking approached. Some described their peers as volatile, short-tempered, judgmental, and arrogant. One student actually had to have a conversation with one of her peers because he was just becoming too insulting and aggressive. Being around students in this mode was off-putting to several students who referenced it as a contributing factor in their choosing to study off-campus, away from their peers. Even staff and faculty have commented on the short tempers and aggressive behavior noted among students during the intensive study period. As noted in the 'coping reservoir' theoretical framework (Dunn, Iglewicz, & Moutier, 2008), the lack of positive wellness inputs often leads to an outward expression of unwell behaviors.

Guilt and fear. Overwhelmingly, this was one of the most common themes referenced by virtually all of the students to whom I spoke. "It seemed there was never enough time in a given day to accomplish all that needed to be done. There was a lot of guilt and I definitely made some unrealistic study schedules and then felt guilty when I couldn't meet them (HM-M3)."

It's hard because when is enough, enough? I don't know what a normal day is any more. Now I'm like I don't even know what I'm supposed to be doing. The time that I'm giving myself…. how long should my showers be, how long should I talk to my boyfriend? Or how long should I be on the phone with my best friend. Like

it feels good and important but I still feel guilty doing that. (DH-M2)

Many students spoke of the excessive amount of other required work that distracted them from time that they would have preferred to be studying for the STEP exam. “It’s really scary before the intensive study period because you want to be studying but you’re still learning all of this new material. The test is like 6 weeks away and you’re still teaching me new information? So I have to go back and study everything, plus all of this new stuff.” (M3-focus group). Others just become overwhelmed and are concerned that any time not spent studying is a problem.

If they were doing required work for class that wasn’t STEP related, including working in the clinic, participating in volunteerism, or going to meetings, they were concerned that time they should be devoting to USMLE was being negatively impacted.

> It’s frustrating to me when people are flipping through index cards and stuff like that. I’m like you’re here to see patients; you can’t be doing questions or hiding in the back. I mean, I’m doing my part. You need to do the same. It’s just not fair, you’re really working hard and then someone will just be like sitting around and they’re leaving at 4:15 and I’m there until 6 o’clock. (RW-M2)

Several students noted, with irritation, that some of their peers were shirking responsibilities (such as clinic and volunteer work) in order to add study time. They felt this was inappropriate and in some ways unfair. The other form of guilt, which again, arose in almost every conversation, was guilt over taking any personal time. An M2 shared:

> My problem with maintaining wellness during the intense study period was I felt extreme guilt any time I stopped studying to do something for myself. Like, you

know, it was in the summer time and both of my parents had birthdays and Mother's day and Fathers' day; if I took off like half a day to go to a family day, I couldn't even enjoy it while I was there because the whole time I was there I felt so guilty that I wasn't studying. (JB-M4)

I would sneak off to the bathroom to do questions and that for me was the issue. I knew that in my brain I should be doing things for myself but I couldn't because that would make me feel worse. (MP-M2).

While there were a few students who recognized the value in social relationships, maintaining a fitness regimen and good sleep patterns, or simple 'down-time', the vast majority let typical daily living activities change to accommodate intensive study. By ignoring physical, social, and personal needs, students regularly deplete their capacity to maintain a sense of well-being, and therefore are primed to experience the adverse effects that include guilt, fear, and a pervasive sense of unease.

Theme 5: Regimentation of life. All students spoke of the need for an organized approach to studying for the USMLE. While some had a clear schedule for how and what they would study from early in their second year, every student I spoke with had a detailed schedule for the 'intensive study period' which is the six to eight weeks prior to the exam when all other course work is complete and the students solely focus on the STEP 1 exam.

This is the most scheduled I've been in my whole life. I keep a very detailed Google calendar where I schedule in free time. I think there will be heightened anxiety. I'm prepared for that because I know it's coming. I've maintained physical wellness, if not actually maybe more because I've become more goal-

oriented and know what I want to do when working out. I have goals. *Anything not regimented in your life right now?* Oh my god, no. That's so sad. Even my meals, which I got a meal service this week and they send you, like exact portions of things. Wow! I am on the edge. Pretty sad. (MR – M2)

Regimentation around the USMLE was not only encouraged by faculty and staff, but in some cases mandated. CMSRU has two learning specialists who work with the medical students throughout their education helping each student to design a study plan around the USMLE (attachment B). While not every student takes advantage of the learning specialist, those who do not perform well on preliminary test exams (Comprehensive Basis Science Self-Assessment or CBSSA) designed to mimic the USMLE test, must work with the learning specialist to create an organized approach to how they will study for the exam.

Schedules have every day of the intensive study period planned and accounted for. For some, the level of detail includes eating, bathing, and hours of sleep. Many are so regimented that there is virtually no time for outside activities including socialization or exercise. Most students shared with me that if they veer from the planned protocol they experience stress, anxiety, and guilt. There is a seeming inability to venture off of the planned path, which, from a wellness perspective, seems to diminish the six dimensions of wellness (National Wellness Institute). For example, many describe sleep deprivation, poor nutrition and diminished eating habits, lack of socialization, decreased or non-existent physical exercise, lack of awareness in what's happening in the world around them, and in some, a loss of excitement around their own chosen field of study, medicine.

Ritualistic behavior. Several students described behaviors that one would call ritualistic. These behaviors included wearing of the same clothes for all tests, including the USMLE, eating the same foods around the test, duplicating behaviors previously associated with successful test-taking. One student spoke of listening to the same song multiple times prior to the test (a ritual she regularly practiced prior to taking exams in medical school). Another noted that prior to the test he did a dry run of the day prior to the test, including getting up at the same time he would the day of the exam, walking to the test site, and actually taking a full 8-hour test exam at the site, in order to be mentally prepared. This type of behavior was not uncommon among students interviewed. An M3 commented, "I remember every morning I would study in the same room with the same person and I'd eat the same thing. Within about 2 weeks of doing it I legit thought I was going to lose my mind." The monotony and consistency of behavior seems to be comforting in that it provides a clear path to what needs to be done, yet the potential implications are detrimental to wellness.

Obsessive nature of material use/gathering. Students uniformly had a myriad of support study materials that they had gathered to support their studying which included flash cards, question banks, the books First-Aid and Fundamentals of Pathology, practice exams and more. Some students seemed to be overwhelmed by the sheer magnitude of potential study aids, while others had clear systems in place and timing around when they should be using and completing various tools and sources of material. The following dialog is from one of the focus groups (M4) discussing their study materials:

> For STEP I was like a lunatic with questions; when doing questions, I couldn't end on a wrong question. I'd have to do ten more.

Total type A. I still have this composition book that was my life. If I made a great multi-colored chart and one thing went out of line, I'd have to rip it up and start over.

Yes…you couldn't scribble it out. Really good OCD….

First Aid was on paper and it changed every day. Like, I should have insured it.

The physical computer was part of STEP because there was so much material there. Remember my like 6-gigabyte presentation?

Some students created very intricate and elaborate study guides (attachment C) to assist in their memorization or comprehension. Ethnographically, I observed patterns in behaviors with some studying at exact times and places every day. Issues arose regarding students who appeared to be 'squatting' in certain areas of the medical school building leaving food and clothes in certain spaces. I found yoga mats and meditation pillows spread out in small rooms suggesting that some students might be sleeping in the building (Attachment D). One student appeared to be wearing the same clothes every day for several weeks. While the scheduling and intensive planning developed for STEP study helped to guide students through the process, the sheer volume of work diminished or completely eliminated time for any other activities. Additionally, the importance assigned to the exam may have inspired some degree of fanaticism. The unanticipated and unwanted outcome of non-stop studying and compulsive question and material review is decreased wellness, expressed either physically, psychologically, emotionally, or otherwise.

Theme 6: Better balance. While the majority of students I interviewed seemed to be out of balance when considering the wellness parameters, there was a subset of

students, particularly in the M3 class, who seemed to have an established and well-balanced way of looking at preparing for and taking the USMLE that not only preserved but possibly enhanced their well-being.

> In a weird way, this was one of the healthiest times of med school for me so far because it was so regimented and I knew how physically and mentally well I needed to be. Every single day I was working out and eating well. I wasn't going out and partying, I was sleeping well every single night. So in that way it was a really healthy time of med school with the caveat that there is no way you can keep doing that past two months without burning out.

This subset, mostly male, scheduled exercise and 'wellness time' into their lives. In some cases, they felt that during preparation for STEP 1 that they were in better shape than they usually were simply due to the way their regimented lives incorporated time for exercise, sleep, and socialization. An M3 stated that, "after college I made sure to take time out; I looked into mindfulness and meditation and it helps me to be present and I think about that a lot." Several of these same students spoke of a knowledge of Mindfulness Based Stress Reduction (MBSR) and being 'present' and how their prior understanding or education in this way of thinking was beneficial to managing the stress of exam preparation.

Another subset of students that seemed to be managing the pressures of the testing was those who had been high-level athletes in college. "It's not really different than a big season, I mean the same things apply, feed the body well, sleep well, give yourself some down time and you will perform. Don't take care of yourself and you will be less than optimum." These students described that they managed the stresses of the USMLE in a

manner similar to the way they would prepare for high stakes games or athletic events. They described planning time for their well-being to include insuring they were getting adequate sleep and nutrition. Additionally, they spoke of scheduling in 'down time' or social time; whatever it was that would help them to relax or to recharge. For this group, the regimentation helped to insure that they not only studied in a well-organized and regular manner, but also maintained and enhanced their wellness by setting regular goals for themselves across most of the wellness parameters.

