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Original Research

Assessing Medical Student Fear and Shame as Barriers to Active Participation on the Wards

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Purpose: Imposter syndrome is common among medical trainees, who have been shown to experience self-doubt and burnout at alarming rates. Trainees also experience anxiety and fear about asking and answering questions on their clinical rotations, which may affect engagement and ability to learn. This study seeks to characterize fear and shame that fourth year medical students have felt during their time on clinical rotations, as well as the effect that this has had on their willingness to participate in clinical discussions. **Method**: The authors sent a survey to all fourth-year medical students at a US medical school. Survey questions included assessment of experiencing fear and anxiety while being asked questions during ward rounds. Students completed the survey using a web link to 10 questions on a 5-point Likert scale. **Results**: 58 students completed the questionnaire. Fifty one (87.9%) of the students responded they experienced stress or anxiety when an attending physician asked them questions at least sometimes. Forty five (77.6%) experienced fear when questioned on rounds. Fourty four (75.9%) did not answer questions for fear of being wrong and exposing lack of knowledge. Thirty five (60.3%) experienced shame when questioned on rounds. Over 50% reported they were afraid to answer questions in specialties they were interested in. Most cited specialties that caused fear were Internal Medicine, Emergency Medicine, Surgery, and Obstetrics and Gynecology. **Conclusions**: Though attempts are being made to improve the clinical learning environment and reduce the effects of imposter syndrome and anxiety in medical education, fear still plays a role in medical students' minds when choosing to ask or answer questions on the wards. Larger studies are needed to further look at the prevalence of this phenomenon and efforts should continue to be made to mitigate fear on the wards.

INTRODUCTION

Imposter syndrome is a term that describes the internalized feelings of self-doubt and not belonging in a particular group that a person may experience despite objective successes and accomplishments. Individuals experiencing this will feel that they have achieved their role or status by accident instead of by merit, causing them to feel like a fraud. It was first described in 1978 among a population of high-achieving women who were thought to be subject to sex stereotypes that made them feel that they were less intelligent than their professional accomplishments would suggest.[1] Since then, imposter syndrome has been studied extensively in a number of different populations and cultures. A systematic review in 2020 summarized the findings of 62 peer-reviewed studies of imposter syndrome and found it to be common among both men and women and many ethnic groups. However, some studies showed that it is more prevalent among women, minorities, and younger people.[2]

Specifically, imposter syndrome has been documented and is known to be prevalent among the medical community, and in particular among trainees. A study at a US medical school demonstrated that almost a quarter of male medical students and half of female medical students experienced imposter syndrome, and that this condition was significantly associated with burnout components of exhaustion, cynicism, and depersonalization.[3] Another study of third-year medical students found that many strongly identified with experiencing fear of failure and remembering failures more than successes.[4] Even though the high prevalence of imposter syndrome is well-documented, a common misconception among medical trainees is that it is an internal problem that others are not experiencing rather than a systemic problem.[5] Therefore, further evaluation of this problem and assessment of effective solutions is essential to improving the mental health of future trainees.

Aside from feelings of imposterism, there are a number of things that limit medical students' ability to participate to their fullest potential on rotations that are much less well documented. Medical professors and clinical preceptors have found anecdotally that medical students, interns and residents across the country are less likely to engage in their education due to fear of negative consequences. These

Table 1. Demographics

	Survey Respondents (n=58)	National Medical Students*
Gender		
Female	32 (55.2%)	53.6%
Male	23 (39.7%)	46.2%
Transgender	0 (0.0%)	-
Non-binary	3 (5.2%)	-
Race/Ethnicity		
White	30 (53.6%)	53.4%
Asian	16 (28.6%)	24.9%
Hispanic or Latinx	5 (8.9%)	12.0%
Black or African American	4 (7.1%)	9.5%
Native Hawaiian or Pacific Islander	1 (1.8%)	0.4%
American Indian or Alaska Native	0 (0.0%)	1.1%
Sexual Orientation		
Heterosexual	49 (84.5%)	-
Homosexual	4 (6.9%)	-
Bisexual	3 (5.2%)	-
Other (asexual, pansexual, etc.)	2 (3.5%)	-

* AAMC demographic data for medical students who matriculated in 2020. Respondents could report more than one race/ethnicity. Gender options included male and female, those who declined to report not included. Sexual orientation not reported. National data from https://www.aamc.org/media/49911/download?attachment.

repercussions may include poor evaluations, lower grades or less positive letters of recommendations. Unfortunately, there is virtually no published research about how fear of these consequences affects medical student learning.

The lack of reporting on this topic is highly concerning because barriers to asking and answering questions on the patient care wards could significantly impede learning. Even if there is no true punishment for incorrectly answering questions, the perception of such is enough for students to be less engaged in their clinical education and not reach their full potential as clinicians. The aim of this study is to determine if and how fear of repercussions drove behaviors on the wards in rising and graduating 4th year students at an MD school in the United States. This study may be of importance as we work to improve the learning environment in medical education in the United States.

