The Burden of Burnout and Importance of Mentorship for Preclinical Medical Students: Perspectives From a Public University Medical School

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ABSTRACT

Introduction: Physician burnout often stems from burnout in medical students that began during the first year of medical education. Individual factors contributing to burnout must be considered within the demands of rigorous curricula and personal ambitions. This study focused on understanding how burnout is perceived by students and the impact mentorship had on its incidence and onset.

Methods: A literature review guided the development of a facilitator guide that outlined factors causing burnout. Preclinical medical students from the University of Wisconsin School of Medicine and Public Health were recruited for online focus groups. Responses were analyzed using hierarchical inductive coding, and identified themes were utilized to create a 2-part electronic Qualtrics survey focused on key aspects and timepoints of burnout. Part A of the survey was sent the summer after the first year of medical school (M1), and Part B was sent after the final course of the second year (M2).

Results: Nineteen percent of students agreed they entered medical school burnt out. The percentage of survey respondents who were not burnt out at each consecutive block in their first year decreased from 80% during the first block to 20% at the beginning of the last block. Focus group and survey results found that mentorship had positive effects on burnout, and students noted increased needs for mental health services.

Conclusions: Understanding key pressure points and essential resources for addressing student burnout allows for improved education and personal outcomes. Alleviating factors were strong mentorship, mental health resources, and streamlined faculty communication. Increasing burnout highlights the importance of interventions to reduce long-lasting effects on student performance and well-being.

INTRODUCTION

While physician burnout has become a common concern, many studies of physician burnout do not address the roots of burnout in medical education. Prior research has found that incoming firstyear (M1) students had lower incidences of mental health concerns compared to their peers in other fields.1 However, increased burnout and emotional exhaustion began shortly after the start of medical school as students competed for their rankings, leadership positions, and research opportunities.2 Medical education coincides with numerous life-changing events of young adults, such as family planning and increasing financial responsibilities. These individual factors provide unique contributions that can accelerate the onset, incidence, and duration of burnout in medical school. Whatever the etiology, medical student burnout creates a negative cycle in the professional and personal growth of a developing physician. It can have longstanding implications for mental health, career suc-

cess, patient outcomes, and personal life.3

In a study surveying multiple medical schools, burnout was reported among 49% of students.³ Early interventions can counteract the incidence of burnout and identify ways to prevent its onset, delay its progression, and/or reduce its severity early in medical school to promote student flourishing, as well as personal and professional development. Slavin et al emphasized the prior focus of institutions to implement preventive measures for addressing student burnout; however, these approaches did

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not address the root cause.⁴ The study explains how curricular changes and understanding the origins of student burnout allow institutions to directly affect its incidence rather than simply add more resources to an already negative cycle of increasing burnout.⁴ Interventions, such as enhanced support systems from medical school faculty, promote student wellness and can decrease the burnout experienced from first- and second-year medical students.³ The severity and incidence of burnout may escalate further into a medical school curriculum. Treat et al found that "second-year students report higher levels of burnout than first-year students to a state of burnout if left unaddressed.⁵ Addressing burnout immediately solidifies a student's decision and ability to pursue and continue their medical education, be successful, and develop to their fullest potential.

This pilot study hypothesized that the degree of burnout in students at the University of Wisconsin School of Medicine and Public Health (UWSMPH) was no exception to this universal problem identified across medical schools. However, prior studies have focused more on the objective prevalence of burnout rather than the subjective experience of students and factors that impact their perceptions of burnout. The goal of this quality improvement study was to identify early factors and specific timepoints in the development of burnout for first-year (M1) medical students at UWSMPH during the preclinical phase (Phase 1) of our ForWard curriculum. It consists of 6 integrated content blocks spanning the first 18 months of medical school. The M1 year consists of 4 blocks and the M2 year consists of 2 blocks. After the 2 blocks in the M2 year, which span 4 months, students begin required Phase 2 clinical rotations. The 6 Phase 1 blocks adopted a fully pass/fail curriculum in 2021. In this study, we allowed students to define burnout as it pertains to their experience and to explore which factors-like mentorship-and school-sponsored programs mitigated their burnout to help optimize student learning and well-being early on in medical training.