Across the Years

Each of the medical school year classes (M1 through M4) were independently reviewed and analyzed regarding their experiences and interpretation of the impact of the USMLE on their well-being and self-care.

M1. Overall this group of students was aware of the USMLE exam and trying to mentally prepare for it. They described it using words and phrases such as: scared, overwhelming, loss of social connections, 'most important test of my life', stressful, causing you to 'drop everything and fall off the map', burnout, and extreme anxiety. While this group anticipated increased anxiety, regimentation, structure, and giving things up, for the most part the whole concept of the test was largely theoretical to them in their first year of medical school. There were several students who had known about the exam since their undergraduate years and others who only learned about it since coming to medical school. All agreed that both faculty and older students build the significance of the exam up to a great degree and thereby increase their fear and intimidation of the test. This group expressed that there is a great deal of competition among their class and that they know they will have to "give up a lot of time where I

should be doing other things". In effect, they intend to drop certain activities (some personal and some related to the curriculum) in order to focus solely on attaining a strong USMLE score. A large emphasis was placed on the anticipation of more competition and intensity as the test draws near with a commensurate loss of fun and things they enjoy. While these M1 students hoped to be mindful of their wellness during the study time, to have structure and balance, they anticipated being stressed and 'dropping out'.

M2. During much of my study, the M2 class was in the midst of their intensive study period and I was unable to get them together for a focus group. However, when I provided the opportunity for one on one interviews, I had an unusually positive response, so much so, that I could not accommodate all students. This group seemed to be particularly competitive and noted the same among their peers. Among the group, most described that there were different cohorts of students in their class. Some were described as arrogant, aggressive, and competitive. Others were described as obsessed, nervous, anxious, and fearful. All understood and agreed with the magnitude of the STEP importance on their future careers and on the major impact it was having on their current lives and well-being. This group most clearly described what they were depriving themselves of in order to maximize study time. While some were taking the test early to save time for vacation, most were planning to take the exam in mid-June. All but one student I interviewed throughout this study knew the exact date and time for the exam and had a game plan in place not only for how they would prepare for the test, but for how they would spend the day before and the day of the exam. In this class, I noted that there was a subset of students, largely male, that appeared very confident and assured me that they would get a good score on the test. I did not find this to be the case with female

students. While there were two women who shared with me that they felt they would do well on the test, the vast majority expressed a concern and fear about what the test would be like and how they would do on it. This is an area that would be interesting to further explore. I also found that those students from underrepresented backgrounds (African American and Latino) seemed to share the same apprehension and uncertainly around the test as the majority of women.

M3. The M3 class seemed to have a somewhat evenly distributed dichotomous experience of the STEP 1 exam. While half of the class described feeling overwhelmed and 'super stressed' using descriptors such as misery, guilt, stress, frustrating, all-consuming, terrifying, and ridiculous to describe the test, the other half seemed to have figured out a certain balance and ability to manage through the stress of the exam and described the exam as a necessary milestone or obstacle to overcome. From this group I heard that 'anxiety blossomed in medical school', that 'me in medical school is just a different person' and descriptions of a general low-level of wellness that made it easy to break down. They described pre-test rituals and post-test drinking binges that occurred throughout medical school, including around the USMLE exam. Others from this group spoke of the test turning people into 'obsessed, all-consumed beings' and of 'taking a break from the world; like you're in a bubble'.

As noted, I found it interesting that in this group there seemed to be a cohort that was able to manage a relatively healthy life despite acknowledging the increased stressors. Many from this group talked about how they made a conscious effort to maintain their physical exercise, to eat healthy, to schedule in time for friends and family, and to get adequate sleep. I was impressed with a few that were able to clearly outline

their 'healthy habits' and describe how and why they maintained them throughout the exam process, mostly to insure they were optimally prepared for test. A few even mentioned that they were healthier than usual during the intensive study time because they knew how critical things like sleep and allowing time to 'decompress' were. During my focus group with this class, they nicely summed up their perspective on the USMLE in the following exchange:

> You are given a break from the rest of the world – because you can tell others 'do not contact me'. I was in this nice little bubble where I really didn't have anything else to think about.
>
> It definitely had a negative impact but there were things that did help; my mom made me food.
>
> USMLE is not unique as a poor wellness time of our life. Just another stepping-stone – applying to med school was hellish. The MCAT felt similar. But each step of the way you look back and you're like – it wasn't that bad and you kind of laugh.
>
> (Because you're crazy……laughter).
>
> The field we're going into is pretty insane. We feel overwhelmed now in the hospital and we're not even at the level we need to be. Every year gets harder and harder so it's necessary to go through some improvements and wellness strategy.
>
> It sounds like we are weird prisoners of Stockholm syndrome… (Laughter)

While the majority of the students I interviewed seemed to be out of balance when considering the parameters of their wellness, similar to the M2 class, there was a subset of students in the M3 class who seemed to have an established and well-balanced way of

looking at preparing for and taking the USMLE that not only preserved but possibly enhanced their well-being.

> In a weird way, this was one of the healthiest times of med school for me so far because it was so regimented and I knew how physically and mentally well I needed to be. Every single day I was working out and eating well. I wasn't going out and partying; I was sleeping well every single night. So in that way it was a really healthy time of med school, with the caveat that there is no way you can keep doing that past two months without burning out.

As was the case in the class behind them (M2), this subset of students was mostly male and scheduled exercise and 'wellness time' into their lives. In some cases, they felt that during preparation for STEP 1 that they were in better shape than they usually were simply due to the way their regimented lives incorporated time for exercise, sleep, and socialization. Several of these same students spoke of a knowledge of Mindfulness Based Stress Reduction (MBSR) and being 'present' and how their prior understanding or education in this way of thinking was beneficial to managing the stress of exam preparation.

M4. All M4 personnel interviewed had what I felt was an exceptionally passionate response regarding the USMLE. They described the exam as evil, intense, anxiety provoking, 'all I talked about', the 'climax of stress and fear', isolating, and 'anytime I wasn't thinking about it I felt guilty'. In addition to the large impact they noted it had on their emotional well-being, this group clearly felt it affected their personal relationships. One student felt it was the cause of a break-up, another had to be away from his family for over a week, and yet another had to isolate herself from everyone

because it was “just too much to handle”. This group also described what I deemed to be extreme ritualistic behavior, including wearing the same clothes to every test, eating the same food, listening to certain songs, etc. Behaviors described were comparable, in my estimation, to what one hears that baseball players do around important games.

Findings from this research showed both similarities and differences among the four medical school years.

Similarities. There was complete agreement among all students that the exam was a huge part of their lives and something that was life consuming. From the M1 to M4 year, the depth of understanding regarding the USMLE and its omnipresence in one’s life changes and is most intensely experienced and expressed among those in the M2 and M3 years. There is almost universal agreement that the test has taken on a life of its own, negatively impacting personal wellness and potentially the academic life and curricular emphasis of medical students. The primary areas of wellness that are affected by the test include emotional, physical, and social well-being.

Differences. There were several major differences in the impact of the USMLE on wellness across the four years. Wellness of first year students is, for the most part, not impacted at all. They are merely aware of what is to come and many are already psychologically preparing for that eventuality. Second and third year students are most significantly impacted by the intensive study for the exam. While they anticipate it will be challenging, for most the actual experience is far more difficult than expected and has a more deleterious effect on multiple wellness parameters than expected. Finally, in the M4 year, some students suffer from post-exam effects (mostly emotional and physical), in that they have a new reality to contend with and /or their prior good habits have been

curtailed, perhaps indefinitely.

Self-Described Impact on Wellness Parameters

Throughout this study I have used the National Wellness Institute definition and wellness parameters combined with the Dunn, Iglewicz, and Moutier (2008) coping reservoir theory to guide my research. In each of the in-depth conversations I probed to learn what, if any, impact the USMLE had on the various wellness components. Students shared that each of the parameters were altered in some way by the exam preparation with the exception of spiritual wellness which the vast majority of students claimed was not impacted during the exam study period.

Physical. The vast majority of students felt that the USMLE and preparation for it had a negative impact on their physical wellness in that they curtailed or discontinued traditional exercise patterns such as going to the gym or running. Many noted that typically exercise helps them to feel good about themselves and they believe contributes to their overall well-being. The decreased amount of time spent engaged in physical activity did make them feel bad and some definitely noticed that they were not in optimal shape post exam. One student tried to incorporate regular exercise into her study regimen but said that when she couldn't keep up, it made her feel like a failure and that was something she "didn't need on top of the stress and anxiety of the test preparation".

Others noted that their sleep patterns were altered; either sleeping far less than was optimum or waking up frequently and not ever feeling rested. Some said their eating habits were adversely affected in that they either ate unhealthy foods, gained weight, or in the following instance forgot to eat enough.

This is going to sound ridiculous but it's honestly what happened. So after the

> intense study period when I started getting back into things, I realized I had lost almost 10 lbs. And I went to the doctor because I didn't even remember that I wasn't eating and taking care of myself during the study period. And they legit were concerned that there was something very seriously wrong with me because I lost 10 lbs. in like a month and a half. It turns out that it was absolutely nothing other than I had never dealt with that degree of anxiety before and you know it sounds really extreme but it's what happened. (JB-M4)

From a physical vantage point, all students agreed that the exam impacted their physical well- being. While a few felt personal wellness improved due to the regimentation of their lives, the vast majority noted many ways in which it was curtailed and believed that the altered state of self-care could ultimately not be sustained.

Emotional. Overall, most students felt that their emotional wellness was negatively impacted by the USMLE. Many commented on increased stress and anxiety with several noting that their overall sense of wellness was less than normal during the study period. Students also shared that they felt 'low' or depressed during this time. Lonely, isolation, fearful, miserable, edgy, and scared were emotional terms that were commonly used to describe how certain students were feeling.