METHODS

We sent an email survey to all 288 fourth-year medical students at a US medical school. A consent statement was included in the original body of the email. The study was reviewed and approved by the Lifespan Institutional Review Board.

The survey was administered using a SurveyMonkey link and included ten questions with 5-point Likert scale options (Table 1). There was an additional yes-or-no question asking if the student was more afraid to answer questions when rotating on a specialty in which they were interested. Finally, we asked an open-response question was asked about the rotations where a student felt the most fear or anxiety. Demographic information was also collected.

RESULTS

Of the 288 students who received the survey by email, 58 responded with demographic data (gender, race, sexual orientation) for these participants shown in Table 1 alongside national medical student demographics. Full survey results are shown in Table 2. Nearly 80% (45) of respondents said that they at least sometimes experienced fear while being questioned on ward rounds, and 60% (35) experienced shame. Almost 90% (51) experienced anxiety when an attending asked them questions, with more than half (34) experiencing this often or every day.

Over one third (24, 41%) said that they avoided responding to questions on rounds sometimes, often, or everyday due to fear that being wrong would affect their possible letter of recommendation. Over two thirds (40, 69%) avoided responding at least sometimes because they were concerned that their clinical evaluations would be affected. More than a quarter worried that saying something wrong on rounds would affect their ability to obtain a desirable residency spot.

A large majority of students (44, over 75%) have at least sometimes refrained from answering questions on rounds because they were afraid of being wrong or being exposed for their lack of knowledge. Almost half reported at least sometimes feeling like they were not good or deserving enough based on questions asked of them on rounds. More than 10% (6) had been told that another student was better than them by a resident or faculty member.

Over half (30, 51.7%) of respondents said that they were more afraid to answer questions when they were interested in the specialty of their current rotation. The most cited subspecialties that caused the fear were Internal Medicine, Emergency Medicine, Surgery, and Obstetrics and Gynecology.

Some of the individual comments reflected fear and anxiety related to particular team members rather than the rotation itself. “Fear and anxiety were more related to who the attending was rather than which rotation I was on. The attending really sets the tone for the team dynamics and how the medical student is treated. Once I asked a senior resident if she knew the answer to a question that I found fascinating when I was asked to answer it by an attend-

Table 2. Survey Responses

No.	Questions	Never	Rarely	Sometimes	Often	Everyday
1	Have you experienced fear when being questioned on rounds with a team on a clinical ward month?	2 (3.5%)	11 (19.0%)	26 (44.8%)	16 (27.6%)	3 (5.2%)
2	Have you experienced shame when being questioned on rounds with a team on a clinical ward month?	8 (13.8%)	15 (25.9%)	25 (43.1%)	9 (15.5%)	1 (1.7%)
3	Have you not answered questions on rounds for fear of being wrong and it affect your evaluation?	8 (13.8%)	10 (17.2%)	28 (48.3%)	9 (15.5%)	3 (5.2%)
4	Have you not answered questions on rounds for fear of being wrong and it affect your possible letter of recommendation?	17 (29.3%)	17 (29.3%)	17 (29.3%)	6 (10.3%)	1 (1.7%)
5	Have you not answered questions on rounds for fear of being wrong because it exposed your lack of knowledge?	7 (12.1%)	7 (12.1%)	23 (39.7%)	17 (29.3%)	4 (6.9%)
6	Have you not answered questions on rounds for fear of being wrong and it affect your ability to obtain a desirable residency spot?	31 (53.4%)	10 (17.2%)	12 (20.7%)	5 (8.6%)	0 (0.0%)
7	Have you ever been afraid to ask a question for fear of exposing your lack of knowledge? Did your concerns include affecting your evaluation or residency spot?	14 (24.1%)	16 (27.6%)	19 (32.8%)	8 (13.8%)	1 (1.7%)
8	Have you ever felt like you weren't good enough/deserving to be on rounds based on questions asked on rounds?	17 (29.3%)	15 (25.9%)	22 (37.9%)	3 (5.17%)	1 (1.7%)
9	Have you ever been told that a student was better than you by a resident of faculty member?	45 (79.0%)	6 (10.5%)	5 (8.8%)	0 (0%)	1 (1.7%)
10	Have you ever felt stress or anxiety when an attending was asking you questions?	2 (3.5%)	5 (8.6%)	17 (29.3%)	24 (41.4%)	10 (17.2%)

ing on a different but related rotation. When I asked, she looked insulted and said, 'I will not get pimped by a medical student'. I was genuinely asking because it was interesting and wanted to share it with her, but her reaction made me realize that the point of 'pimping' for many of my colleagues is to impose hierarchy rather than to share knowledge."

Others mentioned, "I found rounds during my Cardiology Elective to be more anxiety-inducing, because I did not feel as certain about my understanding of the pathophysiology, and because the attendings were a little franker in their feedback." Even though feedback was informally discussed among team members, this affected students' fear and anxiety. "Residents/attendings frequently told me what they thought of other students, even when it was very negative."

