

'I'm unworthy of being in this space'

Citation for published version (APA):

Bynum, W. E., Varpio, L., Lagoo, J., & Teunissen, P. W. (2021). 'I'm unworthy of being in this space': The origins of shame in medical students. *Medical Education*, 55(2), 185-197. <https://doi.org/10.1111/medu.14354>

Document status and date:

Published: 01/02/2021

DOI:

[10.1111/medu.14354](https://doi.org/10.1111/medu.14354)

Document Version:

Publisher's PDF, also known as Version of record

Document license:

Taverne

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

www.umlib.nl/taverne-license

Take down policy

If you believe that this document breaches copyright please contact us at:

repository@maastrichtuniversity.nl

providing details and we will investigate your claim.

TRAINEE WELL-BEING

'I'm unworthy of being in this space': The origins of shame in medical students

William E. Bynum IV¹   | Lara Varpio²  | Janaka Lagoo³ | Pim W. Teunissen⁴ 

¹Department of Family Medicine and Community Health, Duke University School of Medicine, Durham, NC, USA

²Department of Medicine, Uniformed Services University, Bethesda, MD, USA

³Duke Family Medicine Residency Program, Department of Family Medicine and Community Health, Duke University School of Medicine, Durham, NC, USA

⁴School of Health Professions Education, Maastricht University, Maastricht, The Netherlands

Correspondence

William E. Bynum, Department of Family Medicine and Community Health, Duke University School of Medicine, 2100 Erwin Rd, Durham, NC 27705, USA.
Email: william.e.bynum@duke.edu

Abstract

Objectives: Shame results from a negative global self-evaluation and can have devastating effects. Shame research has focused primarily on graduate medical education, yet medical students are also susceptible to its occurrence and negative effects. This study explores the development of shame in medical students by asking: how does shame originate in medical students? and what events trigger and factors influence the development of shame in medical students?

Methods: The study was conducted using hermeneutic phenomenology, which seeks to describe a phenomenon, convey its meaning and examine the contextual factors that influence it. Data were collected via a written reflection, semi-structured interview and debriefing session. It was analysed in accordance with Ajjawi and Higgs' six steps of hermeneutic analysis: immersion, understanding, abstraction, synthesis, illumination and integration.

Results: Data analysis yielded structural elements of students' shame experiences that were conceptualised through the metaphor of fire. Shame triggers were the specific events that sparked shame reactions, including interpersonal interactions (eg, receiving mistreatment) and learning (eg, low test scores). Shame promoters were the factors and characteristics that fuelled shame reactions, including those related to the individual (eg, underrepresentation), environment (eg, institutional expectations) and person-environment interaction (eg, comparisons to others). The authors present three illustrative narratives to depict how these elements can interact to lead to shame in medical students.

Conclusions: This qualitative examination of shame in medical students reveals complex, deep-seated aspects of medical students' emotional reactions as they navigate the learning environment. The authors posit that medical training environments may be combustible, or possessing inherent risk, for shame. Educators, leaders and institutions can mitigate this risk and contain damaging shame reactions by (a) instilling a true sense of belonging and inclusivity in medical learning environments, (b) facilitating growth mindsets in medical trainees and (c) eliminating intentional shaming in medical education.

The views expressed in this paper are those of the authors and do not reflect the official views or policies of the United States Government, Army, Air Force, Navy, or Department of Defense.

1 | INTRODUCTION

Shame, which has been called 'a master emotion because of its ubiquity in human experience'(P34),¹ can have devastating effects on individuals. Resulting from a global, negative evaluation of the self, shame can cause significant distress and promote avoidance, hiding, defensiveness and self-blame.² The modest body of research on experiences of shame in medical education has focused on graduate medical education,³⁻⁶ with studies showing that shame in residents can be a 'sentinel emotional event'⁶ that triggers negative outcomes, including psychological distress (eg, burnout), isolation, poor job performance, impaired empathy, unprofessional behaviour and disengagement from learning.^{5,6} However, shame experiences are not confined to residency training; medical students are likely susceptible to shame because they are exposed to many of the same shame triggers, including mistreatment,⁷ academic struggle and transition periods.^{8,9} Furthermore, medical students' position at the lower end of the medical hierarchy may expose them to situations and predispose them to self-evaluative tendencies that lead to shame reactions.^{10,11} Given the negative outcomes with which shame is associated, it is essential that we understand how medical students experience this emotion.

The notion of educational safety¹²—a term built upon psychological safety, or the degree to which an individual can engage at work without fearing negative consequences to their self-image or status¹³—further underscores the need to study shame in medical students. Tsuei et al recently proposed 'educational safety' as:

The subjective state of feeling freed from a sense of judgment by others such that learners can authentically and wholeheartedly concentrate on engaging with a learning task without a perceived need to self-monitor their projected image.

12(p.532)

Tsuei et al's data suggest that educational safety is related to the feeling of needing to display competency to others; is affected by the degree to which students feel compelled to continuously self-assess against others' expectations; and is facilitated when an individual feels less need to present a competent self-image.¹² Shame—which occurs when an individual assesses themselves to be deficient, incompetent and/or unworthy²—is intimately and inversely linked with the construct of educational safety. Due to its tendency to cause disengagement, isolation, psychological distress and fear of judgment,⁶ an individual experiencing shame is likely to perceive low levels of educational safety. Likewise, low levels of educational safety—which may negatively impact self-image and cause perceived judgment—are likely to increase the risk of shame.¹⁴ In settings of low educational safety and high amounts of shame, potentially profound downstream effects on learning, patient care and well-being may follow.^{12,14,15}

Thus, to facilitate educationally safe environments, ensure safe patient care in medical training and promote learner engagement and well-being, we must be attuned to the presence of shame

experiences and the forces that propagate them. However, little is known about how medical students experience shame and how these experiences develop. In this study, we sought to understand how shame reactions originate in this population, the events and factors that trigger them, and the factors that amplify and/or prolong them. We employed hermeneutic phenomenology to answer two questions: how does shame originate in medical students? and what events trigger and factors influence the development of shame in medical students?

2 | METHODS

2.1 | Hermeneutic phenomenology

Hermeneutic phenomenology is a qualitative methodology aimed at describing a phenomenon and conveying its underlying meaning within the context of lived experience.¹⁶ Hermeneutic phenomenology produces a rich description of the meaning of a phenomenon, conveyed through the 'structures of lived experience' that shape the phenomenon.¹⁷ We used hermeneutic phenomenology in our research because of its emphasis on individuals' experiences in their lived contexts; its ability to reveal hidden aspects of human experience¹⁸; and its requirement that researchers bring their own lived experience with the phenomenon into the analytic process.¹⁹ These characteristics are important to our investigation because shame is a contextually influenced emotion⁶ that is often deeply held and not openly shared nor easily understood. Furthermore, we cannot reliably bracket off our own shame experiences, which shape us as individuals and motivate us to engage in this program of research.