> My emotional life is definitely impacted. Stress for me, like I'll cry at nothing. I will find myself getting worked up and crying for like no reason. It's definitely because of stress sitting at a certain level. And especially since spring break there's been this line, like this baseline that's elevated. Certain things will put me over the edge that probably wouldn't have prior. (KL – M2)

Considering the emotional well-being of their peers, most students noted that others were

more ‘edgy’, short-tempered, angry, and stressed. As noted earlier, the perceived feel of the class and students in the building was often referred to as anxiety-provoking and cited as the cause for many students not wanting to be in the building or to be around their peers during the intensive study period.

> A lot of people tend to be very edgy and that’s why I try to avoid being around a lot of them… Like type A, really OCD situations and it’s not enjoyable for me so I’ll be looking forward to getting away from some of them in third year. I know that’s rough to say. (RW-M2).

Many students do not want to appear weak or vulnerable to the faculty or administrators nor to their peers. Perhaps this is one reason why the faculty and staff I interviewed, while acknowledging that there was some degree of stress and isolation associated with the STEP exam, didn’t seem to grasp the full intensity of the impact that was expressed by the students.

Social. Every student I spoke with agreed that their social life was impacted in one way or another during the USMLE preparation. For some that included the entire M2 year and for others it was largely relegated to the 5 to 8 weeks of intensive study just prior to the actual test. Students uniformly spend more time alone and less time with friends and family.

> My boyfriend I had a fight recently where he literally just asked for an hour of time and I was just in this place of, it was the week of an exam and I was like I can’t give that to you. And I totally could have and he was just like talking me down, like you have an hour at the end of your day. And it’s not like everyone’s studying during this time it just means that I wanted to study, not that I am. (M2)

Although many referenced their social engagement with loved ones and friends as beneficial to their feeling of wellness, many cut themselves off from social interaction because it was too much of a distraction from their planned study time. A few students felt that the exam and medical school in general negatively impacted their social lives and some reflected that they were really missing out on a great time of life. It was hard for some to sit back and watch their friends from college go on trips and to parties, get involved in serious relationships, marry and have children while some felt 'stunted' and unable to progress in that arena until finished with medical school. One M2 noted "I don't want to look back at my 20s and be like, I was miserable in medical school and I didn't do anything fun; I didn't make any memories while I was there". (SQ-M2)

> Regarding personal relationships, one student described:
>
> Well I'm currently not in a relationship but I think it would be really hard to be in a relationship. Like the quasi- relationships I've had recently, um, have definitely taken a big back seat. Like I didn't see this person for weeks and it was really hard to reconnect after that (JT-M2).

He and other students spoke of not being able to manage a serious relationship during this time and a few talked about personal relationships that ended during the USMLE preparation time because they just weren't able to be there and really participate. Of note, those students interviewed who were married or who were living at home with their parents seemed to have a healthier description of their social experience during this process. They also seemed to have felt they had a 'safety net' and described it as nice to have someone to accept what was happening in their lives unconditionally and still be there for them.

Intellectual. This wellness parameter was interpreted differently by students. Some felt that it was referring to their learning and knowledge of medicine which most felt was growing a great deal. Several commented that they never realized they could know so much about a subject and some felt smarter than they ever had before. Others felt that intellectually they had become singularly focused and therefore didn't know anything else that was happening in the world. Some described that when they were with people from outside of their small medical school world that they felt they couldn't really engage and felt as if they were "living on another planet" because they didn't know about anything that was happening in the rest of the world. Some others commented that it had been "ages since they had read anything other than test prep material", that they felt as if they were "living under a rock", and that it would be nice when they, once again, could read a book for pleasure. Sometimes it seemed as if they were nostalgically reflecting on life in another time and wondering if they would ever again be able to enjoy that easier, simpler time.

Occupational. For this aspect of wellness, most students commented that they considered their current medical school curriculum and the STEP preparation to be their occupation. From that vantage point, most felt that it was the paramount part of their lives and that they were doing a great job of working hard. Others considered the test prep as either supporting their decision to be a physician and in a few cases causing them to reconsider their chosen profession. Some were reconsidering because they were unhappy with the emphasis placed on the exam as compared to the actual job of caring for patients; some felt that the intense pressure and competitiveness they experienced around

the USMLE might be representative of the field they were entering and therefore, they may need to reconsider either the profession of medicine in general or which specialty that they would choose.

> It kind of makes me roll my eyes when the school talks about wellness and balance because I know they mean it but I know so few doctors who actually have wellness in… like you go into a hospital and you know how many of them are like abusing pills or drinking and are just... And you can tell when some of them talk to people, they are like miserable human beings and you can just like tell with a few of them. I don't know. I'm just frustrated with how much is expected of you in terms of not having feelings and how much you're supposed to repress things I think. (MC-M2)

A few students considered their outside work in the community and service to be their occupation and felt that it was severely curtailed during the study time. One student during intensive study commented that this aspect of his wellness was "Miserable…probably taken the biggest hit. Because I was teaching for an organization that gave care to the homeless and I've dropped it because I have no time and I feel like I'm contributing nothing. I am getting very little joy out of my day. "(JT-M2) As an important part of wellness, as defined by the National Wellness Institute, a lack of meaning and purpose in life can negatively affect one's psychology and emotional well-being. Once again, lack of attention to those aspects of life that bring joy was shown to adversely impact medical student wellness, particularly during the intensive study time.

In summary, for this wellness parameter, students were on one of two ends of the spectrum, either believing they were excelling due to the hard work they were doing

attempting to learn all of the material to prepare them for STEP 1, or that they had abandoned the real work of 'doctoring' or service in order to prepare for the major exam.

Spiritual. Although several students commented that they are not spiritual, the majority felt that their spiritual life was not impacted by the USMLE. Some students referenced that this part of their life was important to them and something that they leaned on during test preparation and during medical school in general. A few mentioned that they may have curtailed 'going to church' during the intensive study, but most stated that their spiritual life did not suffer as a result of the USMLE. An M3 stated, "Around that time I was going to church pretty regularly. I have a good relationship and talk to God; probably more around that time, I think I said more prayers." If anything, students who were spiritual seemed to lean more on their spirituality, in a healthy way, during the intensive study period. While most were not spiritual and therefore felt that there was little to no impact on wellness, those who were spiritual, were mostly able to maintain that aspect of their life and therefore the STEP preparation likely did not negatively impact their wellness.

Conclusion

Ultimately, this research clearly showed that the USMLE exam has a strong impact on the well-being of medical students. Of paramount note, was the consistency and intensity of description around the psychological changes that students experience during the course of their study. Stress, anxiety, depression, guilt, and anger are all more prevalent in the second year of medical school and are exacerbated during the intensive study period. Isolation and 'dropping out' were also noted to be extreme behaviors that might contribute to the psychological distress that students experience since it adversely

impacts the social interaction arm of wellness.

Of the NWI parameters assessed throughout the study, those that were significantly impacted included physical, social, and emotional. To some extent and for some students intellectual and occupational wellness were affected and largely, spiritual wellness did not seem to suffer as a result of the intensive, high stakes exam preparation.

Chapter 5

Discussion, Implications, and Conclusion

The purpose of this ethnographic, qualitative study was to examine the extent to which the anticipation of, preparation for, and implications of the United States Medical Licensing Exam (USMLE) contribute to medical student stress, wellness, and self-care. The primary research questions that guided the study were: how do medical students experience the USMLE as a part of their medical student education, and what differences are observed among medical students across the four-year spectrum of medical school regarding the USMLE and how it relates to student wellness? I employed qualitative interviews and focus groups with students across all four years of medical school at Cooper Medical School of Rowan University (CMSRU), as well as with faculty and key ancillary personnel. In addition, I employed the ethnographic tools of participant observation and journaling to add an alternate perspective regarding the reality of the medical student experience (Wolcott, 2008). Through a constructivist approach to grounded theory, the research methods used were designed to be systematic yet flexible as I collected and analyzed data (Charmaz, 2014). I explored how perceptions, behaviors, and impressions among medical students and key ancillary personnel explained views toward and the impact of the USMLE on the health and well-being of medical students.

The following sections discuss findings reviewed in Chapter Four and their implications. Findings included that the exam was all-consuming, caused isolation and issues with peers, led to multiple psychological stresses, encouraged regimentation of daily life, and finally, that some students were able to successfully navigate through the challenging study period. How these findings contribute to the current body of

knowledge around the STEP exam will be reviewed as will the potential role of this research in future policy, practice, leadership, and ongoing research.

Through this study I gained perspective on the significant role the USMLE plays in the lives of medical students and their well-being. This information shared broadly, has the potential to alter the current environment related to the test, advocating to either decrease the high stakes nature of the exam, or to provide additional support to enable students to successfully navigate through the process. In concluding, I will discuss recommendations moving forward.

Discussion

This chapter will connect the findings reviewed in Chapter Four with the research questions, literature, and theory that guided the overall study. Research questions follow:

1. How do medical students experience the United States Medical Licensing Exam (USMLE) as a part of their medical school education?
    a. How do medical students describe their sense of each dimension of well-being as it pertains to their impressions and experiences of the USMLE?
    b. What factors contribute to and/or detract from medical students' perceived personal wellness as it pertains to the USMLE?
    c. How do medical students and significant medical education collaborators describe the impact of the United States Medical Licensing Exam (USMLE) on the self-care and well-being of medical students?