METHODS

Approach to Study Design

Focus groups consisting of Phase 1 medical students were conducted initially to discuss factors that affected the onset and incidence of burnout during the first 2 semesters of Phase 1. Results from the focus group informed development of a subsequent 2-part online survey that was distributed to the matriculating class of 2021-2022 email group, which consisted of around 175 Phase 1 students. The first part of the survey (Part A) regarding the first year of the M1 curriculum was sent in July 2022. The second part of the survey (Part B) was sent in December 2022 and focused on the last semester of the Phase 1 curriculum. This study is part of a mixed methodology quality improvement (QI) project that did not require institutional review board (IRB) approval as identified by the UW IRB QI/Program Evaluation Self-Certification Tool (June 27, 2022).

Facilitator Guide Development for Focus Groups

The facilitator guide for the Phase 1 student focus groups was created based on time-dependent and independent factors that may drive the prevalence of burnout as determined by review of the literature and examination of the ForWard curriculum timeline. The guide focused on how personal, social, and academic factors drove the incidence of burnout during the Phase 1 portion of the ForWard curriculum. The questions were discussed, reviewed, and finalized with the research team, with input from the UWSMPH Strategic Improvement and Accreditation oversight team, including faculty, staff, and learners.

Focus Group Recruitment

To form the focus groups, medical students in between their M1 and M2 years of the ForWard curriculum were recruited through a class-wide email in mid-May 2022. Students voluntarily signed up for the focus group that best fit their schedule between late May and early June 2022 as each group was held at different dates and times. Three focus groups of 6 to 8 students were held virtually for 60 minutes. Group assignment was first-come, first-served and nonrandom due to possible conflicts students may have had with focus group timing. Students were allowed to say as much or as little as desired, or they could refrain from responding. They were allowed to define burnout in their responses. Responses were recorded, and the transcripts were reviewed and prepared for analysis by the research team.

Survey Design and Distribution

Part A of the anonymous Qualtrics survey was designed based on focus group responses. It contained one open-ended question regarding resources desired, one multiple choice question, and 6 Likert scale questions. It was distributed in July 2022, 1 month prior to the beginning of the M2 year. The survey contained basic demographic criteria, including what students were doing prior to matriculation (ie, gap years, employment, etc), gender, and underrepresented in medicine (URiM) status based on gender and/or sexuality. It asked questions regarding burnout during the 4 blocks that constitute the M1 Phase 1 curriculum.

Part B of the anonymous Qualtrics survey was created to evaluate the 2 blocks that constituted the didactic portion of the Phase 1 M2 year. It was sent in early December, 3 weeks before the last final examination of the M2 year. It contained 1 "select as many as apply" questions and 2 Likert scale questions.

Surveys asked about satisfaction with mentorship and mentorship programs to understand how mentors and existing mentorship programs may support students and mitigate burnout early in medical school (Tables 1 and 2). UWSMPH offers students numerous resources and opportunities to find mentors. These resources (see Appendix) were evaluated based on how they affected the onset of student burnout. In both surveys, students were asked about the negative and positive effects these mentors had on their experience and education.

Data Analysis

Qualitative Analysis of Focus Group Data

Responses to the facilitator guide's questions were analyzed through hierarchical inductive thematic coding to create a codebook. Responses were subsequently coded by 2 independent coders to deter-

mine intercoder reliability. Anything not agreed upon by the coders was discussed to reach code consensus. These responses guided the development of broad electronic surveys that focused on key aspects and timepoints that triggered burnout in Phase 1. This anonymous online Qualtrics survey was divided into 2 parts and emailed to rising M2s the summer after M1 and 3 weeks before the end of the first semester of M2. Data were compiled and evaluated using the Qualtrics (Qualtrics, Provo, Utah) data analysis system.

Survey Data Analysis

Survey data were analyzed through Qualtrics using descriptive statistics. No further statistical analysis was done due to the limited number of responses and the number of variables.

RESULTS

Through the surveys and focus groups, students were asked to reflect on how social, educational, personal, and financial factors, along with school support and mentoring, affected their burnout throughout Phase 1.