2.2 | Participant recruitment

We recruited 16 volunteer participants from a private medical school in the United States. The study was publicised as an exploration of students' experiences of shame, and we recruited participants via in-person announcements and email. We used purposive sampling to ensure an equal balance between pre-clinical students (8) and clinical students (8). After collecting data from these 16 participants, we decided that we had developed a deep understanding of students' shame experiences, and no further participants were enrolled.

2.3 | Reflexivity

WB, an academic family medicine physician, conducted the interviews, led all aspects of the research process, and has an active program of research investigating shame in medical education. Accordingly, he brought his own experiences of shame—experienced as a medical student, resident, attending physician and spouse—to

TABLE 1 The specific analytic activities occurring during the six stages of hermeneutic analysis in a 2019 qualitative analysis of medical students' experiences of shame

Stage	Activities
<p><i>Immersion</i></p> <p>Goal: engage with the texts to develop a preliminary interpretation, or 'sense', of the data</p>	<ul style="list-style-type: none"> • WB and LV first analysed four transcripts in immersive fashion, identifying first-order constructs or 'participants' ideas expressed in their own words.'^{17(p.624)} They discussed and further refined the first-order constructs. • JL and PWT then immersively read the four transcripts and considered the first-order constructs developed by WB and L.V within their own understanding of the data
<p><i>Understanding</i></p> <p>Goal: develop a progressively deeper understanding of the participant's experiences through their own words</p>	<ul style="list-style-type: none"> • The full group discussed the first-order constructs and resolved any confusion or differences in understanding. • This yielded a refined set of first-order constructs and a deeper understanding of the participants' shame experiences
<p><i>Abstraction</i></p> <p>Goal: expand upon participants' first-order constructs by incorporating researchers' own theoretical and personal knowledge</p>	<ul style="list-style-type: none"> • During group meetings, all team members integrated their own experiences with shame and knowledge of relevant theory to achieve abstraction and expand understanding. • This process of immersion, understanding and abstraction occurred in cyclical, iterative fashion until all of transcripts were analysed. • This process yielded second-order constructs, which took the form of the structures of medical students' lived experiences with shame
<p><i>Synthesis</i></p> <p>Goal: move backwards and forwards from the literature, data and earlier analysis to develop themes and identify meanings that participants could not or did not articulate</p>	<ul style="list-style-type: none"> • Over four additional meetings, the group engaged in synthesis of the entire dataset by analysing the relationship between the parts of the data (eg, the second-order constructs) and the whole (eg, the meaning of shame experiences in medical students). • This synthesis transformed the second-order constructs into a refined set of lived structures of experience. • For example, a 'shame trigger' is a structure of participants' lived experience of shame
<p><i>Illumination</i></p> <p>Goal: Reconstruct participants' own words and researchers' interpretations in order to 'illuminate the journey and highlight key findings from the data.'^{21(p.625)}</p>	<ul style="list-style-type: none"> • The group then examined these lived structures of experience and developed metaphors to understand and depict the relationships among them. • These metaphors served to (a) identify meanings and themes across the dataset that the participants 'could or did not articulate'²¹ and (b) go beyond describing the structures of students' experiences with shame to communicating the meaning of these experiences and how the structures interacted to derive this meaning. • For example, that shame arose from an interaction between the individual and their environment was a theme
<p><i>Integration</i></p> <p>Goal: test and refine the themes to create the final form of the analysis</p>	<ul style="list-style-type: none"> • With frequent input from the other researchers, WB engaged in cycles of writing and re-writing, plus graphic design, to further refine the themes and metaphors. • The entire group contributed to the creation of the final manuscript and graphics. • The final analysis yielded the metaphor of shame as fire and three illustrative narratives

the study. This sensitised WB to how the data from medical students aligned with and differed from his own experiences and data collected in residents,⁶ both of which informed this study's theoretical and conceptual analyses. JL is a family medicine resident whose shame experiences as a resident and medical student informed her perspectives on, and contributions to, the data analysis. PT is a gynaecologist and researcher in the field of medical education. He drew on his shame experiences as a medical student, resident, attending physician and spouse. LV is a PhD-trained qualitative researcher with over 10 years of experience in the field of medical education. LV is not a clinician and has not experienced shame as a care provider; however, she has experienced several shame experiences as a spouse, parent, friend and scholar that contributed to her perspectives on the data.

2.4 | Data collection

We engaged in a three-part data collection process individually with each participant. In a single, 2-hour data collection session, participants were first asked to compose a written reflection (Appendix S1). They were provided with a definition of shame from psychology and asked to write about a specific experience in medical school when they felt shame. Next, the interviewer (WB) read the reflection and engaged the participant in a one-hour, semi-structured interview that deeply explored aspects of their shame experiences. The interview guide (Appendix S2) was informed by the psychology of shame (particularly Tracy and Robins' theory of self-conscious emotion²⁰) and our previous research of shame

in residents.⁶ Finally, after the interview, WB led the participant through a debriefing period during which he assessed for the presence of emotional distress, provided resources for support (which included same-day or routine counselling if desired) and provided insights about, and appreciation for, the participant's contributions to the study.

2.5 | Data analysis

Interviews were transcribed verbatim, deidentified and—along with the written reflections—loaded into NVivo software (version 12.5; QSR International) to assist in data management and excerpt cross-retrieval. We analysed the data in accordance with the six stages of hermeneutic analysis as described by Ajjawi and Higgs.²¹ We have outlined our specific steps at each stage in Table 1.

Throughout this process, we maintained a detailed audit trail through coding notes (including visualisations and metaphors we developed to frame our evolving understandings of the data) and written minutes of research meetings. We adhered to the hermeneutic method and achieved reflexivity by openly discussing our reactions to the data, including our own past shame experiences. Because, according to hermeneutic philosopher Martin Heidegger, language shapes human consciousness and perception,²² we carefully attended to the language used by participants, including how they described themselves when feeling shame and the metaphors they used to explain these feelings. When combined with the expertise and understanding we developed in the first study,⁶ these foci facilitated an efficient and deep immersion into the data.

2.6 | Protecting participant anonymity

The idiosyncratic nature of our participants' shame experiences posed a unique challenge: how could we report our data to provide evidence of our findings while simultaneously protecting the anonymity of our participants? Presenting participants' unique stories or lengthy, verbatim data excerpts was not possible because sharing those data would render participants recognisable. Therefore, we constructed three illustrative narratives within which we integrated experiences and excerpts from multiple participants' data, simultaneously preserving their anonymity and accurately reporting the collected data.

After completing the manuscript, we sent participants the final draft of the paper and asked if we had correctly and truthfully presented elements of their shame experiences while also protecting their anonymity. Fifteen participants confirmed satisfactory anonymisation and accuracy, and one requested a minor suggestion that we adopted. The participating institution's institutional review board (reference # Pro00094234) approved this study.

3 | RESULTS

The shame experiences described by participants consisted of simultaneous, multi-layered interactions between the individual and their environment. In seeking the meaning of these interactions, we came to understand participants' shame experiences through the metaphor of fire. Like the potential impact of fire on a substrate, shame could profoundly affect our participants: most reported experiencing intense, insidious and/or deeply troublesome shame reactions that consisted of globally negative self-assessments. Students reported viewing themselves as 'no good' (P10), 'completely worthless' (P12), 'an inadequate medical student' (P15) feeling 'small' (P8, P11) and feeling 'stupid' (P6). The emotional experience of shame was often overwhelming:

I felt like I was drowning in this negative emotion that I didn't have a name for.