2. What differences are observed among medical students across the four-year spectrum of medical school in regard to the USMLE as it relates to student wellness?
    a. What differences in attitudes regarding the USMLE are reported by medical

students across the four years of education?

b. What are the behaviors and attitudes of medical students toward engaging in personal self-care in relation to USMLE testing?

Several major themes have been identified and will be discussed at length in this section. Each of the six parameters of wellness as defined by the National Wellness Institute were considered in the context of this study including assessing the perceived connection between wellness parameters and the USMLE. In addition, an observational analysis of attitudes toward the USMLE and its relation to wellness across the four-year medical school spectrum will be covered. Finally, this chapter will address the extent to which key findings identified in Chapter Four support, confirm, and contribute to the reviewed literature and theoretical assumptions set forth in Chapter Two.

Medical student experience. The first research question sought to understand how medical students experienced the USMLE test as a part of their education. Across the spectrum of the four years, all students described the test as life-consuming and stressful. These findings were very much aligned with the research that has shown that medical students experience increased levels of emotional and psychological difficulties (Dyrbye, 2008; Kligler, Linde, & Katz, 2013) with up to 45% of students reporting burnout (Kligler et al., 2013). Research from Moffatt, McConnaichie, and Ross (2004) found depression and anxiety are 25% to 50% higher in medical students than in other graduate students. This study echoed the high prevalence of psychological and emotional distress seen in among medical students, particularly as they prepared for the USMLE exam.

As noted in Chapter Two, the origin of the USMLE test was simply to serve as an

initial checkpoint along the path to medical licensure (Tompkins, 2011) but over time it has transformed into something much more daunting. As Tompkins (2011) noted, "because medical students are aware of residency programs' tactics, the threat of mathematical elimination has bred a widespread sense of desperation regarding STEP 1" (p. 105). This research supports my original hypothesis that the desperation and fear experienced by medical students in preparing for this test are significant contributing factors in the reduced wellness behaviors and increased mental health issues that have been reported. This finding contributes to the wealth of quantitative research that highlighted the significant negative changes in psychological well-being and decreases in empathy (Dyrbye, 2012; Estabrook, 2008). While empathy was not specifically explored in this study, there was a strong majority of students reporting negative psychological changes.

In addition to stress, anxiety, and depression, this research also elaborated on the lived experiences of medical students as it pertains to the USMLE. Increased isolation and loneliness were described by many due to either a self-imposed lack of socialization or as a by-product of other students not wanting to be around them. This research indicated that in addition to wanting to study alone to be able to absorb the enormous quantity of material, students also separated because they tended to elicit stress in each other. That peer-stress was attributed to two types of students. Some bragged about their level of knowledge or their academic success while others were anxious and feared doing poorly. In effect, much of the second year became a time of independent study and mounting stress and anxiety or pressure and depression. Not emphasized in the literature, the intensity and pervasive nature of the exam may potentially preclude students from

enjoying a full and robust social experience in medical school. The question can be raised as to whether or not the breaking away from typical social life and increased isolation may serve to stunt the normal maturation trajectory seen in professional development.

Because we know that medical professionals, particularly physicians in training and physicians in practice, experience many psychological challenges at rates higher than the general population (Baldwin, Dodd, & Wrate, 1997; Estabrook, 2008), it is possible that this stunted or abbreviated socialization/maturation process occurring in medical school may contribute to the perpetuation and exacerbation of problems. This study clearly indicated that the short-term impact of the USMLE contributed to lower levels of wellness experienced around the exam while adding to the high pressure and intense nature of medical school. As reviewed in Chapter Two, data suggest that physicians and residents in training do not prioritize their own physical and psychological health (Baldwin et al., 1997) and that those affected by stress at work may go on to experience substance abuse, relationship troubles, depression, and death (Wallace et al., 2009). This research indicates that a lack of self-care and decreased wellness for future physicians begin as early as preparation time for the USMLE. Beyond the USMLE, medical school training is ripe for additional study and for the consideration and development of tools or methods that could attempt to alleviate the unhealthy environment in which medical students are trained.

NWI parameters of well-being. The first secondary research question references the six wellness parameters that the National Wellness Institute uses to comprise their definition of wellness. In each formal interview and throughout the research, I attempted to uncover the extent to which physical, social, emotional, intellectual, occupational, and

spiritual health were or were not impacted by the USMLE. In Chapter Two, the literature revealed that the physical and emotional aspects of medical students were clearly affected during medical school with students experiencing increased stress, mental illness, and suicide while losing empathy over the course of their medical education (Schwenk, et al., 2010; Yousoff, et al., 2013). This research confirmed that effect and elucidated the extent of the impact in many students who described weight loss, the need for psychological counseling, insomnia, and a myriad of other physical and emotional ailments that they attributed to the test preparation. Although the literature anecdotally speaks to the potential negative impact of the exam on medical students, prior to this research, the specific impact of the USMLE on student wellness had not been characterized in great depth or detail (Hojat et al, 2002). These findings while anticipated were more robust than I expected and add significantly to the literature.

While the physical and emotional effects were anticipated, the negative impact on social, intellectual, and occupational wellness that students reported and demonstrated were not necessarily expected. Of most interest was the finding that students dramatically curtailed their social lives, demonstrating an isolating behavior which included dropping off from clubs and other responsibilities, parallel study, and in effect, cutting themselves off from everything in the outside world for anywhere from five weeks to many months. The implications of this isolating behavior likely contributed to depression and may be additive to the suicidal tendencies that increase in the medical school years. I did not specifically discuss suicide with any of the students, although I did observe depressive symptoms in several. Students also spoke to their inability to socialize with friends and family and some remarked that they could not enter into or sustain a serious relationship

at this time because they were simply too preoccupied. Students also noted that relationships suffered at this time because of their short tempers or lack of capacity to engage with or be there for others. The negative impact of the exam on socialization, and intellectual and occupational wellness are additive to those medical student stressors previously identified by Goebert, Thompson, Takeshita, et al., (2009) as contributing to increased emotional and psychological difficulties including burnout (Dyrbye, 2008; Kligler, Linde, & Katz, 2013).

From an intellectual perspective, while most students believed that they were learning a great deal and "putting more inside of their heads" than they ever had in their lives, they almost universally commented that they were unaware of anything else that was happening in the world. Being so singularly focused with no space for anything else in their lives may be contributory to a decreased or slowed maturation process as it pertains to socialization and coping skills. While this was not something that I anticipated or considered in the literature review, it is a novel finding and a possible theme for future research.

This study, in employing the six NWI wellness parameters, included occupational wellness. While this parameter was not identified in the literature, in this study students had different interpretations of the meaning of occupational wellness and different experiences regarding how it affected them. Those who felt as though studying was their job and therefore that they were doing quite well did not deem the exam preparation as adversely impacting their wellness. Additive to the literature was the finding that those students who felt they were missing time to do volunteer work or another job and students who believed that the competitive and aggressive nature of the USMLE

preparation was causing them to reconsider if they had chosen the right field as a profession. Although most students still felt strongly about the field of medicine, the nature of the exam did contribute to a sense of disillusionment and for some was a cause to reconsider their field or their specialty. As noted in Chapter Four, burnout is a problem throughout the physician's medical career (Dyrbye, et al., 2013; Shanafelt, et al., 2002), and a lack of passion around career or a sense of disillusionment is contributory to burnout (Dyrbye, 2008). At this early stage in their professional development, it seems as though occupational wellness should be given more attention.

Across the years. The second primary research question and it's two secondary questions related to the perceptions of medical students as it pertained to the USMLE exam from various vantage points along their medical school career. Ultimately, the perceptions were very similar in each of the four years, but the second and third year students became the primary focus of the study since these students were either directly immersed in the exam preparation (M2) or had most recently completed it (M3). They had the freshest memories of the experience, and were living through the implications of the test results. This focus aligned with the literature which revealed that the most challenging time in medical school is comprised of the second to third years because this is a time in which empathy is reported to fall most precipitously (Estabrook, 2008).

Kligler et al. (2013), noted that third year medical students reported difficulty in making healthy lifestyle choices in the face of time challenges and that there was a tension between self-care and dedication to work. Similar to the findings in this study, students in the Kligler (2013) study claimed to have little time for preparing healthy food, socializing with family and friends, exercising, or sleeping due to the need to study. This

was corroborated by Moffat et al. (2004) reporting that positive attitudes and level of life satisfaction dropped significantly for medical students as they moved into the clinical years (M3 and M4). Preparation for the USMLE seems to be a pivotal time and potentially the tipping point at which established self-care habits begin to deteriorate as time is reallocated to address escalating study requirements. In Chapter Two, Moffat et al. (2004) indicated that there are a multitude of negative stressors in medical school, including the competitive environment, exposure to gross anatomy cadavers, early patient care exposure, etc., but that it is unclear what specifically triggers the emotional and psychological negative outcomes including depression, anxiety, and suicide. Results from this study suggest that USMLE preparation may be contributory or potentially a primary trigger for some of these negative effects.

***M2 and M3 years*.** These students either acknowledged or demonstrated particularly competitive behaviors themselves or from their peers. In describing their peers, some were recounted as arrogant, aggressive, and competitive while others were described as obsessed, nervous, anxious, and fearful. All understood and agreed with the magnitude and importance of the STEP exam on their future careers and the major impact it had on their lives and well-being. This group most clearly described what they were depriving themselves of in order to maximize study time; friends, sleep, exercise, etc. This deprivation was seen and observed in previous literature (Moffat et al., 2004; Kligler et al., 2013) but was paramount and extensive throughout this study and USMLE preparation.