Focus Group Results

Inductive thematic analysis of focus groups highlighted common themes among student responses across all 3 groups as shown in Table 3. Emotional apathy accompanying or accelerating burnout was emphasized. When asked whether students entered medical school burnt out, there were a variety of answers. Some students noted burnout prior to starting medical school. Most of those students began medical school with little to no transitional period from their prior engagements.

Survey Results

The survey data examined burnout at the beginning, middle, and end of each Phase 1 block. Part A received 62 (35% of the cohort) responses and evaluated burnout throughout 4 blocks of the M1 year. Responses toward which block(s) caused the most burnout varied. Most students-47 of 59 (80%)-indicated that they strongly disagreed that they experienced burnout throughout their first month of medical school, which consisted of their first block of Phase 1. This number decreased to 36 of 59 (61%) when

 Table 1. Student Satisfaction Ratings When Asked How Their Mentors Impacted the Incidence and Onset of Burnout

Mentor Access or Program	Satisfied	Neutral	Dissatisfied	N/A	Yes	Total
ACAP house mentor	6 (10%)	24 (41%)	4 (7%)	25 (42%)	NA	59
BEAM program	7 (12%)	7 (12%)	0 (0%)	43 (75%)	NA	57
Big/Little Sib program	21 (36%)	12 (21%)	3 (5%)	22 (38%)	NA	58
Longitudinal teacher coaches	47 (80%)	11 (19%)	0 (0%)	1 (2%)	NA	59
Other upperclassman	36 (61%)	7 (12%)	2 (3%)	14 (24%)	NA	59
I do not have a mentor at UWSMPH ^a	1 (2%)	2 (4%)	0 (0%)	47 (90%)	2 (4%)	52

Abbreviations: ACAP, Academic and Career Advising Program; BEAM, Building Equitable Access to Mentorship.

^aStudents were allowed to also select YES if they had not found a mentor by the end of their first year.

Resource	Satisfied	Neutral	Dissatisfied	Tota
ACAP house mentors	13 (22%)	25 (43%)	20 (34%)	58
Financial advising	25 (43%)	28 (48%)	5 (9%)	58
IBL, ABL, lecturers	23 (43%)	26 (48%)	5 (9%)	54
Learning specialists	30 (52%)	24 (41%)	4 (7%)	58
Longitudinal teacher coaches	51 (86%)	6 (10%)	2 (3%)	59
Student services	20 (34%)	30 (52%)	8 (14%)	58
UHS mental services	26 (44%)	20 (34%)	13 (22%)	59
Your preceptor	36 (62%)	18 (31%)	4 (7%)	58
Other	7 (30%)	16 (70%)	0 (0%)	23

asked about burnout at the beginning of their second block. At the beginning of the third block, 21 of 59 (36%) students strongly disagreed that they were burnt out. This number further decreased to 12 of 59 (20%) when asked about the beginning of block 4. Students strongly disagreed they experienced burnout during academic breaks.

Part B evaluated burnout at the beginning, middle, and end of the remaining 2 blocks of the Phase 1 preclinical curriculum. Eighty-one (46%) students from the 2021 matriculating class filled out this survey. Thirty-one of 78 (40%) students stated that they strongly disagreed that they experienced burnout at the beginning of block 5. In the beginning of block 6 (the last Phase1 block), 5 of the 80 (6%) students strongly disagreed that they were burnt out.

Burnout prior to entering medical school was addressed. Almost three fourths (73%) of students responding (n = 59) strongly disagreed or somewhat disagreed that they entered medical school burnt out (see Appendix), while 19% strongly agreed or somewhat agreed that they entered medical school already burnt out.