(P15)

We identified two broad structures of the origins of participants' lived experiences of shame: *shame triggers* and *shame promoters*.

3.1 | Shame triggers

Shame triggers, which we conceptualised as the sparks that initiated a fire, were the specific events, actions or incidents that precipitated shame reactions. In other words, participants reported that feelings of shame (ie, a sense of being globally flawed, deficient or unworthy) developed upon the occurrence of these events.

I couldn't shake the feeling of shame. I felt that this one event, an isolated moment in time...made me question so much about myself.

(P11)

Shame triggers reported by participants were primarily related to interactions with others and learning. Shame triggers related to interactions with others were broken into four categories: supervisor mistreatment (eg, derogatory comments, body shaming), peer mistreatment (eg, dismissive treatment, derogatory comments), revealing something personal about one's self to others (eg, revealing sexual identity, showing emotion) and challenging interactions with patients (eg, feeling like a burden, performing an examination on the wrong patient).

Shame triggers related to learning were broken into two categories: struggle with learning processes (eg, inability to keep up with the workload, undergoing remediation, struggling in front of a group) and assessment (low USMLE Step 1 score, earning non-honours clinical grades, receiving negative feedback). Illustrative quotes are provided in Table 2.

TABLE 2 A list of the shame triggers, defined as specific events that sparked shame reactions, identified in a 2019 qualitative analysis of medical students' experiences of shame

Shame triggers related to interpersonal interactions	
<p><i>Supervisor mistreatment:</i> shame triggered by mistreatment from a supervisor or person in a hierarchically superior position. Specific types reported include:</p> <ul style="list-style-type: none"> • Being ignored & treated differently • Body shaming • Pimping • Poor Mentorship • Sexual harassment • Derogatory communication from supervisors <ul style="list-style-type: none"> • Demeaning comments about MS-I status • Sexism, microaggressions • Belittling comments about knowledge base • Harsh communication from scrub nurse • Harsh communication from a resident • Belittling comments re. primary care track 	<p>'If they're pimping you, and you don't know this question, it's like "oh, you should feel shameful because all doctors know that question.'" (P5)</p> <p>The scrub nurse and PA said that being short was going to be a physical limitation for me, for my career in the future. I just was like, 'Shoot.' I had never thought about that. The way they spoke of it was almost like a disability, and I felt a lot of shame for that. (P9)</p> <p>'At the time [of being ignored], I was so frustrated. Because you just are like, "am I not worthy of acknowledgement? That feeling that I just wasn't worthy of his time or attention. Feeling small and insignificant.'" (P16)</p>
<p><i>Peer mistreatment:</i> shame triggered by mistreatment from a peer. Reported types include:</p> <ul style="list-style-type: none"> • Dismissive treatment by a peer • Derogatory communication from peers <ul style="list-style-type: none"> • Derogatory remarks about rival state school • Biting remark about missed 'easy' question • Unsupportive posture following an error • Belittling comments about specialty choice • Personal insults 	<p>'I had one instance in particular [where I told a colleague], "Oh I'm interested in primary care" and they said, "Oh why, because it's easy?" That's something that always made me feel the most ashamed, [especially] when it was my close friends.'" (P13)</p> <p>'And there were a bunch of [fellow students] in the room, and they were blatantly talking about the inferiority of [their rival state school where I went] as an institution and as a state school.' (P3)</p>
<p><i>Revealing one's self to others:</i> shame triggered by the act of revealing something personal about one's self. Reported types include:</p> <ul style="list-style-type: none"> • Revealing sexual identity • Showing emotion • Admitting a learning struggle to peers • Unable to reveal mental illness • Struggling with social interactions 	<p>'I put myself out on a limb and said "Yeah, I have a girlfriend." It was about the experience of being gay and coming here. And I just felt I wanted to say it, and yet I felt incredibly ashamed the second that I said it.' (P4)</p> <p>'But going through that process and getting to a diagnosis of a generalized anxiety disorder left me feeling very flawed and like I didn't want anyone to know that I was dealing with that.' (P3)</p>
<p><i>Interactions with patients:</i> shame triggered from an interaction with a patient. Reported types include:</p> <ul style="list-style-type: none"> • Feeling like a burden to patients • Being overly focused on own education • Performing a sensitive task on wrong patient 	<p>'I'm feeling bad. Because all I can think about is myself. And all I can think about is my grade. And the grades, I shouldn't care. It's not about the grade.' (P12)</p> <p>'You're getting in the way of patient care, which is the whole reason that you should be there, right? That feels horrible. I would be in the hallway of the hospital and I would see the translator and I would feel like the translator was looking at me and being like, you're speaking shitty Spanish to the patient.' (P12)</p> <p>'I explained that I had been conducting a sexual history. My resident gasped and said "You took it on her!?! That's the wrong patient!" ... I felt so stupid, as though my actions were confirming the words of the little voice inside my head that's always told me I'm not quite good enough.' (P11)</p>
Shame triggers related to learning	
<p><i>Learning process</i></p> <ul style="list-style-type: none"> • Recognising ineffective study methods • Unable to keep up with workload • Lack of dedication to coursework • Receiving negative feedback • Remediation • Presentation struggle in front of a group • Revealing a knowledge deficit 	<p>'It's just constant shame – probably it's every day – where it's like you're constantly not performing or don't have the knowledge that you're supposed to have.' (P5)</p> <p>'This was my first inpatient rotation. I was struggling to adjust to the much longer hours. I remembered nothing about pediatric diseases. (Were we even taught them?) I struggled to find information in [the EMR]...and consequently my presentations were terrible. So naturally, I jumped straight to "I am terrible.'" (P15)</p> <p>'Walking into the exam to take it again I was incredibly ashamed, worried someone would see me walking towards the anatomy lab, deduce I was going back after anatomy had ended because I was doing a retake, and judge me differently.' (P9)</p>

(Continues)

TABLE 2 (Continued)

<p>Assessment</p> <ul style="list-style-type: none"> • MCAT score below class avg • Struggling with Step 1, shelf test preparation • USMLE Step 1 score • Low test scores • Failed test • Non-honours clinical grades • Receiving negative feedback 	<p>'I would answer a question, for example—a practice question—and I'd get it wrong, and I'd think to myself, essentially, "You're no good. You should know this stuff by now."' (P10)</p> <p>'I'm below average on this specific test, and it's so easy to slip back into that shame. "This makes me a worse person. I'm just never gonna be good at this. I'm just not as good of a person because of this."' (P15)</p> <p>'My MCAT score really played with my feelings of shame coming in here, because I knew I was well below [this institution's] average.' (P3)</p>
--	---

3.2 | Shame promoters

Shame promoters, which we conceptualised as fire propellants, increased the risk of developing a shame reaction or amplified the intensity or duration of an already triggered shame reaction. For example, one participant reflected about how shame triggered by disclosing personal information was fuelled by institutional expectations:

[This institution] is an incredible collection of people who want to support me so long as I'm able to perform at a certain level and act a certain way. [Sometimes] I just immediately start to feel like if there's a certain element of my identity that is present with me in the room and if I allude to it or if I disclose it, I'm doing something wrong. I am bad.