Among this group, I noted that there was a subset of students, largely Caucasian and Asian male, who appeared very confident and who assured me that they would get a

good score on the test. I did not find this to be the case with female students, nor with students from backgrounds underrepresented in medicine (African American and Latino). The vast majority of these students expressed a concern and fear about the test, how they would do on it, and the impact it would have on their career. While I did not specifically seek to assess demographic differences among students, this finding was incidental to the study and is an area that would be interesting to explore further. I did not note specific references to differences among sexes or races as it pertained to confidence around the USMLE in the literature. This is a novel finding.

As noted, the majority of students seemed to be out of balance when considering their wellness parameters, but there was a subset that seemed to have an established and well-balanced way of managing through the USMLE that not only preserved but also possibly enhanced their well-being. These students scheduled exercise and 'wellness time' into their lives. In some cases, they felt that during preparation for STEP 1 that they were in better shape than they usually were simply due to the way their regimented lives incorporated time for exercise, sleep, and socialization. Several of these same students spoke of a knowledge of Mindfulness Based Stress Reduction (MBSR), being 'present', and how their prior understanding or education in this way of thinking was beneficial to managing the stress of exam preparation. Others from this 'well' group were those who were high level athletes in college and seemed to have a strong grasp on wellness preparation techniques that would optimize performance. Psychologically they seemed equipped to manage through this highly stressful time.

Although there has been an enhanced emphasis in the literature on the topic of wellness in medical school (Slavin, Schindler, & Chibnall, 2014), and there are multiple

medical schools with wellness programs (Vanderbilt, 2015; Creighton, 2015; Stanford, 2015; Brown, 2015), none have provided a wellness roadmap for medical students to successfully navigate through USMLE preparation. Chapter Two noted that little research has been done to promote the value of wellness training in medical school (Pearson, 2011) but this research indicated that some students with wellness training fared better in the intensive study period. Further exploration regarding the successful wellness lifestyles of this subset of students could be beneficial to the larger population of medical students.

Similarities. Across the four medical school years there was complete agreement among all students that the exam was a huge part of their lives and something that was all-consuming. There is almost universal agreement that the test has taken on a life of its own and has a negative impact on not only personal wellness but potentially on the academic life and curricular emphasis of medical students. While the literature references the pressure associated with taking important tests (DeBlassie, 1972; Sterian & Mocanu, 2013) and the excess stress around evaluations seen in medical school (Enns et al., 2001), this study uniquely confirms that the USMLE provokes high levels of stress and anxiety among medical students across all four years. The primary areas of wellness that are affected by the test are emotional, physical, and social.

Differences. There are several major differences in the impact of the USMLE on wellness across the four years of medical school. First year students have little to no effect other than anticipatory. Second and third year students are most significantly impacted by the intensive study for the exam as it has a more deleterious effect on multiple wellness parameters than expected. Previous literature noted the impact of the

exam on emotional and psychological well-being (Enns et al., 2001) but neglected to assess the other NWI wellness parameters. Finally, in the M4 year, some students suffer from post-exam effects (mostly emotional and physical), in that they have a new reality to contend with and /or their prior good habits have been curtailed, perhaps indefinitely. While the literature notes that time around the exam is stressful and that student psychological well-being declines in the third year of medical school (Dyrbye 2008; Kligler, Linde, & Katz, 2013), no research specifically assessed the long-term implications of diminished wellness on the future wellness of students.

Two messages; Hidden curriculum. Despite the fact that faculty, students, and staff all agree that the USMLE has transformed into a higher stakes and higher pressure undertaking than anyone ever intended it to be, most consider it to be a 'necessary evil'. It is widely accepted and this study supports that the negative repercussions of this exam on medical student wellness are significant. Still, there is not a concerted effort to change the fact that students must perform well on the USMLE or risk not attaining a strong residency placement. The two messages that abound in medical school and come from faculty and leadership are first, that students both need to take care of themselves and have a well-rounded educational experiences (Vanderbilt, 2015; Brown, 2015; Creighton, 2015), not solely focused on the USMLE and their score; the other, is that students must perform very well on the USMLE for both their personal success and for the reputation of the institution (AAMC, 2015).

Two messages. All staff and faculty interviewed agreed that students were more anxious and stressed during the test preparation time and that they also noticed students 'disappearing' or 'dropping off' from ancillary activities such as volunteer service and

clubs. While there was full agreement and an awareness of the negative impact of the STEP exam, most seemed resigned to accepting the test as a means of differentiating students and making the selection process manageable for residency program directors. This reality is very much grounded in the literature (Tompkins, 2011; McGaghie et al., 2011), which confirms that the importance of the actual score continues to rise despite evidence to suggest use of the USMLE scores for residency selection is flawed. Faculty and staff interviewed were not able to provide real insight regarding what was happening during the USMLE preparation thereby leading me to conclude that either they did not spend too much time considering the full breadth and depth of the impact of the test on wellness, or they believed it to be 'a rite of passage'. Still, of note, most agreed that the test has become a much bigger component of medical student life than was ever intended and that the stress levels experienced seem far too extreme. This research aligns with national data that confirms the importance placed on the USMLE, but it also shows that efforts to support wellness are given less importance or emphasis than might be expected.

During my data collection phase, I participated in a consortium meeting of key Student Affairs personnel from medical schools across Philadelphia and Southern New Jersey on the topic of medical student wellness. Schools included, Temple, University of Pennsylvania, Jefferson, Philadelphia College of Osteopathic Medicine, CMSRU, Rowan School of Osteopathic Medicine, and Drexel. All agreed that the USMLE has an overwhelming impact on medical student wellness but most expressed the feeling that it was a 'necessary evil', similar to the faculty/staff I interviewed at CMSRU. During this meeting, when discussing the competition among students and the anxiety and stress that arises, several noted and all agreed that there is a certain type of student who is routinely

recruited into medical school and perhaps that personality type is more prone to stress, competitiveness, and anxiety. One of the participants commented, "We recruit in this type of student, type-A, pre-existing social anxiety, competitive….". These students have spent their college years studying and proving they were the best of the best. It's hard for them to accept being average, or worse, to admit they are struggling. There was a robust discussion about what happens when these students get into trouble, academically, emotionally, or psychologically. They are afraid of being 'outed' due to the stigma attached to not being 'perfect' and a fear of what it might mean to their ratings and chance of getting into a residency program of choice.

As noted in Chapter two, the literature clearly indicates that physicians, residents, and medical students suffer from higher levels of stress, burnout, depression, and suicide than the general population (Baldwin, Dodd, & Wrate, 1997; Estabrook, 2008; Wallace et al., 2009) and this study confirms that many aspects of well-being are negatively impacted among medical students. In addition, findings from this study concluded that beginning in medical school, students are reluctant to share these negative feelings and emotional distress with their peers or with faculty because they are concerned about the potential implications and the effect it could have on how they are perceived. The need to portray oneself as stronger than others while hiding insecurities and fears has also been attributed to the high incidence of burnout and suicide among physicians (McClafferty & Brown, 2014). Findings from this study indicate that these hidden feelings and lack of emotional expression begin early in medical school and are linked to the high intensity stress associated with the USMLE.

The literature attests to the fact that most physicians primarily emphasize disease

management versus primary prevention (Mirand et al., 2002). In medical education, the emphasis is also on treatment versus prevention of disease. This study showed that medical students are not only focused on learning about disease treatment (not prevention) but are suffering from a stressful environment that leads many to curtail practices that support their own wellness. Previous research has already indicated that healthy physicians with healthy lifestyles are more likely to assertively advocate the same in their patients (Belodoff et al., 2000). This study seems to indicate that high stress levels and the lack of care given to the individual future physician may have long-term implications not only on physician wellness but also on how he or she practices medicine (i.e. – prevention versus only treatment). This is a potential area for longitudinal study.

Hidden curriculum. The 'hidden curriculum' that was referenced earlier may be perpetuated since medical students are experiencing two sets of stories while in medical school. Although their faculty and deans are telling them to have a balance in their lives and are encouraging them to be engaged in community service and extracurricular activities, at the same time, these same role models are pushing them and expecting them to be high achievers on the USMLE exam. The hidden curriculum that exists and that was also observed throughout this ethnographic study is the clear message that clinical faculty and deans send when they praise those students who do very well on the USMLE and comment positively about those students who are more visibly in the building studying at all times of day. I noted multiple instances in my field notes that various deans and faculty spoke fondly of and complimented students who were pushing themselves unusually hard, those 'found sleeping in the building', or who scored very high on practice STEP exams. There was also grave concern regarding those students who were

either barely passing practice exams or failing them – these students were the cause for much concern and discussion around whether or not the school should continue to place lesser emphasis on MCAT entry scores (this has thus far been a hallmark of CMSRU's admissions process). Ultimately, during USMLE preparation there is simply not enough time for students to manage all of the things they are being asked to do. If students observe the hidden curriculum, they will place the USMLE in the forefront, even if to the exclusion, of all else.

Earlier research has confirmed that a hidden curriculum exists in which an unspoken social norm is learned and shaped through medical student interaction with others in their environment (Hafferty, 1998; Murison, Klick, & Haythornhwaite, 2010). This study furthered that data by emphasizing the same is true regarding USMLE preparation and performance. Aligned with the work from Hafferty (1998) and Michalect & Hafferty (2013), this research confirms a hidden curriculum surrounding USMLE preparation serves to counteract explicit instruction in the principles of self-care and thereby exacerbates the opposite.