Student responses in focus groups indicated that mentorship delayed the onset of burnout and lessened its burden. In Part B, students were asked how they perceive their relationships with their mentors or whether there is a lack of mentorship towards the end of Phase 1. Of the respondents, 19% who filled out Part

Table 3. Themes That Emerged From Student Focus Groups With Illustrative Quotes					
Categorical Theme and Definitions	Associated Themes	Illustrative Responses			
Apathy A loss of interest or lack of responsibility towards the tasks at hand	Students defined burnout as an apathetic state that lacked emotional responses	"It's like an internal apathy to most everything." "I don't want to do anything else, but I don't want to study because that stuff makes me stressed." "I don't give a s*** about anything that is happening."			
Block-dependent burnout The period in which an individual consciously submits to and/or admits burnout depends on the block/unit of the curriculum in which the students have experienced or are currently experiencing	The intensity, progression, and onset of burnout differed per student	"Waxes and wanes" "Cyclic" "Gradual in nature"			
Compartmentalization The ability to allocate designated energy and time to specific events and responsibilities.	Quality improvement and advocacy projects were burdensome, and their timing was inconsiderate of other curricular events in students' lives.	"In medical school, you have to like compartmentalize like your who life. So, if there's like, anything else that's happeningI had no capacity for that." "I had so many like big, hard things to deal with going on in my fam ily that I couldn't like that I tried to compartmentalize, and it was jus very difficult to do." "We gotta pack this s*** up like you can compartmentalize this, you can deal with this s*** later, we never did."			
Emotional exhaustion Feeling of being drained emotionally and/or emotionally numb towards academic and social responsibilities due to the burnout experienced from medical education.	Medical students tend to become more socially isolated and withdraw from their peers when experiencing burnout.	"I didn't have much of an emotional reaction to things in my life." "I also didn't have many emotions at that time and if I did, I would g 0 to 100." "There has been a dramatic change between attitude. Somebody who's been generally cynical is now very, very positive (and vice versa)it's a radical sudden change in attitudes."			
Forthright language An individual's tendency to speak more bluntly about their emotions and circumstances, whether positive or negative.	Burnout was first noticed in peers when their speech became more direct and negative regarding their emotions and wellness.	"I'm going to fail this. Like, there's no way I can pass this exam." "Saying that, like, they have like absolutely no motivation to study, even though it's the week of an exam." "Having people like having friends and my classmates who were like in the same boat and like were willing to vocalizemade it a lot more manageable for me" "I feel like there was a lot of casual like 'hey how are you doing' like 'oh, I'm stressed like I don't want to do this anymore'." "It was a little bit more subtle, like I mean people would be very ex- plicit about saying like 'oh yeah, I'm drowning too'"			
Lack of mentorship Lack of opportunities to connect with skilled professionals in the field to pursue a mentorship relationship or lack of individuals who are available to be mentors for students.		"I love my [longitudinal teacher coach] but I don't really feel the mentorship connection because it's so formally staged."			
Peer social support The tangible and intangible support felt, and resources provided by other students or peers who are in the same cohort or program as the M1 students.	Students have found a greater support from upperclassmen, such as in the Big/Little Sib program, who have already experienced what they are experiencing vs faculty and staff	"There's something about the fact that all of us experience it (academic burnout/burdens) and all of us are going through like the same thingin your circle are also going through the same thing makes it feel, um, just like less isolating."			
Personal and social factors Events that are not related to medical education that can affect or influence the onset and/or incidence of burnout in students.		"Marriage" "Financial hardships"			
School-sponsored resources The advisors, Academic and Career Advising Program mentors, financial and student services, learning specialists, longitudinal teacher coaches, and other resources and organizational support offered by UWSMPH.	Students have found a greater support from upperclassmen, such as in the [Big/Little Sib] program, who have already experienced what they are experiencing compared to faculty and staff.	"I've never gone to the learning specialists because in the past I've never found help from them." "I was expecting more support from student services and from meeting with the learning specialists, those conversations are all very standardized and very much, not very, very not helpful."			
Social withdrawal The tendency of students to isolate themselves from their peers socially by voluntarily decreasing their opportunities for interaction with peers.	Medical students tend to become more socially isolated and withdraw from their peers when experiencing burnout.	"I feel like I'm not as like open with other people, just like pull away from other med students."			

A indicated they were still searching for a mentor to help guide their medical education (Table 4).

In Part A, students typed their response to "What ONE resource would better address burnout in Phase 1?" Seventeen students responded to this open-ended question, with 7 of the 17 addressing a need for more mental health resources. See Box and Appendix for the unedited student responses.