(P4)

Our analysis yielded three types of shame promoters. *Intrapersonal* shame promoters were primarily connected to the individual and included underrepresentation, performance-based self-esteem, perfectionism, fixed mindsets and imposter syndrome. *Environmental* shame promoters were primarily connected to the surroundings and included psychologically unsafe environments, institutional expectations and the rigours of medical training. *Interactive* shame promoters arose from the interaction between the individual and their environment and included comparisons to others, fear of judgment, shifting identity and impaired belonging. A list of definitions and illustrative quotes is provided in Table 3.

3.3 | How shame triggers and promoters interact in a shame reaction

Reducing a complex phenomenon like shame into discrete elements is an inherently artificial process. Within the lived experience of our participants, the elements above (eg, the individual, environment, triggers and promoters) interacted in a complex, amalgamised and unique fashion to lead to shame. To convey the essence of our participants' experiences, we created three illustrative narratives wherein we have included aspects of the specific shame experiences shared by our research participants. These narratives do not depict

all of the shame triggers or promoters that we identified (Tables 1 and 2); instead, they illustrate *how* specific elements can interact to lead to shame.

3.3.1 | Narrative #1: Underrepresentation, imposter syndrome, and shame

From day 1 of medical school, Monique has questioned whether she belongs. As an African American, Monique wonders if she was admitted to meet a quota or via a special system for minority students. Her state college background and below-the-school-average MCAT score have entrenched this concern. As a first-generation college student, she also feels the weight of family expectations. Accordingly, Monique feels intense pressure to perform at a high level to prove that she belongs. She is painfully aware that the majority of students in her class came from prestigious schools and seem smarter than her. Competing against them seems futile. When Monique scores well below the class average on her first test, these doubts become deep-seated self-beliefs: she is convinced that she is not smart enough, that her admission was a mistake, that she does not belong at this prestigious school, and that she should disenroll. She feels shame. She isolates herself and withdraws from social interactions with classmates and optional school-related events.

Monique's shame experience is triggered by academic underperformance. However, the origins of Monique's shame experiences are fuelled by numerous intrapersonal, environmental and interactive factors (ie, shame promoters). Underrepresentation is a central contributor to Monique's shame. Her background as an African-American and first-generation college student from a small state university has ratcheted up the pressure to prove herself worthy of admission to medical school. A participant from an underrepresented background similarly recounted:

At each step along the way, you need to prove to other people that you are good. I came from a really

TABLE 3 The shame promoters, defined as the factors and characteristics that fuelled shame reactions, identified in a 2019 qualitative analysis of medical students' experiences of shame, with definitions and exemplary quotes

Intrapersonal shame promoters: factors and characteristics predominately connected to the individual that contributed to shame reactions	
<p><i>Underrepresentation</i> The demographic, socio-economic and background characteristics unique to an individual, including their race/ethnicity, sexual orientation, gender identity, educational and socio-economic background and specialty choice</p>	<p>'Unfortunately, I do have some internalized shame around internalized transphobia, especially when it comes to feelings about my body. I think that's a hard thing.' (P6)</p> <p>'I was kind of an atypical person in that I was from the Midwest and from a state school background, and no one in my family is a physician. So, I struggle internally with the tension of not feeling like I identify with [this institution] but being here.' (P3)</p>
<p><i>Performance-based self-esteem</i> A type of self-esteem in which an individual's self-worth is contingent upon his/her sense of accomplishment and perceived level of performance^{37,38}</p>	<p>'I place a lot of self-worth [on tests] as a medical student because I think it's an easy, stable place for me to have good self-worth.' (P1)</p> <p>'[All of us who] got to medical school have been in a place where, for most of our lives, grades have been a positive reinforcement. And we're getting to that point where that's how people define themselves and their self-worth.' (P12)</p>
<p><i>Perfectionism</i> High (often unreachable) standards of success, often coupled with the need to be the best</p>	<p>'Anything less than perfection was just not good enough.' (P7)</p> <p>'I still often instinctively feel the shame of being wrong (essentially, being imperfect).' (P6)</p>
<p><i>Fixed mindsets</i> A motivational tendency characterised by the belief that one's intellectual abilities are limited and unchangeable³⁶</p>	<p>'It's the moment that I find myself being like, "I can't do this any better," the shame comes. I'm already in this fixed mindset, and that leads to shame.' (P15)</p> <p>'I think it's easier to feel shame when you feel like it's harder to fix, when it's just like you're not good enough; that's it; there's nothing you can do to get better or perform at the level of your peers.' (P1)</p>
<p><i>Imposter syndrome</i> A belief of being less competent than others perceive, associated with chronic feelings of self-doubt and fear of being discovered as an intellectual fraud^{46,47}</p>	<p>'Am I good enough? What if someone figures me out? Why did I get admitted here?' (P5)</p> <p>'I knew I had failed. And I was just thinking, "Man, this is it. They're gonna find out. They're gonna figure it out. I wasn't supposed to be here."' (P9)</p>
Environmental shame promoters: factors and characteristics predominately connected to the surroundings that contributed to shame reactions	
<p><i>Psychologically unsafe environments</i> Environments in which students do not feel safe taking risks, speaking up, engaging with uncomfortable learning processes or revealing their authentic selves¹⁴</p>	<p>'During my first time on wards (maybe 2 weeks into my first year of med school), I asked my preceptor about aspiration. I had never heard the term before. A group of attendings walked by that then started laughing and saying that we must be first years. I think it was meant light-heartedly but it was really jarring at the time and made me feel more shame associated with my lack of knowledge, especially because I felt like my deficiency was seen and reinforced by potential superiors. It also made me more afraid to ask questions like that for a while.' (P3)</p>
<p><i>Institutional expectations</i> The perceived standards expressed, either implicitly or explicitly, to students about their expected performance</p>	<p>'I feel shame creep in when I think about things I might want to be that don't seem to fit what [this institution] is trying to make. Like if I think, maybe I don't want to be a researcher. But then, no, [this institution] wants you to be a researcher.' (P3)</p> <p>'[This institution] is an incredible collection of people who want to support me so long as I'm able to perform at a certain level and act a certain way. At any moment, [I could take] a wrong step, and I would just imagine a giant dustpan coming out of the ceiling and just sweeping me into a pan.' (P4)</p> <p>'People during orientation or lecturers would always say, "You're the best and the brightest in the nation"... because [this institution] is so high achieving and world class. So that's how I guess I measured my self-worth, based on [this institution's] worth.' (P8)</p>
<p><i>The rigours of medical training</i> The challenging nature and requirements of medical training, for which many participants were not prepared</p>	<p>'Everything seemed to be moving too fast, everyone around me seemed to be moving ahead faster than I was, and I felt that I would be forever inferior to my peers.' (P10)</p> <p>'I was so stressed out, and I felt like I was being left behind. [My classmates] were racing forward, and I was just kind of stuck in a hole. I started crying when we got back to the classroom, because I was like, "Oh my gosh I don't think I should have gotten into this med school."' (P2)</p>
Interactive shame promoters: factors and characteristics that arose through the interaction between the individual and the environment	