Role of the USMLE on medical student lives. Findings from this study showed that the USMLE does impact medical student lives to a great degree and adversely impacts their well-being on a physical, emotional, social, occupational, and educational level. Most pronounced were the significant reports from students on the diminished attention given to their self-care. The USMLE intensive study time was reported to cause both short and long term negative effects on overall wellness. These findings are new to the literature which previously had only reported that the USMLE test and wellness did seem to have a relationship whereby the level of student wellness was found to be

positively correlated with their performance on the test (Stephens, Dong, & Durning, 2015). This study took a different look at the potential connection between medical student wellness and the USMLE and has found that the test and preparation for it negatively impacts the well-being and self-care of the medical student across many wellness parameters.

***Short-term*.** During the test preparation itself, findings indicated that some students experienced dramatic effects on their emotional well-being with self-reported stress, anger, anxiety, loneliness, and depression. Implications were also attributed to the social well-being of students, which was severely curtailed for lengths of time that ranged from the intensive test preparation period of five to eight weeks, to a much lengthier period of time. While the critical nature of the exam cannot be dismissed, the myriad effects of the exam must also be acknowledged. Clearly the emphasis on the test curtails the ability of these medical students to engage in other curricular and extracurricular activities including elective areas of medical interest, community service and outreach, leadership and collaboration in clubs and programs vital to the health of the medical school, and most importantly dedication and devotion to time spent with patients in the ambulatory clinic. The test, inadvertently and deleteriously erodes the espirit de corps, camaraderie, and connectedness that medical students should and at one time did develop during their second year of medical school.

Additionally, as expressed more fully in Chapter 4, the emotional, social, and physical effects of the exam deplete the coping reservoir (Dunn, Iglewicz, & Moutier, 2008) to such an extent that students experience negative consequences such as anxiety, weight loss/gain, damaged or lost relationships, depression, etc. While many reported that

the intensity of the negative sequelae dissipated after the exam, for some, implications continued, forcing them to develop a new outlook or perspective on life with which they had to come to grips. This study strongly supports the Dunn, Iglewicz, & Moutier (2008) coping reservoir concept and aligns with the theoretical framework established utilizing the NWI paradigm. The coping reservoir was most depleted from a lack of positive inputs in the emotional, social, and physical parameters and a less extreme input depletion from the intellectual and occupational parameters. Ultimately, however, the reservoir or reserve tank was depleted among the medical students leading to an array of negative consequences including aspects of burnout.

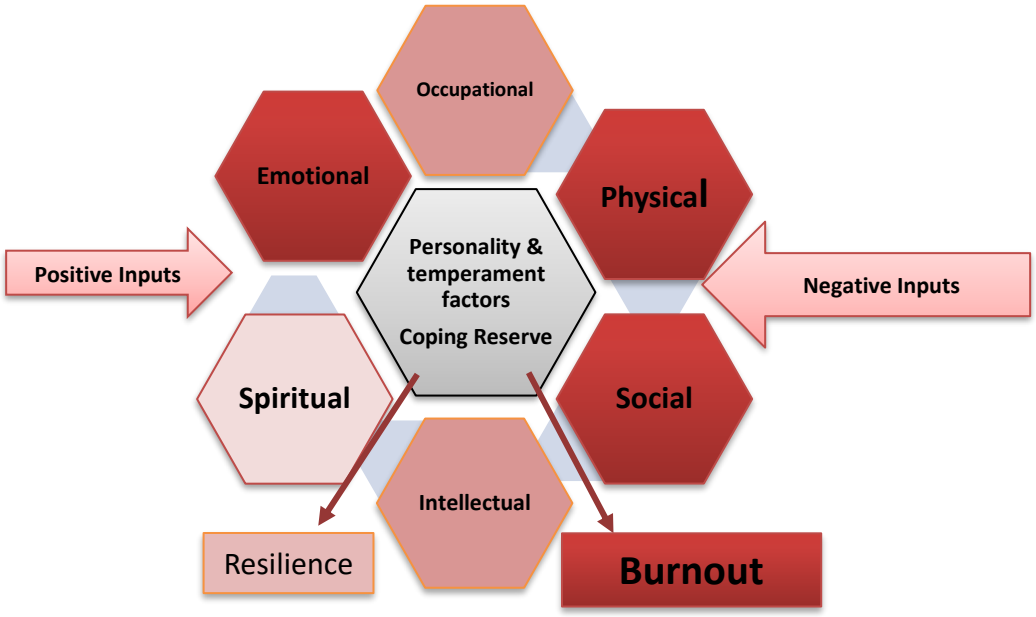

Figure 5. Findings conceptual model

Long-term. Research indicates a decrease in medical student well-being with a peak decline in the third year of medical school (Dyrbye, 2008), shortly after completing

the Step 1 exam. Wellness continues to decline into residency, fellowship, and through the physician practicing years (Baldwin, Dodd, & Wrate, 1997; Estabrook, 2008). Aligned with this study, there is ample evidence to confirm that the USMLE is a high stakes exam with meaningful and far-reaching effects on the lives of future physicians (Tucker, et al., 2015). Beyond the implications of what career medical students will pursue and which residency programs they will attain, there are potential long-lasting negative implications to the overall health and well-being of physicians. Health trends for physicians are negative (Estabrook, 2008; Wallace et al., 2009) and the possibility exists that some of those negative trends are in part due to the negative consequences of the USMLE and the unhealthy habits established during preparation for the exam. A pattern of unhealthy behaviors in response to elevated stressors develops in many during this stressful period of time.

Future state of physicians. Other potential long-term implications from this test are that medical students are being trained and inculcated into an environment where one's well-being is given little to no attention or emphasis. High performance and achievement are emphasized to such an extent that personal self-care is ignored. To accommodate increased time and effort for the competitive exercise of attaining the highest score possible on a test designed to merely measure a satisfactory level of basic knowledge (Tompkins, 2011), students are learning to push themselves to their absolute limits. Continually operating in such a high stake, competitive, and stressful environment and not feeling as though one has outlets or the ability to reveal any vulnerability (Block, 2015; Dyrbye et al., 2005) increases the likelihood that there will continue to be elevated levels of emotional and physical ailments among this profession.

Impact on medical school efficacy. As the importance of this test continues to escalate, there is the possibility that traditional curricular emphases will be diminished. Students view courses that emphasize subject matter that is not on the USMLE test as less valuable than curricular subjects directly related to the material that is tested on the STEP 1 exam (Klilger et al., 2013; Pearson, 2011). These sentiments were duplicated in this study. The STEP 1 exam assesses whether students understand and can apply important concepts of the sciences basic to the practice of medicine, with special emphasis on principles and mechanisms underlying health, disease, and modes of therapy (USMLE, 2016). Concepts such as communication skills, professionalism, and working in the clinical arena are not given the same level of attention during this intensive study period simply because they will not be tested on the exam. Because these areas so critical to exceptional patient care are de-emphasized, there is a potential long-term negative effect on the quality, maturity, or learning curve of the future physician.

What can be done. Although the number of faculty and staff I interviewed was relatively small, they all had significant contact with the students and have spent much time with and around them during the USMLE study preparation. When asked about what they thought might help students during their study for the exam, they did not have many suggestions. Most pointed to offering support services or being encouraging, but unanimously felt that the rigorous time of study was something that must be managed through. This is consistent with other medical schools and with the literature (Pearson, 2011; Tompkins, 201). Most solutions revolved around providing more time or teaching more effectively to insure good outcomes. Others spoke to the importance of selecting the right kind of student, students who can be successful on the test. Similarly, all

participants in the consortium referenced in the last section unanimously agreed to the issues surrounding this exam.

This group considered several possible mechanisms by which to attenuate some of the challenges associated with the exam. Since it is unlikely that there will be a change in the USMLE structure and the way that residency programs select candidates in the near future, it is imperative that medical schools consider ways in which they can best address the high stress and high stakes exam today. Some potential solutions that schools have considered include increased counseling support, mentoring programs that include career counseling, test preparation management, and wellness programs for students. Finally, a revised way in which to assess and support medical students through residency that doesn't include the score of the USMLE test, but a pass/fail indicator might dramatically alleviate some of the issues surrounding this exam. This last recommendation will likely take several to many years to accomplish since the exam itself has taken many years to reach its elevated status.

Limitations

In the following sections I will review several factors that were considered as influences out of my control and that may have had an impact on my research results.

Setting, actors, and sampling. Because all of the research conducted occurred at the Cooper Medical School building, and because all of the students, staff, and faulty interviewed and observed are affiliated with that institution, there is an inherent potential for aspects unique to the institution to affect the outcome. CMSRU is a new medical school that graduated its first class of physicians in May of 2016; therefore, aspects and uncertainties characteristic of a new school may have contributed to results that are

different or may not be representative of the broader medical student population. For example, students electing to attend a less established program may be risk-takers and less prone to suffering from the effects of stress than are risk-averse or highly stress prone individuals. Alternatively, attending a brand new institution without a known and proven curriculum or track record, and without a history of USMLE test results or residency acceptances may prove to yield increased stressors. In this study the very first class of M4 students did seem to exhibit and express emphatic stress related to the exam; that may have been due to their being the very first class. These stressors may not be as pronounced at a more established institution and therefore could have the potential of skewing the impact of the USMLE on wellness to appearing greater than it would without the added stress of attending an 'unproven' program.

The sample for this study was selected first because of its convenience. Due to the fact that I was employed at CMSRU, access to the medical students was far more convenient that it would have been had I used another medical school. Second, and most importantly, because this is an ethnographic project, it was critical that I was able to immerse myself in the day-to-day activities of the students, which would have been unlikely and potentially precluded from happening at another institution. Finally, it may have been preferable to conduct this research at a new medical school because the inherent biases that develop based on hearsay and tradition at legacy schools may have been avoided at this institution where students were in the nascent phase of acclimating to the issues surrounding the USMLE and the pressures associated with the high-stakes test.