Table 4. Student Responses to the Question "Please Select All That Apply to You" % Response n I am still looking to find a mentor at UWSMPH 19% 26 I was assigned a mentor at UWSMPH but have not yet connected with them 2% 3 I was assigned 1 or more mentors at UWSMPH but have not yet found one I can connect with 13% 17 I have found my own mentors while at UWSMPH 21% 29 27 I have a good relationship with 1 or more of my mentors that were assigned to me at UWSMPH 20% I have a good relationship with 1 or more of my mentors that I found on my own at UWSMPH 23% 31 I met with my UWSMPH assigned mentor this semester for the first time since becoming a 1% 2 **UW SMPH student** Other 0% 0 Abbreviation: UWSMPH, University of Wisconsin School of Medicine and Public Health.

Students were allowed to select as many options that applied toward their experience with mentorship during Phase 1.

Demographics

To protect anonymity of focus group partic-

ipants, demographic data were not associated with student emails or names. Demographics were collected for Part A. Seventeen students identified as male, 39 as female, 1 as nonbinary, and 2 did not disclose. Seventeen students identified as URiM, 37 did not, 3 did not disclose, and 2 selected "other." Seven students considered themselves as URiM based on gender identity and/or sexual orientation, 46 did not, 4 were unsure, and 2 did not disclose. Prior to matriculation, 35 students (59%) took gap years, 9 (15%) completed their undergraduate degree, 8 (14%) were in the workforce, 4 (7%) completed a graduate degree, 2 (3%) selected "other," and 1 (2%) did not disclose.

DISCUSSION

For the first year of the Phase 1 preclinical curriculum at UWSMPH, medical student burnout per block depended on many factors, including level of interest in unit material, curriculum content and requirements, preexisting burnout, mentoring experiences, access to mental health resources, and social, personal, and financial factors. During academic breaks, burnout appeared to be somewhat alleviated. However, the number of students who were burnt out at the beginning of each subsequent block increased, demonstrating a growth in students reporting burnout as they progressed through their medical education. This trend is seen between both surveys asking about timing of burnout per block.

According to student responses, mentorship was seen as a resource to possibly reduce the incidence of burnout. Respondents found that faculty who served as their Longitudinal Teacher Coaches (LTC) and other upperclassmen medical students ("big sibs") offered support and advice that delayed the onset of burnout. During focus groups, students indicated that big sibs were more accessible and relatable than other mentors because the big sibs had more recently gone through the same experiences. These common experiences may have facilitated relationships between the big and little sibs that decreased the effects of burnout. LTCs are a more present mentor in the students' lives compared to other mentors with whom students must schedule appointments. The Box. Student Responses to Additional Resources for Addressing Burnout

- Therapists
- Availability of mental health counseling
- More free practice questions or resources
- Fall break
- More support in the beginning of the year in learning how to study. I would have liked more support in learning how to use outside resources (eg, AMBOSS, Anki).
- Offering mental health resources before and during triggering content areas, including FFF's metabolism unit (resources on eating disorders, HAES training) and HFT's sexual development unit (resources on gender identity, LGBTQ+ centers).
- · A better schedule of projects- printed out for us so we know what to expect
- An additional SMA day and more access to absences
- Mental health service access

Abbreviations: FFF, Food, Fasting, Fitness; HFT, Human Family Tree: SMA, student managed absence day; UHS, University Health Services.

increased exposure to their LTCs creates an environment of regular and consistent feedback for students regarding their critical thinking and physical exam skills.

Dyrbye and Shanafelt reports that residents experienced less burnout when their attendings acknowledged their educational needs and autonomy.³ Focus groups highlighted this point by emphasizing their lack of time to interact with their mentors and a desire for mentors to frequently reach out to students. Emotional apathy is exacerbated in students when they feel responsible for finding help to address their emotional apathy and burnout. Student perceptions of faculty support tends to be positive for mentors who have a more constant presence and/or are more accessible in the student's academic career. As most students entering medical school denied being burnt out, better anticipating their needs with resources and additional mentorship opportunities with faculty and other students may help delay the onset of burnout or prevent its development.