(Continues)

TABLE 3 (Continued)

<p><i>Comparisons to others</i> The act of self-evaluating based upon a comparison to another person</p>	<p>'In comparison to almost all my classmates that I was working with or near at that time, I felt that I was inferior.' (P10) 'A lot of [my shame] is comparing myself to the rest of my class and we have such an amazing class full of really, really intelligent people.' (P11) "That guy is superstar," and I feel terrible. I am definitely not good enough compared to that guy.' (P13)</p>
<p><i>Fear of judgment</i> Concerns over being judged harshly by others, often coupled with efforts to maintain others' impressions and perceptions</p>	<p>'The way that I am perceived within my class, like how I fit into that group is very important to me. How my classmates see me, do they respect me, do they think that I'm smart, capable?' (P16) 'I felt like having your peers see you or being judged against you, would have also amplified the [shame] effect.' (P15)</p>
<p><i>Shifting identity</i> Changes in self-image and sources of self-worth that occur after entering and assimilating to a new environment</p>	<p>'It just seems to matter a lot more if you fail because [medical school] feels like all we have. It gets much easier to fail. If I'm doing ten things, I'm good at ten things, and I fail at one, it's not the end of the world. I have nine other things to keep me busy and to give me self-validation.' (P1) 'As a medical student you are focusing so heavily on your personal identity or professional identity. So personal identity a lot of times falls to the wayside.' (P13)</p>
<p><i>Impaired belonging</i> Feeling isolated or a sense of not belonging in the learning environment, often coupled with a loss of support</p>	<p>'I felt like so distant from everyone, and I'm really good at reaching out when I need help and using my resources and I just felt like I had none, like I had no one to really relate to.' (P14) 'I think when you feel like you're not doing as well as everybody else, you feel like an outsider. And that, like again, that's more isolation and more "I'm unworthy of being in this space," kind of that feeling, you know.' (P8)</p>

low-income family – I'm the first-generation college student. I had a long way to go.

(P15)

Multiple participants reported forms of underrepresentation as contributing to their shame experiences, including being a racial/ethnic minority, being queer/lesbian, being transgender, completing undergraduate studies at a public university, coming from a low socio-economic demographic and growing up in a certain region of the country.

Upon arriving to medical school, Monique encounters an environment in which she perceives others as smarter than her, and she struggles to find people with similar backgrounds to hers, deepening her questions of belonging, feelings of self-doubt and unwillingness to express herself. Monique's shame reaction ignites when she scores well below average on the first test, a trend that continues throughout the first semester. Her shame feelings are further inflamed by comparing to other students and the weight of being an underrepresented student, tendencies similarly articulated by other participants:

When I started to compare myself, then I was like, "Oh, man, I'm not doing as well as I should be." And that's where the most intense feeling of shame came from.

(P8)

Further exacerbating Monique's sense of impaired belonging and accompanying shame were the loss of supportive relationships and connection with the communities with which she was affiliated prior

to medical school. An African-American participant similarly reflected on the tendency for impaired belonging and shame to seep into multiple areas of his life:

Often have I felt shameful for being too "uppity" for friends back home and too "stupid" for my friends here. It's a difficult feeling to balance.

(P5)

In summary, Monique's shame was triggered by arriving to medical school and making a below-average test score. Her shame was promoted by phenomena related to underrepresentation, imposter syndrome, institutional expectations, the rigours of medical training, impaired belonging and comparisons to others.

3.3.2 | Narrative #2: Performance-based self-esteem, fixed mindsets, objective assessment, and shame

John is preparing for the USMLE Step 1 exam, and he feels intense pressure to make a top score. From a young age, John was bullied and struggled socially; he has come to rely on academic performance for self-worth. Furthermore, from his earliest days in medical school, the importance of achieving a high Step 1 score has been emphasized by seemingly everyone, and the high average score for students at his school is well publicized. While everyone around

him seems to be preparing with ease, John is struggling. His first three practice tests are well below the school's average, and he fears letting the school and his family down. Worse, John has always been viewed by his classmates as “super smart”, an image he's worked hard to maintain and that brings him self-worth. He feels that image slipping away, and he wonders how others will see him, how he'll know himself, and what kind of residency program will accept him if he doesn't ace this test. He is anxious, despondent, down on himself, and feeling like a fraud. He feels shame. This, plus the fear of having to reveal his struggle, causes him to isolate himself, overwork himself, and feel depressed and burned out.

John's shame is triggered by difficulty preparing for the USMLE Step 1 examination. The origins of his shame lie in his sources of self-worth, need to manage others' impressions of him and comparisons to other students—all shame promoters. The high value that John places on being seen as smart—and the degree to which his self-worth relies on feeling intelligent—indicates the presence of performance-based self-esteem, a tendency that some participants ascribed to early educational experiences:

[All of us who] got to medical school have been in a place where, for most of our lives, grades have been a positive reinforcement. And we're getting to that point where that's how people define themselves and their self-worth

(P12)

To maintain his self-esteem, John feels pressure to continue scoring well on tests and to manage the impressions that others have of him, namely that they see him as clever and capable. To know himself as a top student, and to project this image to classmates, John feels compelled to frequently compare himself against and outperform them. Numerous participants reported similar competitive pressures stemming from a need to bolster self-worth, but they also acknowledged that the need to feel superior drove feelings of shame:

[Medical school] is super competitive. “Oh, what was your score?” [Asking this] is something I have a tendency to do...but it doesn't make me feel good. Either I feel bad about myself 'cause I got a half point less than somebody, or I feel bad about myself for being happy that I did better than somebody else on a test.

(P6)

When John encounters significant struggle preparing for USMLE Step 1, each of these shame promoters fuel a major shame reaction. John perceives that everyone around him is preparing with ease, and he has deep concerns over how he'll be viewed in the midst of his struggle. Amplifying his shame are the institution's expectations about

USMLE Step 1 performance and the heavy influence the test has on his future career plans. Multiple participants reported intense pressure to achieve a high score on Step 1, the sources of which included advisory deans, prior classes of students and the oft-publicised school average. This caused one participant to describe the test as ‘the great equalizer [that] makes or breaks you as an imposter or a good residency applicant’ (P14).

John also believes that his struggle with Step 1 reveals a hidden truth: that he does not possess the ability to perform well on the test and that nothing he can do will change that. Evidence of this fixed mindset was present in other participants who recounted feeling like ‘a slow processor’ (P3), ‘never going to get better’ (P4) and ‘not having the background to [be successful]’ (P10). Fixed mindsets appeared to deepen the belief that a shame trigger (eg, low performance) was due to an inherent, unchangeable deficiency of the self:

It seems like [Step 1] is gonna be the be-all and end-all. Therefore, if I'm not good at it, then I can never be a doctor. I'm just not good enough if I can't pass those tests well.