Researcher's role. Potential for bias and possibly detrimental to this study was the fact that my position as Associate Dean for Program and Business Development at

CMSRU may have impacted the responses of the students and ancillary personnel who were interviewed. Some of the participants knew that I established and chaired a wellness committee at the medical school, therefore, there is the possibility respondents answered questions in a way they believed might appeal to my interests. My history of involvement in establishing the wellness program may have unintentionally encouraged students and others to respond more favorably about the need for wellness than they might were the interviewer an unknown third party. Additionally, there is an inherent power differential that makes students want to please individuals they may deem as having an impact on their grades or success, despite the fact that I do not have any responsibility or authority as it pertains to student affairs at CMSRU. Still, a position of authority at the institution might, in some way, impact the candid responses of students. The focus of the research was primarily on the USMLE and I attempted to keep all questions and observations as impartial and open-ended as possible.

Ethical considerations. Other ethical considerations and possible detriments to this study include the fact that the interviews and emphasis this study placed on the USMLE may have inadvertently increased the stress surrounding the test for some students. In fact, some students may not have participated in the study at all because of the time they may have felt it would take away from their studies. With the M2 class, I learned that students did not want to participate in a focus group because they didn't want their peers to know what or how they were studying or feeling and because they didn't want to know what their peers were doing as it might make them more anxious, nervous, or complacent. Others may have been concerned that their behaviors or responses could in some way impact their reputation and letters of recommendation to residency

programs. Because the USMLE is already a likely major stressor to medical students, this research took into consideration that it was important to allow students to opt out of the study and be assured that there would be no repercussions for doing so. No student who signed up to participate opted out of the study. In fact, many students commented that they felt the conversations and discussion around the USMLE was 'cathartic', 'reflective', and beneficial to them either emotionally or psychologically.

Implications

The findings from this study have implications for policy, practice, research, and leadership. By uncovering a fuller understanding of the meaning and implications of the USMLE in the context of the well-being of medical students, established policy, practice, research, and leadership may be challenged to consider alternative courses for measuring medical student competence. Additionally, changes in values or perceptions regarding career choice or implications surrounding attitudes and behaviors of faculty and administrative leadership may contribute to a dynamic that impacts student wellness and provides numerous avenues for policy makers, researchers, and practitioners to reconsider current and explore potential future pathways to enhance medical student wellness and/or alter or decrease the emphasis of the USMLE.

Policy. At present the USMLE is a required test that all future United States medical students must pass in order to become practicing physicians. This test is a pivotal barometer for acceptance into residencies of choice and future career paths, and although it is common knowledge that it is highly stressful to medical students, this study has revealed that it also negatively impacts their health and well-being. In addition to the exclusive focus students give to this exam, potentially to the detriment of other

educational experiences, in this study, the adverse effects attributable to this test depleted the coping mechanisms of students and thereby negatively impacted their psychological well-being. CMSRU can align with other medical schools and attempt to persuade the American Association of Medical Colleges (AAMC) to seek an alternate means by which the competency of medical students can be ascertained that is less destructive to their health and well-being.

The Medical College Admissions Test (MCAT) which has historically been used to gauge the quality of candidates seeking entrance into medical school has similarly been a high stakes exam under a great deal of scrutiny. Just this year, a new version of the previously all science exam, has been developed and implemented. The new exam includes psychology, ethics, and social issues alongside the traditional basic science elements. Perhaps these changes can be reflected in a new iteration of the USMLE. In addition, schools might consider a pass or fail model of competency thus forcing a more comprehensive review of student qualifications to determine residency positions. There are many potential national policy choices that could be made to de-emphasize the significance that the USMLE has taken on. Historically, the test was primarily considered a milestone to be reached and only in recent years it has become a numerical determinant of one's future career potential (National Resident Matching Program, 2015).

On a smaller scale, this study may provide a rationale for medical schools to proactively address and seek to attenuate the detrimental side effects of this test. At the very least, the results of this study will be shared with leadership at CMSRU and may alter local policy pertaining to the way in which students approach the USMLE and are supported during their test preparation.

Practice. Results from this study will provide data for the current cadre of educators at CMSRU, effectively explaining the impact that the USMLE has on overall student wellness. Study results may facilitate local changes to the curriculum and the educational environment to promote student preparation that meets the USMLE standards while preserving self-care and well-being. This study has the potential to create a meaningful dialogue that considers the personal wellness of the medical student and methods by which CMSRU can attenuate or prevent some of the negative psychological and physical effects that medical students experience over the course of their education. Faculty at CMSRU, serving as both role models and leaders in educating and preparing medical students for the USMLE exam and for careers in medicine, should both support and model healthy behaviors and wellness in the context of the learning environment. CMSRU can should incorporate faculty development sessions that educate and prepare faculty to understand and address student needs as it pertains to exam preparation and wellness.

More broadly, findings obtained from this research could be disseminated on a larger scale, potentially providing a rationale for other medical schools to adopt similar attenuation or prevention strategies. There is a clear acknowledgement of the impact of the USMLE on stress levels in medical school programs (Enns, et al., 2001), and when grading systems have been changed to pass/fail, there was an associated and measured improvement in psychological well-being and satisfaction, as well as comparable USMLE scores and residency placements (Reed, Tait, & Shanafelt et al., 2011). Therefore, the case can be made that if there is interest in improving the quality of life of future physicians and a vested interest in engaging the health care leaders of tomorrow in

preventive medicine, a decision should be made to revise the current national medical board assessment process.

Research. Based upon the findings from this study, future implications for research should include more quantitative prospective studies to further validate some of the results that surfaced. Because medicine is grounded in evidence-based practice, there may exist a certain bias against purely qualitative results (Thomas, 2013), therefore, findings with statistically significant data may be helpful to furthering a cause for change among the medical community. Additionally, conducting a study that is inclusive of students from a broader community of medical students than just CMSRU may uncover additional findings, particularly among legacy institutions. A collaborative effort from researchers across multiple sites could provide data advocating for change on a large scale.

With adequate time and resources, ideally one would conduct a longitudinal study assessing incoming first year medical students at regular time points over their four-year medical school education. Changes in perceived wellness and stress levels could be evaluated, combined with qualitative, ethnographic observations and review of their medical school experience as it pertains to the USMLE. A repeated measures design study with the same students evaluated over time might show peak periods of stress and reveal which students are able to successfully manage test preparation and its repercussions and what strategies they use. Such a study might also provide insights regarding which students are more likely to suffer from adverse consequences due to the exam-related stress.

Based upon the initial findings in this study, I recommend a more in-depth look at

certain populations demographic populations. Both women and students who are underrepresented in medicine (African American and Latino) seem to exude less confidence and more anxiety and stress than their Asian and White male counterparts. A case can be made to do a more robust quantitative study to confirm those findings and/or an in-depth qualitative study specifically exploring emotions and wellness in those populations. USMLE testing assumes a level playing field among students regarding their ability to manage the stresses of such a high stakes exam and the implication of that exam on one's future. Understanding the impact that both the demographic and socioeconomic background of medical students may have on their ability to manage through significant stress is worthy of further exploration. In addition, one might research tools by which all students might successfully navigate the stress associated with the exam and with the profession of medicine.

Finally, as noted in the findings, there was a sub-group of students who seemed to do quite well under the pressure of the exam. These students took the NWI wellness parameters into consideration as they planned for their intensive study and readily pointed out why they believed it was important to keep wellness in the forefront as they headed into a stressful period of time. In this small sample, those students seemed to be either athletes or more mature students with lived experiences or with a background in mindfulness. Future studies could look in more detail at the methods employed by students who navigate through the exam with minimal stress.

Perhaps a more in-depth understanding of the athlete's psychology as it pertains to losing would be of benefit to the over-achieving medical student. Or, implementing a MBSR program prior to medical school for a cohort and measuring any differences in the

wellness parameters of those students as compared to a control group might be useful in helping to design programs to help medical students manage through stressful situations, including the ULSME. Beyond the USMLE, the medical school training environment is one that is ripe for additional study and consideration and implementation of tools or methods that attempt to alleviate the unhealthy environment in which medical personnel are trained.

Leadership. As an Associate Dean at CMSRU, I planned to leverage this research to alter the current lived experiences of our medical school students. I have already shared preliminary results with our senior executive team, including the Dean and Vice Dean. While there was already an understanding of the significance of the exam and the fact that it seemed to take a negative toll on students, there was also a resigned acceptance that this is the current state of affairs and there is not much that can be done. However, armed with the depth of this information and how dramatically the exam impacts the lives of students, I am advocating for immediate change at CMSRU to provide a comprehensive plan to not only support the learning and preparation for the exam but to advocate for and actively support the well-being of medical students. From the orientation of M1 students all the way though graduation, I will engage leadership in student affairs to establish a wellness program to include advising, encouragement of wellness activities, and support networks, with a particularly detailed plan for the weeks leading up to the STEP 1 exam. A meeting has already been scheduled during which I will present the findings of this research to the Advisory College Directors; they provide guidance and support to medical students across all four years of medical school Additionally, I will continue to conduct research in this area and seek methods to address

concerns and support medical students as we seek to alter the national roadmap to residency to give less emphasis to this arbitrary exam.