Typically, a shift from a general ranking system to a pass/ fail curriculum alleviates the impact of burnout.⁶ UWSMPH's incoming class of 2021 was the first cohort to have a fully pass/fail preclinical curriculum without any ranking during the preclinical curriculum. However, only 61% of students responding to Part A of the survey reported no burnout within the first month of beginning medical school. Burnout continued to greatly affect students by progressively worsening over 18 months, suggesting that the rigor of medical education persists regardless of changes in grading policies. Treat et al explain how burnout continues to worsen throughout medical school, as indicated in the increased incidence of burnout in the M2 students evaluated in their study.5 By the end of the 18 months of Phase 1, UWSMPH students have completed a semester of M2 and exhibit a similar increase in burnout. The Phase 1 curriculum was felt to have the same rigor and expectations as previous cohorts that were assessed through class academic standings. Block leaders make improvements to their curriculum annually in response to student feedback; however, the overall block content and objectives remain constant. In addition, blocks that front load material increased student stress. Public health curriculum with project expectations and due dates, as well as expectations for quality improvement projects, also contributed to the onset of burnout as noted by focus groups and survey participants. Despite alleviating grading barriers, classmate competition, and the stress regarding mastering all the curriculum the first time learning it, students still experienced a high level of burnout in their preclinical curriculum.

There has been a shortage of mental health professionals nationwide,⁷ and medical schools are no exception to feeling the impact of this shortage. Respondents indicated a need for increased accessibility and availability of mental health resources and counselors. In addition, the fast-paced environment of medical education may promote student feelings of burnout due to lack of sufficient time to recuperate after exams and ongoing academic responsibilities. Time constraints and the lack of mental health resources were noted to exacerbate the development of burnout.

Limitations

Considering the nature of this study, student biases may be reflected in focus group and survey responses. Vulnerable comments and personal biases were elicited in each focus group and, per group polarization, certain statements could be made polarizing and more significant when discussed in a moment of relatability and high emotions. Students were susceptible to recall bias given that they were asked to reflect on their medical education from their first day to the day of their final exam of M2. Focus groups took place in May and June, 2022, and Part A of the survey was sent in July 2022, which was 11 months after the first day of medical school.

Further, given the cross-sectional nature of this study, with Parts A and B of the survey being sent 5 months apart, there is no guarantee that the same students who filled out Part A also filled out Part B. Parts A and B were distributed through a class-wide email chain to reach all students, and each response was anonymous with no measure to ensure continuity in survey responses. Additionally, our response rate may have been underestimated, because although the invitation to complete the surveys was sent to an email chain with every medical student in the cohort, we were not able to measure if all students opened the email.

Finally, there was no set definition of burnout used during this study. We allowed students to define burnout as it pertains to their unique experience; however, confounding personal factors that were not controlled can affect how each student determined their burnout.

CONCLUSIONS

Medical school adds a new set of responsibilities and challenges to matriculating medical students. Each student perceives burnout through their unique personal experiences and at differing rates. In our study, 19% of students reported they were burnt out prior to beginning medical school, indicating a need to implement earlier interventions to slow or eliminate the progression of their burnout. Students reported that burnout after matriculation stemmed from closely timed exams, required preclinical experiences, front-loaded course work, and other personal factors. Students advocated for mental health resources with increased accessibility to manage stressors that accelerated or caused their burnout. Mentorship elicited a positive response from students when regarding upperclassmen mentors and university-assigned mentors who meet with students almost twice weekly from the first week of medical school. The relatability and consistency of these mentors in their lives was key to alleviating their burdens given that students felt "emotional apathy" and burdened from the curriculum to the point that they were too burnt out to reach out to other mentors.

Burnout is a multifactorial entity whose burden is not resolved with a single solution. Despite the numerous measures implemented by medical institutions to decrease its burden, students continue to report high levels of burnout each year.⁸ With 19% of students who responded to Part A reporting that they were burnt out prior to beginning medical school, early identification of those students is essential to provide support and delay or prevent the progression of burnout. The unique nature of burnout results in a variable presentation across student populations at different institutions. Institutional measures should be taken to understand specific burdens students face from burnout to address them as soon as students matriculate.

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Appendices: Available at www.wmjonline.org.

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