(P15)

To summarise, John's shame was triggered by his low practice scores and struggle to prepare for USMLE Step 1. His shame was promoted by phenomena related to performance-based self-esteem, fear of judgment, institutional expectations, comparisons to others and a fixed mindset.

3.3.3 | Narrative #3: Mistreatment, shifting identity, and shame

Peyton is on a clinical rotation and is being mistreated by one of the residents who blatantly ignores her and treats her differently than the other students. The resident is rude to her, does not provide any teaching, and does not include her in patient care activities. Peyton wonders what is wrong with her to warrant this treatment. She worries about her abilities and personality, even wondering if she may be autistic or deeply socially inept. She feels worthless around this resident, like she doesn't belong in this learning environment or specialty, which she is interested in pursuing. She feels shame. Furthermore, Peyton needs a good evaluation in order to get into her desired residency. She feels like she is competing with the other students and wants to be liked, so she is investing a tremendous amount of time trying to win the resident over instead of focusing on her patients and education. This is at odds with the person she was when she arrived to medical school. Recognizing this identity shift compounds her distress and shame.

Peyton's shame is sparked by mistreatment from a supervisor—a shame trigger reported by multiple participants—and fuelled by a psychologically unsafe environment, high personal expectations of success and the high-stakes nature of assessment on her current rotation. In fact, because Peyton is seeking a competitive residency, and because the first year is pass/fail, she believes that anything less than honours on a clinical rotation is a failure. Further, because Peyton has always been well liked, she attaches a great deal of self-worth to her ability to interact with those around her. This intense desire to receive a good evaluation and be liked by the resident, which come at the expense of her relationships with patients, creates tension between the way Peyton views herself now (ie, as overly concerned with her own education and grades) and the way Peyton viewed herself upon entering medical school (ie, as desiring to prioritise the patient above all else). Multiple participants reported similar identity shifts as promoting their shame experiences, including one who felt that 'you have to completely change yourself for someone else, for the better of the patient' (P9).

Peyton's experience is one of numerous types of shame-catalysing mistreatment reported by participants, including body shaming, microaggressions, 'pimping',²³ unnecessarily harsh communication and disparaging comments about knowledge base, level of training or chosen career path. Participants also reported shame-triggering mistreatment from peers, which took the form of belittlement about their specialty choice or their undergraduate institution; critiques of their work ethic; questions about their intellect after struggling on a test; or criticisms about personal life choices (eg, personal relationships).

In summary, Peyton's shame was triggered by supervisor mistreatment and disconnection with patients. Her shame was promoted by phenomena related to a psychologically unsafe environment, impaired belonging, perfectionism, comparisons to others and a shifting identity.

4 | DISCUSSION

In this study, we examined the origins of medical students' experiences of shame during medical school. To our knowledge, this is the first phenomenological study of shame in medical students, and our findings highlight how shame can develop as students enter into and engage with challenging learning environments. In particular, the data reveal that multiple forces, often embedded in both the individual and the environment, interact to give rise to shame reactions. Many of these forces have been well-described in medical education, including learner mistreatment,^{24,25} imposter syndrome,^{26,27} underrepresentation in medicine,^{28,29} fixed mindsets^{30,31} and the outsize role of standardised testing,^{32,33} while others have received relatively less attention, including shifting personal identity and performance-based self-esteem. What is currently unknown—and what our findings help illuminate—are the deeply held *emotional reactions* that may grow from, and be sustained by, these forces.

The metaphor of fire, developed throughout our analysis processes, helped us understand the complexity and meaning of the origins of participants' shame reactions. Through this metaphor, we came to conceptualise the medical school experience as being combustible and primed for the development of shame. In other words, for many medical learners, navigating the medical school environment appears to incur substantial—but not inevitable—risk of experiencing shame.

Our data strongly suggest that factors from the environment contribute to this risk and the development of medical students' shame. Mistreatment, a potent and common shame trigger in both our participants and residents,⁴⁻⁶ is one such environmental factor. The harassment, body shaming, pimping, derogatory treatment and overly harsh responses to academic struggle that our participants reported are unfortunately common in medical education^{24,34,35} and appear to unnecessarily increase the risk of shame in the learning environment. What our study emphasises—and what we believe is significantly underrecognised—is the overwhelming emotional impact this treatment can have on medical learners. Indeed, many of our participants experienced significant and prolonged shame upon being mistreated by others, sometimes under the guise of pedagogical strategy (eg, pimping) and often at the hands of supervisors with significant power or influence over them.

Shame in medical students appears to be influenced by more than just the nature of the environment. In our study, numerous participants reported shame reactions triggered by events considered *normal and expected* in the course of learning medicine, such as being wrong, struggling in public and receiving negative feedback. The tendency for these events to cause shame appeared to be influenced by personal characteristics such as the presence of fixed mindsets and performance-based self-esteem. Fixed (ie, entity) mindsets, defined as the belief that intellectual ability is fixed and unchangeable,³⁶ appeared to increase the risk of shame (eg, 'I'll never be smart enough do this; therefore, I'm stupid'), and shame reactions appeared to entrench fixed mindsets (eg, 'I'm stupid; therefore, I'll never be smart enough to do this'). For many participants, the presence of a fixed mindset turned a normal learning struggle into proof of global unworthiness or deficiency (ie, shame). Performance-based self-esteem, defined as a type of self-esteem in which an individual's self-worth is contingent upon their sense of accomplishment and perceived level of performance,^{37,38} also amplified shame related to normal learning events in our study. Research has shown that the blurred lines between observation, assessment and performance can drive anxiety, imposterism and self-doubt.^{27,39} Our data reiterate these findings and suggest that shame be added to the list.

Characteristics such as performance-based self-esteem and fixed mindsets can theoretically be modified to reduce the risk of shame (see below). However, we also identified *non-modifiable* factors that participants reported as contributing to their shame, including race/ethnicity, sexual orientation, gender identity, religious beliefs, hometown and academic pedigree. Importantly, it was not simply the presence of these demographic factors that precipitated

participants' shame. Rather, their shame was often triggered and sustained through interactions with an environment in which these demographic factors were underrepresented. For many of our participants from underrepresented backgrounds, simply walking into medical school on interview day or the first day of classes precipitated significant shame feelings and questions of belonging. Once enrolled, loss of protective sources of self-worth (eg, social networks, hobbies and proximity to home), pressure to assimilate to new cultural norms and the need to prove one's worthiness to be in medical school amplified existing shame or helped to trigger it anew.

Finally, we found that assessment—including both standardised and non-standardised testing—exerted substantial influence on our participants' shame experiences. Not only did objective assessment provide a clear measuring stick for peer-to-peer comparisons, but numerous participants interpreted lapses in objective performance as definitive proof of their perceived unworthiness, lack of belonging and imposter syndrome. While objective assessment was an infrequent shame trigger in the recent study on residents, the *transition* from objective to subjective assessment—defined by the relative *lack* of a measuring stick—was the greater contributor to resident shame, especially when they relied on overly harsh self-assessments in the place of objective markers.⁶ It is thus possible that relying on objective performance measures to assess self-worth in medical school presages emotional distress in residency when self-worth remains contingent on performance but objective measures disappear.