DISCUSSION

The results of this survey are concerning and warrant further investigation into the topic of fear and shame among medical students in the clinical learning environment. Survey data demonstrated that most medical students experience shame and fear on the wards, and that almost all students feel anxiety when attendings ask them questions during rounds, with some students feeling this way on a large proportion of days. This fear affected their willingness to answer questions, which was compounded with their concerns about letters of recommendation and residency prospects. This effect tended to be worse on rotations in the student's desired specialty but was also often related to the specific team and attending rather than the specialty itself.

Given that students noted worse fear and shame with particular teams or attendings, the manner and perceived intention of questioning could play a role in students' emotional reactions. Prior studies have evaluated the history and importance of questioning learners to understand their current knowledge. Specifically, the practice of "pimping" (asking questions with the intent of showing the learner's lack of knowledge) should be separated from the act of purposeful questioning that has the explicit goal of teaching and promoting critical thinking.[6] One potential next step based on these findings would be to establish best practices

for clinical questioning as a method of teaching and educate those in leadership roles.

There is substantial existing literature supporting the idea that medical students have poorer mental health than their peers, leading to impaired academic performance, substance use, and in some cases self-harm and suicide.[7] These mental health consequences include rates of clinical depression as high as 25%, peaking around the midpoint of their medical school career.[7–9] A study of medical students in Australia found that rates of psychological distress increased throughout the first clinical year and showed a negative relationship between degree of distress and academic performance. That study also found that "fear of negative feedback" and "fear of making mistakes" were two of the most commonly cited stressors for medical students.[10]

The present study is particularly novel due to its focus on experiences of fear or shame in particular clinical settings, which is a phenomenon that is distinct from imposter syndrome or general feelings of incompetence. Imposter syndrome describes the feeling of not belonging in a professional setting and not feeling as capable as one's peers, and is widely studied and is more common among women, those with low self-esteem, and those at institutions with certain cultural features.[11] Several studies have shown that the issue of imposter syndrome does not end with medical training and affects attendings in various specialties (women more than men), and has negative effects on career trajectory.[12] However, these prior studies did not focus on fear and shame in the clinical setting and did not assess the conditions or clinical activities that led to those feelings.

While it is important to document and address the prevalence of imposter syndrome among medical trainees, a key next step in improving the clinical learning environment for medical students is assessing how they are made to feel in educational settings, which is the aim of the present study. Previous studies tended to focus on the clinical activities rather than the workplace culture that led to that anxiety.[13] One study from Finland used reflective writing to capture clinical medical students' experiences navigating uncertainty as part of their professional development.[14] While this does not address the core concepts of fear and shame that were the focus of this study, it represents an interesting and compelling methodology to study and address the feelings of students.

More work needs to be done to ensure that students feel welcomed during their clinical training. Questioning of students by attendings on rounds should be done with the primary goal of assessing and augmenting their knowledge for the purpose of teaching. Changes should be made so that students do not feel afraid to answer questions in their field of interest, but rather invited into that field and supported in their desire to learn more. As noted by one of the surveyed students, the resident and attending leadership on the clinical team can "set the tone for team dynamics" and establish how learners will be treated and how mistakes and questions will be received. In future studies, specific information can be solicited regarding the behaviors and attitudes of preceptors that made students more likely to feel engaged and able to ask questions. It is particularly surprising that a significant number of students were directly compared to specific peers by preceptors, and the prevalence of this behavior is an area of future investigation.

There are several characteristics of this study that may have led to bias in its findings. First, the sample size was small, and the survey was distributed near the end of the academic year when many of the graduating students were getting ready for residency. Demographics were representative of students across the country, but there may have been inclusion bias with students more interested in learning environment improvement responding. These findings show that there is at least cause for concern and should be replicated using a larger sample with a multicenter distribution.

While this study shows that fear and shame are common feelings that affect medical students and impact their behavior on the wards, it does not assess the magnitude of these effects on students' learning. Future research should explore the perceived effects of these experiences on a student's ability to achieve their full potential as clinicians. It is also important that additional research will investigate the prevalence and effect of these experiences on female students and those from other backgrounds under-represented in medicine, since these students may experience real and perceived biases that decrease their self-worth and harm their professional identity.

CONCLUSIONS

Though attempts are being made to reduce the prevalence of imposter syndrome, anxiety, and depression in medical education, fear and shame still play a role in students minds when choosing to ask or answer questions on the wards. This may have a negative effect on their learning ability and even eventual competency if they are not able to appropriately participate in their education. To effectively promote diversity, equity, justice and inclusion within academic medicine, the phenomenon of fear and shame among medical trainees should be recognized, acknowledged, and confronted on both individual and systemic levels. This will hopefully lead to improved recruitment of diverse candidates and better support for them once they arrive. Larger studies are needed to further look at the prevalence of this phenomenon and its causes in order to inform effort to mitigate the effect of fear on the wards.

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