Conclusion

This ethnographic research explored the role of the USMLE in the overall wellness or self-care of medical students. The findings supported my hypotheses that the enormous role that the exam plays in the lives of medical students does impact their well-being and self-care. This was evidenced in self-reported and observed increases in stress, anxiety, and depression, almost comprehensively impacting each of the NWI wellness parameters, particularly during the intensive study period leading up to the STEP 1 exam at the end of the second year of medical school. These decreases in wellness and concomitant increases in reported psychological concerns are aligned with other literature that shows increases in psychological distress and decreases in empathy at the same time of medical school (Dyrbye, 2008; Moffatt, McConnaichie, & Ross, 2004). Thoughts and behaviors beginning early in the medical school career and peaking in the weeks prior to the exam are obsessive and life-encompassing, often to the exclusion of tending to basic self-care needs, including eating, sleeping, and socializing. While there are students who have managed to successfully weave the exam into the fabric of their medical school careers, this study indicated that the vast majority of students decrease or deplete their coping reservoir (Dunn, Iglewicz, & Moutier, 2008) over the course of USMLE preparation with many suffering psychological and physical consequences. Moreover, the great emphasis placed on this exam negatively alters the comprehensive learning model designed by the medical school because students are either less interested in or they ignore many of the more humanistic and patient-centered components of the curriculum

if they are not directly applicable to what they will see on STEP 1. Therefore, a case can be made that the compassionate, empathetic, and humanistic physicians that we aspire to educate and that all patients deserve, are instead learning in an unhealthy environment that unintentionally emphasizes and rewards the opposite. The unfortunate result is an unhealthy population of physicians who may provide less than optimal care to their patients. We can and should do better for our physicians and for ourselves.

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Appendix A

Interview Protocol (Medical Students)

Research Questions

1. How do medical students experience the United States Medical Licensing Exam (USMLE) as a part of their medical school education?
    a. How do medical students describe their sense of each dimension of well-being as it pertains to their impressions and experiences of the USMLE?
    b. What factors contribute to and/or detract from medical students' perceived personal wellness as it pertains to the USMLE?
    c. How do medical students and significant medical education collaborators describe the impact of the United States Medical Licensing Exam (USMLE) on the self-care and well-being of medical students?
2. What changes are observed across the four-year spectrum of medical school in regard to the USMLE as it relates to student wellness?
    a. What changes in attitudes regarding the USMLE do participants report over the course of four years of study in medical school?
    b. How do behaviors and attitudes of medical students toward engaging in personal self-care change in relation to USMLE testing?

Student Questions

1. What comes to mind when you think about the USMLE?
2. What words come to mind when you hear 'USMLE'?
3. Describe how the USMLE, thoughts about the USMLE or your preparation for the USMLE impact your day-to-day life.

4. What areas of your life do you anticipate changing/ have changed, as you intensify your preparation for the USMLE.
5. How do you define wellness?
6. Describe your own state of wellness.
7. Considering physical, emotional, spiritual… aspects of your well-being, how have (how do you anticipate) any of them changed as you prepare for the USMLE (prepared for)?
    a. (probe for emotional, spiritual, intellectual, social, physical, occupational, well-being)
8. For those who have taken the test, please try to remember the day you took the test. Describe the night before and walk me through what you were feeling as you approached, then took the test. How did you feel immediately after? What did you do?
9. What was anticipation of test results like?
10. Describe your lifestyle as you consider the USMLE: in the distant future, in the near future, imminent future, recent past, pre-results, post-results.
11. For those who've taken the test: please describe you state of well-being prior to USMLE, around USMLE, shortly after USMLE, long after Step I. (probe for emotional, spiritual, intellectual, social, physical, occupational, well-being)

Appendix B

Interview Protocol (Faculty/Staff)

Research Questions

1. How do medical students experience the United States Medical Licensing Exam (USMLE) as a part of their medical school education?
    a. How do medical students describe their sense of each dimension of well-being as it pertains to their impressions and experiences of the USMLE?
    b. What factors contribute to and/or detract from medical students' perceived personal wellness as it pertains to the USMLE?
    c. How do medical students and significant medical education collaborators describe the impact of the United States Medical Licensing Exam (USMLE) on the self-care and well-being of medical students?
2. What changes are observed across the four-year spectrum of medical school in regard to the USMLE as it relates to student wellness?
    a. What changes in attitudes regarding the USMLE do participants report over the course of four years of study in medical school?
    b. How do behaviors and attitudes of medical students toward engaging in personal self-care change in relation to USMLE testing?

Faculty Questions:

1. What comes to mind when you think about the USMLE?
2. What words come to mind when you hear 'USMLE'?
3. Describe how you perceive the USMLE, thoughts about the USMLE or student preparation for the USMLE impacting their day-to-day life.

4. What areas of the medical student life do you perceive as changing as preparation for the USMLE intensifies?
5. How do you define wellness?
6. Describe your own state of wellness.
7. Describe any changes you observe in medical student wellness that occur over the course of their four years of medical school training.
8. Considering physical, emotional, spiritual… aspects of well-being, how do you perceive any of those aspects changing as students prepare for the USMLE? (Probe for emotional, spiritual, intellectual, social, physical, occupational, well-being)
9. Describe the time immediately surrounding the USMLE and how students seem to be feeling/acting/behaving as it pertains to wellness.
10. Considering the USMLE overall as it pertains to the well-being of medical students and your observations, describe any changes in attitude regarding the USMLE over the course of medical school (positive or negative)?
11. Are there any other comments or thoughts you have as it pertains to the connection between the USMLE and student wellness (probe emotional, spiritual, intellectual, social, physical, occupational, well-being)

Appendix C

Research Question Matrix (Students)

Research methodologies	RQ1: How do medical students experience the USMLE as a part of their med school experience?	RQ2: What changes are observed over the course of medical school regarding the USMLE and student wellness?
1-What comes to mind when you think about the USMLE?	X	X
2-Words come to mind when you hear 'USMLE'?	X	
3-Describe how USMLE impacts day-to-day life.	X	X
4-What areas of your life change with USMLE preparation?	X	X
5-How do you define wellness?		
6-Describe your own state of wellness.		X
7-How has well-being changed as you prepare for the USMLE?		X
8-Describe taking the test	X	
9-What was anticipation of test results like?	X	
10-Describe lifestyle @ USMLE	X	X
11-Describe your state of well-being around USMLE.		X

Appendix D

Research Question Matrix (Faculty/Staff)

Research methodologies	RQ1: How do medical students experience the USMLE as a part of their med school experience?	RQ2: What changes are observed over the course of medical school regarding the USMLE and student wellness?
1 -What comes to mind when you think about the USMLE?	X	X
2-What words come to mind when you hear 'USMLE'?	X	
3-Describe how you perceive the USMLE, thoughts about the USMLE or student preparation for the USMLE impacting their day-to-day life.	X	
4-What areas of the medical student life do you perceive as changing as preparation for the USMLE intensifies.	X	X
5-How do you define wellness?		
6-Describe your own state of wellness.		
7- Describe any changes you observe in medical student wellness that occur over the course of their four years of medical school training.		X
8-How do you perceive any wellness aspects changing as students prepare for the USMLE?	X	

9-Describe the time immediately surrounding the USMLE and how students seem to be feeling/acting/behaving as it pertains to wellness.	X	
10- Describe changes in attitude regarding the USMLE over the course of medical school?		X
11-Comments or thoughts as it pertains to connections between USMLE and student wellness	X	X

Appendix E

Observation Protocol

- What is the setting of action? How and when does it take place?
- What is going on? What activity is being studied; what behavior do participants organize themselves around? What specific acts comprise this activity?
- What is the distribution of participants over space/time in these locales?
- How are students organized? What organizations effect, oversee, regulate or promote this activity?
- How are members stratified? Who seems to be charge? Does it vary? How is membership achieved and maintained?
- What do students pay attention to? What is important, preoccupying, and critical?
- What do they pointedly ignore that others might pay attention to?
- What symbols do students invoke to understand their worlds, the participants and processes within them, and the objects and events they encounter? What names do they attach to objects, events, personal, roles, settings, and equipment?
- What practices, skills, stratagems, and methods of operation do they employ?
- Which theories, motives, excuses, justifications or other explanations do students use in accounting for their participation? How do they explain to each other, not to outside investigators, what they do and why they do it?
- What goals do students seek? When, from their perspective, is an act well or portly done? How do they judge action-y what standards, developed and applied by whom?
- What rewards, do various actors gain from their participation?

(Charmaz & Mitchell, 2001, p. 163)

Appendix F

Observation Protocol Schedule

Week	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	8am – noon	7 – 8am Noon-1 3-5 PM SDL	Noon- 1pm 5-7pm	7 – 8 am ALG Noon-1pm 3–5 PM SDL	Noon – 1pm (lunch n' learn) 5 – 7 pm	7 – 8am ALG Noon - 1 3–5 PM SDL	Noon – 4pm
2	Noon – 4pm	ALG 3–5 PM SDL 5-7pm	7 – 8 am Lecture Noon -1 3-5 SDL	ALG observe 3–5 PM SDL 5-7pm	7 – 8 am Lecture 3-5 SDL	3–5 PM SDL 5-7pm	8am - noon
3	8am –noon	7 – 8am ALG 3-5 PM SDL	Noon- 1pm 5-7pm	7 – 8am 11:45–1:15 3-5 PM SDL	Noon – 1pm (lunch n' learn) 5 – 7 pm	7 – 8am ALG Noon - 1 3-5 PM SDL	Noon – 4pm
4	Noon – 4pm	ALG 3–5 PM SDL 5-7pm	7 – 8 am Lecture 3-5 SDL	ALG 3–5 PM SDL 5-7pm	7 – 8 am Lecture 3-5 SDL	ALG 3–5 PM SDL 5-7pm	8am - noon