4.1 | Addressing and mitigating the risk of shame in medical school

The presence of shame combustibility and unrecognised learner shame is a direct threat to the educational safety we strive to instil in our learning environments. To dampen the risk of shame, support students experiencing shame and enhance educational safety, we suggest (a) ensuring true inclusivity and promoting authentic self-expression in our learning environments, (b) facilitating growth mindsets and encouraging rehearsal, not performance, in our students and (c) eliminating mistreatment and intentional shaming in our institutions.

Given our finding that underrepresentation can promote shame, we believe, like others,⁴⁰ that despite efforts to recruit increasingly diverse students into medical school, we may be failing to create environments that promote true belonging, inclusion and authentic self-expression. To reduce the risk of shame and promote shame resilience, particularly for students from underrepresented backgrounds, we should elevate self-expression and *personal* identity formation to the same level of importance that we ascribe to the internalisation of professional standards (ie, *professional* identity formation).⁴¹ Specific initiatives to nurture personal identity formation could include providing outlets for students to authentically express and integrate aspects of their cultural and personal identities within the learning environment; creating safe, supportive spaces for students to share their emotional experiences; faculty training on implicit bias,⁴² allyship⁴³ and anti-racism⁴⁴ to optimise the learning environment and support students

confronted with shame triggers such as microaggressions and overt racism; and ensuring the presence of mentors who can relate to and support the experiences of underrepresented students.⁴⁵ While these efforts may focus on underrepresented students, they should extend to all members of the institution.

Establishing growth mindsets³⁶ and reframing learning as *rehearsal*, not performance, are two strategies to reduce the risk of shame in the midst of expected academic struggle. Research indicates that individuals' mindsets about their inherent capabilities can be changed, at least temporarily.³⁶ Educators can facilitate growth mindsets by helping learners maintain realistic expectations, reframing academic struggle as a growth opportunity, establishing psychological safety in the learning environment and identifying and addressing underlying shame. Furthermore, by encouraging learners to rehearse—rather than perform—we grant them permission to explore, struggle and fail, simultaneously emphasising the learning value inherent in this struggle.

Assuming that our shared goal in medical education is to produce competent, engaged, empathic and resilient physicians, shame-inducing mistreatment—especially that levied intentionally—has *no place* in our education system and must be eliminated. Complicating the eradication of these behaviours, however, is the degree to which many of the shame triggers and promoters we identified may be embedded in the culture of medicine and medical education, including mistreatment, harsh teaching tactics, lack of inclusivity, high levels of competition, excessive reliance on objective measures of performance, perfectionism and low emphasis on personal identity formation. Alongside efforts to eliminate treatment intended to shame, we should consider and explore the potential existence of a shame culture in medicine.

4.2 | Limitations

In this study, we have generated a rich description of how shame can originate in medical students, which we have shown to be highly individual- and context-specific. Accordingly, the findings from this single-institution study of 16 participants are not a complete representation of how shame can occur among medical students and cannot be generalised to all medical learning environments. It is possible that participants withheld their most intense shame experiences, including those occurring outside of the hospital, and that key aspects of the phenomenon of shame in medical school remain beneath the surface. Further research is needed to characterise the shame experiences of medical students from diverse contexts and backgrounds.

5 | CONCLUSION

In this study, we explored the origins of medical students' experiences of shame and conceptualised shame reactions through the metaphor of fire. Within a complex interaction among the individual and the environment, we identified triggers that sparked shame reactions and promoters that fuelled them. We also identified a significant level of risk for experiencing shame in medical

school, which we believe can be mitigated by promoting inclusion and belonging in our learning environments, facilitating growth mindsets in our learners, eliminating intentional shaming from our institutions and examining for shame ingrained in our culture. Importantly, the complexity of students' shame reactions precludes the development of simple, one-sized-fits-all solutions that fully eliminate the risk of shame. In fact, because it is a normal human emotion, complete elimination of the risk of shame should not—and likely cannot—be our goal. We should instead strive to identify the sources of this risk, eliminate those that are unnecessary and support learners in fully and authentically engaging with those that remain.

ACKNOWLEDGEMENTS

None.

CONFLICT OF INTEREST

No competing interests to report.

AUTHOR CONTRIBUTIONS

Will Bynum conceptualized the study, led all aspects of the study and wrote the original draft of the paper and coordinated multiple subsequent revisions. He approved the final draft and agrees to be accountable for all aspects of the work. Lara Varpio conceptualized the study, participated in in-depth data analysis, made substantial edits to multiple drafts, and approved the final draft. She agrees to be accountable for all aspects of the work. Janaka Lagoo participated in in-depth data analysis, made substantial edits to multiple drafts, and approved the final draft. She agrees to be accountable for all aspects of the work. Pim Teunissen conceptualized the study, participated in in-depth data analysis, made substantial edits to multiple drafts, and approved the final draft. She agrees to be accountable for all aspects of the work.

ETHICAL APPROVAL

None.

ORCID

William E. Bynum  <https://orcid.org/0000-0003-3796-9301>

Lara Varpio  <https://orcid.org/0000-0002-1412-4341>

Pim W. Teunissen  <https://orcid.org/0000-0002-0930-0048>

TWITTER

William E. Bynum  @WillBynumMD

REFERENCES

- Scheff TJ. Shame as the master emotion. In: Jewett R, Alloway WJ, Lacey JG, eds. *The Shame Factor*. Eugene, OR: Wipf and Stock Publishers; 2011:30-39.
- Kim S, Thibodeau R, Jorgensen RS. Shame, guilt, and depressive symptoms: a meta-analytic review. *Psychol Bull*. 2011;137(1):68-96.
- Shapiro MC, Rao SR, Dean J, Salama AR. What a shame: increased rates of OMS resident burnout may be related to the frequency of shamed events during training. *J Oral Maxillofac Surg*. 2016;75(3):449-457.
- Boehm KS, McGuire C, Boudreau C, et al. The shame-blame game: is it still necessary? A national survey of shame-based teaching practice in Canadian plastic surgery programs. *Plast Reconstr Surg Glob Open*. 2019;7(2):e2152.
- McMains KC, Peel J, Weitzel EK, Der-Torossian H, Couch M. Perception of shame in otolaryngology-head and neck surgery training. *Otolaryngol Head Neck Surg*. 2015;153(5):786-790.
- Bynum WE, Artino AR Jr, Uijtdehaage S, Webb AMB, Varpio L. Sentinel emotional events: the nature, triggers, and effects of shame experiences in medical residents. *Acad Med*. 2019;94(1):85-93.
- Cook AF, Arora VM, Rasinski KA, Curlin FA, Yoon JD. The prevalence of medical student mistreatment and its association with burnout. *Acad Med*. 2014;89(5):749-754.
- Radcliffe C, Lester H. Perceived stress during undergraduate medical training: a qualitative study. *Med Educ*. 2003;37(1):32-38.
- Kay D, Berry A, Coles NA. What experiences in medical school trigger professional identity development? *Teach Learn Med*. 2019;31(1):17-25.
- Krugman RD, Jones MD Jr, Lowenstein SR. Can we learn civility? Reflections on the challenge of changing culture. *Acad Med*. 2014;89(2):1586-1588.
- Glaser J, Pfeffinger A, Quan J, Fernandez A. Medical students' perceptions of and responses to health care disparities during clinical clerkships. *Acad Med*. 2019;94(8):1190-1196.
- Tsuei SH, Lee D, Ho C, Regehr G, Nimmon L. Exploring the construct of psychological safety in medical education. *Acad Med*. 2019;94(11S):S28-S35.
- Kahn WA. Psychological conditions of personal engagement and disengagement at work. *Acad Manag J*. 1990;33(4):692-724.
- Bynum WE, Haque TM. Risky business: psychological safety and the risks of learning medicine. *J Grad Med Educ*. 2016;8(5):780-782.
- Appelbaum NP, Dow A, Mazmanian PE, Jundt DK, Appelbaum EN. The effects of power, leadership and psychological safety on resident event reporting. *Med Educ*. 2016;50(3):343-350.
- Crist JD, Tanner CA. Interpretation/analysis methods in hermeneutic interpretive phenomenology. *Nurs Res*. 2003;52(3):202-205.
- van Manen M. *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy*, 2nd ed. London, Canada: The Athlouse Press; 1997.
- Lopez KA, Willis DG. Descriptive versus interpretive phenomenology: their contributions to nursing knowledge. *Qual Health Res*. 2004;14(5):726-735.
- Heidegger M. *Being and Time*. New York, NY: Harper and Row; 1962.
- Tracy JL, Robins RW. Putting the self into self-conscious emotions: a theoretical model. *Psychol Inq*. 2004;15(2):103-125.
- Ajjawi R, Higgs J. Using hermeneutic phenomenology to investigate how experienced practitioners learn to communicate clinical reasoning. *Qual Rep*. 2007;12(4):612-638.
- Leitch VB. Martin Heidegger (1889–1976). In: Cain WE, Finke LA, Johnson BE, McGowan J, Williams JJ, eds. *The Norton Anthology of Theory and Criticism*, 1st ed. New York, NY: W.W. Norton & Company, Inc.; 2001:1118-1134.
- Kost A, Chen FM. Socrates was not a pimp: changing the paradigm of questioning in medical education. *Acad Med*. 2015;90(1):20-24.
- Hu Y-Y, Ellis RJ, Hewitt DB, et al. Discrimination, abuse, harassment, and burnout in surgical residency training. *N Engl J Med*. 2019;381(18):1741-1752.
- Fried JM, Vermillion M, Parker NH, Uijtdehaage S. Eradicating medical student mistreatment: a longitudinal study of one institution's efforts. *Acad Med*. 2012;87(9):1191-1198.
- Gottlieb M, Chung A, Battaglioli N, Sebok-Syer SS, Kalantari A. Impostor syndrome among physicians and physicians in training: a scoping review. *Med Educ*. 2020;54(2):116-124.

27. LaDonna KA, Ginsburg S, Watling C. "Rising to the level of your incompetence": what physicians' self-assessments of their performance reveals about the imposter syndrome in medicine. *Acad Med*. 2018;93(5):763-768.
28. Guevara JP, Adanga E, Avakame E, Carthon MB. Minority faculty development programs and underrepresented minority faculty representation at US medical schools. *JAMA*. 2013;310(21):2297-2304.
29. Association of American Medical Colleges. Diversity in Medical Education: Facts & Figures. 2019. <http://www.aamcdiversityfactsandfigures2016.org/report-section/section-3/>. Accessed July 2, 2020
30. Cook DA, Artino AR Jr. Motivation to learn: an overview of contemporary theories. *Med Educ*. 2016;50(10):997-1014.
31. Osman NY, Sloane DE, Hirsh DA. When I say ... growth mindset. *Med Educ*. 2020;54(8):694-695.
32. Chen DR, Priest KC, Batten JN, Fragoso LE, Reinfeldt BI, Laitman BM. Student perspectives on the "Step 1 climate" in preclinical medical education. *Acad Med*. 2019;94(3):302-304.
33. Ten Cate O, Regehr G. The power of subjectivity in the assessment of medical trainees. *Acad Med*. 2019;94(3):333-337.
34. Rees CE, Monrouxe LV. "A morning since eight of just pure grill": a multischool qualitative study of student abuse. *Acad Med*. 2011;86(11):1374-1382.
35. Cook AF, Arora VM, Rasinski KA, Curlin FA, Yoon JD. The prevalence of medical student mistreatment and its association with burnout. *Acad Med*. 2014;89:749-754.
36. Yeager DS, Dweck CS. Mindsets that promote resilience: when students believe that personal characteristics can be developed. *Educ Psychol*. 2012;47(4):302-314.
37. Hallsten L, Josephson M, Torgen M. *Performance-Based Self-Esteem: A Driving Force in Burnout Processes and its Assessment*. Stockholm: National Institute for Working Life; 2005.
38. Crocker J, Wolfe CT. Contingencies of self-worth. *Psychol Rev*. 2001;108(3):593-623.
39. LaDonna KA, Hatala R, Lingard L, Voyer S, Watling C. Staging a performance: learners' perceptions about direct observation during residency. *Med Educ*. 2017;51(5):498-510.
40. Hung R, McClendon J, Henderson A, Evans Y, Colquitt R, Saha S. Student perspectives on diversity and the cultural climate at a U.S. medical school. *Acad Med*. 2007;82(2):184-192.
41. Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. A schematic representation of the professional identity formation and socialization of medical students and residents: a guide for medical educators. *Acad Med*. 2015;90(6):718-725.
42. Sukhera J, Watling C. A Framework for integrating implicit bias recognition into health professions education. *Acad Med*. 2018;93(1):35-40.
43. Wu D, Saint-Hilaire L, Pineda A, et al. The efficacy of an anti-oppression curriculum for health professionals. *Fam Med*. 2019;51(1):22-30.
44. Ahmad NJ, Shi M. The need for anti-racism training in medical school curricula. *Acad Med*. 2017;92(8):1073.
45. Mahoney MR, Wilson E, Odom KL, Flowers L, Adler SR. Minority faculty voices on diversity in academic medicine: perspectives from one school. *Acad Med*. 2008;83(8):781-786.
46. Legassie J, Zibrowski EM, Goldszmidt MA. Measuring resident well-being: impostorism and burnout syndrome in residency. *J Gen Intern Med*. 2008;23(7):1090-1094.
47. Villwock JA, Sobin LB, Koester LA, Harris TM. Impostor syndrome and burnout among American medical students: a pilot study. *Int J Med Educ*. 2016;7:364-369.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

How to cite this article: Bynum WE IV, Varpio L, Lagoo J, Teunissen PW. 'I'm unworthy of being in this space': The origins of shame in medical students. *Med Educ*. 2021;55: 185-197. <https://doi.org/10.1111/medu.14354>